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If you have sold or transferred all your shares in **Shenzhen Investment Holdings Bay Area Development Company Limited**, you should at once hand this circular to the purchaser(s) or the transferee(s) or to the bank, licensed securities dealer or registered institution in securities, or other agent through whom the sale or transfer was effected, for transmission to the purchaser(s) or the transferee(s).

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**Shenzhen Investment Holdings Bay Area
Development Company Limited**

深圳投控灣區發展有限公司

(incorporated in the Cayman Islands with limited liability)

Stock Codes: 737 (HKD counter) and 80737 (RMB counter)

**CONNECTED AND MAJOR TRANSACTION
CAPITAL CONTRIBUTION TO GSZ COMPANY**

Unless the context otherwise requires, all capitalised terms used in this circular shall have the meanings as set out in the section headed “Definitions” of this circular.

A letter from the Board containing details of the Capital Increase Agreement is set out on pages 5 to 22 of this circular.

The Company has obtained written Shareholders’ approval for the Capital Increase Agreement and the transactions contemplated thereunder pursuant to Rule 14.44 of the Listing Rules from the relevant Shareholder who holds more than 50% of the total issued Shares having the right to attend and vote at a general meeting. Accordingly, no Shareholders’ meeting will be held to approve the Capital Increase Agreement and the transactions contemplated thereunder pursuant to Rule 14.44 of the Listing Rules.

This circular is being despatched to the Shareholders for information only.

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DEFINITIONS

In this Circular, unless the context specifies otherwise, the following expressions shall have the meanings stated below:

“A Share(s)”	RMB denominated ordinary shares listed on the Shanghai Stock Exchange or Shenzhen Stock Exchange in the PRC
“Approved Road Section”	The Guangzhou Huocun to Dongguan Chang’an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway* (京港澳高速公路廣州火村至東莞長安段及廣佛高速公路廣州黃村至火村段), starting from Huangcun Interchange of Guangzhou-Foshan Expressway connected with the Northern Ring Section of Guangzhou Ring Road and ending on the Dongbao River Bridge located at the junction of Dongguan and Shenzhen of the Beijing-Hong Kong-Macao Expressway, with a total length of approximately 71.13 km
“Approved Road Section R&E Project”	the reconstruction and expansion project of the Approved Road Section approved by the Guangdong Provincial Development and Reform Commission on 22 August 2023
“Board”	the board of Directors
“Capital Contribution”	Hopewell China Development and Guangdong Highway Construction agreed to contribute, by way of registered capital, RMB3,285 million and RMB4,015 million, respectively, to GSZ Company under the Capital Increase Agreement
“Capital Increase Agreement”	the capital increase agreement regarding the Capital Contribution to GSZ Company entered into between Hopewell China Development and Guangdong Highway Construction on 24 January 2025
“Coastal Company”	Shenzhen Guangshen Coastal Expressway Investment Company Limited* (深圳市廣深沿江高速公路投資有限公司), a company incorporated in the PRC with limited liability, the equity interest of which is currently held as to 51% and 49% by the Company and Shenzhen Expressway respectively
“Coastal Expressway (Shenzhen Section)”	the Shenzhen section of Guangshen Coastal Expressway

DEFINITIONS

“Company”	Shenzhen Investment Holdings Bay Area Development Company Limited (深圳投控灣區發展有限公司), a subsidiary of Shenzhen Expressway held as approximately 71.83% and a company incorporated in the Cayman Islands with limited liability, the shares of which are listed on the main board of the Stock Exchange (stock codes: 00737 (HKD Counter) and 80737 (RMB Counter))
“Completion of the Capital Contribution Matters”	(i) the Capital Increase Agreement become effective; and (ii) in accordance with the provisions of the prevailing Foreign Investment Law of the People’s Republic of China (《中華人民共和國外商投資法》) and the Company Law of the People’s Republic of China (《中華人民共和國公司法》), GSZ Company amends its organisational forms and structures, and GSZ Company’s New Articles of Association obtains all necessary consents from relevant government or regulatory agencies, and completes the registration or filing of amendment to GSZ Company’s registered capital, shareholder structure and other relevant registration procedures with relevant government agencies in China (if applicable)
“Director(s)”	the director(s) of the Company
“Greater Bay Area”	Guangdong-Hong Kong-Macao Greater Bay Area
“Group”	the Company and its subsidiaries
“GSZ Company”	Guangzhou-Shenzhen-Zhuhai Superhighway Company Limited (廣深珠高速公路有限公司), a joint venture enterprise established by the Group and Guangdong Highway Construction in the PRC and a deemed subsidiary of the Company when fulfilling certain agreed obligations or responsibilities under the Listing Rules in terms of the listing agreement entered between the Company and the Stock Exchange on 7 August 2003, but its accounts are not consolidated into the financial statements of the Group
“Guangzhou-Shenzhen Section of Beijing-Hong Kong-Macao Expressway”	the Guangzhou-Shenzhen section of G4 Beijing-Hong Kong-Macao Expressway, which starts from Huangcun Interchange in Guangzhou in the north, ends at Huanggang Port in Shenzhen in the south with a total length of 122.8 km

DEFINITIONS

“Guangdong Highway Construction”	Guangdong Provincial Highway Construction Company Limited* (廣東省公路建設有限公司), a company established in the PRC with limited liability and a non wholly-owned subsidiary of Guangdong Provincial Communication Group Company Limited* (廣東省交通集團有限公司), being a state-owned enterprise established in the PRC
“Hopewell China Development”	Hopewell China Development (Superhighway) Limited (合和中國發展(高速公路)有限公司), a company established in Hong Kong with limited liability and an indirect non wholly-owned subsidiary of the Company
“Independent Third Parties”	third parties independent of and not being connected persons of the Company or its subsidiaries
“km”	kilometre(s)
“Latest Practicable Date”	24 February 2025, being the latest practicable date prior to the printing of this circular for ascertaining certain information contained in this Circular
“Listing Rules”	the Rules Governing the Listing of Securities on the Stock Exchange
“Model Code”	the Model Code for Securities Transactions by Directors of Listed Issuers contained in Appendix C3 to the Listing Rules
“PCU/day” or “PCU/d”	the annual average daily passenger car unit value. The passenger car unit value is the traffic volume of various motor vehicles and non-motor vehicles converted into the equivalent passenger car unit value according to certain conversion factors
“Pengxin Appraisal”	Shenzhen Pengxin Appraisal Limited* (深圳市鵬信資產評估土地房地產估價有限公司), an independent institution established in the PRC with the qualifications for assets valuation
“PRC” or “China”	the People’s Republic of China
“RMB”	Renminbi, the lawful currency of the PRC
“SFO”	the Securities and Futures Ordinance (Chapter 571 of the Laws of Hong Kong)

DEFINITIONS

“Share(s)”	ordinary share(s) of HK\$0.10 each in the share capital of the Company
“Shareholder(s)”	holder(s) of the Share(s)
“Shenzhen Expressway”	Shenzhen Expressway Corporation Limited, a subsidiary of Shenzhen International held as to approximately 51.56%, and a joint stock limited company incorporated in the PRC with limited liability, the H shares of which are listed on the main board of the Stock Exchange (stock code: 00548) and the A Shares of which are listed on the Shanghai Stock Exchange (stock code: 600548)
“Shenzhen International”	Shenzhen International Holdings Limited, a company incorporated in Bermuda with limited liability, the shares of which are listed on the main board of the Stock Exchange (stock code: 00152)
“SIIC”	Shenzhen Investment International Capital Holdings Infrastructure Co., Ltd. (深圳投控國際資本控股基建有限公司), a limited company incorporated in the British Virgin Islands, which is an indirect wholly-owned subsidiary of Shenzhen Expressway
“Stock Exchange”	The Stock Exchange of Hong Kong Limited
“substantial shareholder(s)”	has the meaning ascribed to it under the Listing Rules
“Traffic Consultant”	Shenzhen Urban Transport Planning Center Co., Ltd.* (深圳市城市交通規劃設計研究中心股份有限公司), an independent qualified traffic consultant in the PRC
“Traffic Study Report”	the traffic study report in relation to the traffic volume forecast and toll revenue assessment of the Approved Road Section R&E Project issued by the Traffic Consultant
“Valuation Consultancy Report”	the valuation consultancy report on the concession operation right for the Approved Road Section R&E Project issued by Pengxin Appraisal on 14 October 2024
“%”	per cent

* For identification purpose only

LETTER FROM THE BOARD

**Shenzhen Investment Holdings Bay Area
Development Company Limited**

深圳投控灣區發展有限公司

(incorporated in the Cayman Islands with limited liability)

Stock Codes: 737 (HKD counter) and 80737 (RMB counter)

Executive Directors:

Mr. Xiangwen LIAO* (廖湘文) (*Chairman*)
Mr. Jianming WU* (吳建明) (*Executive General Manager*)
Mr. Cheng WU* (吳成) (*Deputy General Manager*)
Mr. Ji LIU* (劉繼)
(*Deputy General Manager and secretary to the Board*)

Registered office:

P.O. Box 309
Ugland House
Grand Cayman
KY1-1104
Cayman Islands

Non-executive Directors:

Ms. Siyan CHEN* (陳思燕)
Mr. Xuan WANG* (王軒)

**Head office and principal place
of business:**

Rooms 4902–4916, 49th Floor
Sun Hung Kai Centre
30 Harbour Road
Wanchai, Hong Kong

Independent Non-executive Directors:

Mr. Yu Lung CHING
Mr. Tony Chung Nin KAN *SBS, JP*
Mr. Peng XUE* (薛鵬)

28 February 2025

To the Shareholders

Dear Sir or Madam,

**CONNECTED AND MAJOR TRANSACTION
CAPITAL CONTRIBUTION TO GSZ COMPANY**

1. INTRODUCTION

Reference is made to the joint announcement of Shenzhen International, Shenzhen Expressway and the Company dated 24 January 2025 in relation to, among other things, the entering into the Capital Increase Agreement. The purpose of this circular is to provide you with, among other things, (i) further details of the Capital Increase Agreement and the transactions contemplated thereunder; (ii) Valuation Consultancy Report; (iii) Traffic Study Report; and (iv) general information as required to be disclosed under the Listing Rules.

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2. BACKGROUND

Having experienced rapid traffic growth since its official opening to traffic in 1997, the Guangzhou-Shenzhen Section of Beijing-Hong Kong-Macao Expressway has now nearly reached its full capacity, resulting in an urgent need for reconstruction and expansion. The reconstruction and expansion project for the Guangzhou-Shenzhen Section of Beijing-Hong Kong-Macao Expressway will be carried out in two segments: namely the Approved Road Section R&E Project and the reconstruction and expansion project for the Shenzhen section of the Beijing-Hong Kong-Macao Expressway.

Reference is made to the joint voluntary announcement of Shenzhen International, Shenzhen Expressway and the Company dated 30 October 2023 in relation to the Approved Road Section R&E Project having received the approval issued by Guangdong Provincial Development and Reform Commission (“**DRC Approval**”) on 22 August 2023, with GSZ Company being responsible for its investment and construction.

To meet the funding needs of the Approved Road Section R&E Project, the shareholders of GSZ Company (namely Hopewell China Development (currently entitled to 45% of the profit-sharing interest in GSZ Company) and Guangdong Highway Construction (currently entitled to 55% of the profit-sharing interest in GSZ Company)) entered into the Capital Increase Agreement on 24 January 2025, pursuant to which, Hopewell China Development and Guangdong Highway Construction agreed to contribute, by way of registered capital, RMB3,285 million and RMB4,015 million, respectively, to GSZ Company (a deemed subsidiary of the Company). Upon Completion of the Capital Contribution Matters, Hopewell China Development and Guangdong Highway Construction will hold 45% and 55% equity interests in GSZ Company, respectively.

3. THE CAPITAL INCREASE AGREEMENT

The principal terms of the Capital Increase Agreement are set out as follows:

Date: 24 January 2025

Parties: Hopewell China Development (a non wholly-owned subsidiary of the Company); and Guangdong Highway Construction

Capital Contribution Amount: Hopewell China Development and Guangdong Highway Construction agreed to contribute, by way of registered capital, RMB3,285 million and RMB4,015 million, respectively, to GSZ Company. Upon Completion of the Capital Contribution Matters, the registered capital of GSZ Company will be RMB7,300 million.

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- Shareholding Percentage:** Upon Completion of the Capital Contribution Matters, Hopewell China Development and Guangdong Highway Construction will hold 45% and 55% equity interests in GSZ Company respectively.
- Capital Contribution Method:** Hopewell China Development shall contribute in cash denominated in RMB or an equivalent amount in foreign currency, and Guangdong Highway Construction shall contribute in cash denominated in RMB. Upon mutual agreement between Hopewell China Development and Guangdong Highway Construction, the Capital Contribution may also be made through their respective share of dividends payable to shareholders by GSZ Company.
- Capital Contribution Timing:** During the construction period of the Approved Road Section R&E Project, Hopewell China Development and Guangdong Highway Construction shall contribute the capital to GSZ Company in phases, according to the work progress and annual funding needs of the Approved Road Section R&E Project, and based on the amounts and timing as notified by GSZ Company at its shareholders' meetings from time to time, in proportion to their respective shareholding ratios.
- As required under the *Company Law of the People's Republic of China* (《中華人民共和國公司法》), the Capital Contribution would have to be completed within five (5) years from the date of signing of the GSZ Company's New Articles of Association (as defined below).
- Default on Capital Contribution:** If Hopewell China Development or Guangdong Highway Construction fails to make Capital Contribution in full and on time as agreed under the Capital Increase Agreement, a default penalty of 0.01% per day on the outstanding contribution amount shall be paid to GSZ Company until the full contribution is made. If the failure by Hopewell China Development or Guangdong Highway Construction to fulfil its contribution obligations under the Capital Increase Agreement causes in a loss to the other party, the defaulting party shall compensate for the losses so incurred.

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GSZ Company's New Articles of Association:

In accordance with the *Foreign Investment Law of the People's Republic of China* (《中華人民共和國外商投資法》) which came into effect on 1 January 2020, and other applicable laws and regulations, GSZ Company will amend its articles of association incorporating the relevant arrangements in the Capital Increase Agreement in its amended articles of association ("**GSZ Company's New Articles of Association**").

The Company's ability to fulfil its obligations under the listing agreement entered between the Company and the Stock Exchange on 7 August 2003 will not be affected after the adoption of GSZ Company's New Articles of Association.

Effectiveness:

The Capital Increase Agreement shall take effect upon being signed and sealed by both Hopewell China Development and Guangdong Highway Construction, and upon satisfaction of the following conditions to effectiveness:

Conditions to effectiveness: (i) Guangdong Highway Construction having obtained its shareholders' approval for the Capital Increase Agreement and the transactions contemplated thereunder; and (ii) the Company (the controlling shareholder of Hopewell China Development) having obtained its shareholders' approval for the Capital Increase Agreement and the transactions contemplated thereunder.

As of the Latest Practicable Date, all the conditions for the effectiveness of the Capital Increase Agreement have been fulfilled.

4. INFORMATION OF GSZ COMPANY

GSZ Company is principally responsible for the construction, operation and management of the Guangzhou-Shenzhen Section of Beijing-Hong Kong-Macao Expressway. As a main expressway connecting the three major cities in the PRC, namely Guangzhou, Dongguan and Shenzhen, this section forms an important part of the Beijing-Hong Kong-Macao Expressway and Shenyang-Haikou Expressway in the national expressway network. The Guangzhou-Shenzhen Section of Beijing-Hong Kong-Macao Expressway, extending from the Huangcun (Guangdan) Interchange in Guangzhou in the north to the Huanggang Port in Shenzhen (boundary between Hong Kong and Shenzhen) in the south, with 23 toll stations, is a total length of 122.8 km closed-system expressway with a total of 6 lanes in dual directions. The Guangzhou-Shenzhen Section of Beijing-Hong Kong-Macao Expressway experienced rapid traffic growth since its official opening to traffic in 1997. In 2023 and during the first three quarters of 2024, the average daily mixed traffic was 632,000 vehicles and 631,000 vehicles respectively; the average daily toll revenue was approximately RMB7.924 million and RMB7.918 million respectively.

The Guangzhou-Shenzhen Section of Beijing-Hong Kong-Macao Expressway has now nearly reached its full capacity, resulting in an urgent need for reconstruction and expansion. The reconstruction and expansion project for the Guangzhou-Shenzhen Section of Beijing-Hong Kong-Macao Expressway will be carried out in two segments: namely the Approved Road Section R&E Project and the reconstruction and expansion project for the Shenzhen section of the Beijing-Hong Kong-Macao Expressway. Among which, the Approved Road Section R&E Project received the DRC Approval and commenced construction by the end of 2023 and is now in full swing. The Approved Road Section R&E Project will be carried out along the original route, starting from Huangcun Interchange of Guangzhou-Foshan Expressway connected with the Northern Ring Section of Guangzhou Ring Expressway and ending on the Dongbao River Bridge located at the junction of Dongguan and Shenzhen of the Beijing-Hong Kong-Macao Expressway, with a total length of approximately 71.13 km, mainly adopt the integral section method expansion in dual directions to a total of 10 lanes. GSZ Company is responsible for the investment and construction of the Approved Road Section R&E Project.

GSZ Company is a Sino-foreign co-operative joint venture established in the PRC by Hopewell China Development and Guangdong Highway Construction. The Sino-foreign co-operative joint venture model does not involve an equity structure, allowing for flexible determination of the rights, responsibilities and obligations of cooperative partners. The original registered capital of GSZ Company was RMB471 million, which has been subscribed for and paid-up by Hopewell China Development. In accordance with the articles of association of GSZ Company and relevant regulations applicable to Sino-foreign co-operative joint ventures, Hopewell China Development had early recouped the aforementioned investment of RMB471 million. As a result, upon Completion of the Capital Contribution Matters, the registered capital of GSZ Company will be RMB7,300 million, with Hopewell China Development and Guangdong Highway Construction subscribing for and paying up RMB3,285 million and RMB4,015 million respectively, in proportion to their respective 45% and 55% shareholding ratios under the Capital Increase Agreement.

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The audited financial information for the two years ended 31 December 2022 and 31 December 2023 and the unaudited financial information for the nine months ended 30 September 2024 of GSZ Company, prepared in accordance with the PRC Accounting Standard for Business Enterprises, are set out below:

	For the year ended 31 December 2022 <i>RMB'000</i>	For the year ended 31 December 2023 <i>RMB'000</i>	For the nine months ended 30 September 2024 <i>RMB'000</i>
Profit before tax	1,030,704.03	1,502,222.95	1,425,965.28
Profit after tax	775,103.36	1,125,339.18	1,067,330.49
	As at 31 December 2022 <i>RMB'000</i>	As at 31 December 2023 <i>RMB'000</i>	As at 30 September 2024 <i>RMB'000</i>
Net asset	1,067,419.86	1,952,759.04	3,020,089.53

5. BASIS FOR DETERMINING CAPITAL CONTRIBUTION AMOUNT

The relevant terms of the Capital Increase Agreement are arrived after arm's length negotiation between the Group and Guangdong Highway Construction on normal commercial terms. The key factors considered in determining the Capital Contribution amount include: the past experience of the Group in the investment, construction and operation of toll road projects; the engineering plan, geographical location and operational expectation after opening to traffic of the Approved Road Section R&E Project; and references to the Valuation Consultancy Report prepared by the valuer, Pengxin Appraisal.

In accordance with the DRC Approval, the total investment amount of the Approved Road Section R&E Project would be approximately RMB29.197 billion, among which not less than 25% (approximately RMB7,300 million) would have to be funded by GSZ Company's self-raised fund as the project capital and the remaining would be funded by GSZ Company through bank loans etc.. This funding proportion was determined by Guangdong Provincial Development and Reform Commission and other relevant authorities, and was stated in the DRC Approval. On such basis, the shareholders of the GSZ Company (namely Hopewell China Development and Guangdong Highway Construction) agreed to bear the project capital in aggregate approximately RMB7,300 million, which is the total amount of the Capital Contribution. Based on the agreed shareholding ratio under the Capital Increase Agreement, Hopewell China Development and Guangdong Highway Construction will respectively hold 45% and 55% equity interests in GSZ Company, Hopewell China Development would then bear 45% of the Capital Contribution (approximately RMB3,285 million).

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The Group has engaged Pengxin Appraisal to conduct an independent valuation on the concession rights for the Approved Road Section R&E Project in order to assess whether it is worth for the Group to invest approximately RMB3,285 million to the Approved Road Section R&E Project based on its 45% shareholding ratio in GSZ Company. According to the Valuation Consultancy Report, shareholders' own capital value for the concession operation right for the Approved Road Section R&E Project was RMB7,645 million as of 30 June 2027 (the “**Reference Date**”), while shareholders' own funds corresponding to Hopewell China Development's 45% equity interests was valued at RMB3,440 million, which is higher than the Group's investment amount of approximately RMB3,285 million abovementioned. Therefore, the Group agreed to enter into the Capital Increase Agreement and to invest in the Approved Road Section R&E Project. Further details about the valuation on the concession rights for the Approved Road Section R&E Project, including the assumptions adopted in the Valuation Consultancy Report, are set out in the section headed “VALUATION OF THE APPROVED ROAD SECTION R&E PROJECT” below.

After taking into account all factors above, Hopewell China Development and Guangdong Highway Construction have, through amicable negotiations, decided to jointly contribute RMB7,300 million to GSZ Company. Of which, Hopewell China Development shall subscribe for and pay up RMB3,285 million, in proportion to its 45% shareholding ratio.

The Group intends to raise the Capital Contribution amount through internal resources and/or external financing, and will make the Capital Contribution in phases according to the work progress and funding needs of the Approved Road Section R&E Project.

6. FINANCIAL IMPACT OF CAPITAL CONTRIBUTION MATTERS

Currently, the Group owns 45% of the profit-sharing interest in GSZ Company, and its investment in GSZ Company is accounted for using the equity method. Upon Completion of the Capital Contribution Matters, the Group will hold 45% equity interests in GSZ Company, and the accounting treatment of its investment in GSZ Company is expected to continue to use the equity method. Therefore, the scope of consolidation of the Group's financial statements is not expected to change.

The financial impacts of the Capital Contribution on the Group are identified in the “UNAUDITED PRO FORMA FINANCIAL INFORMATION ON THE GROUP” as set out in Appendix III to this circular, assuming that completion of the Capital Contribution had taken place on 30 June 2024, as compared to the financial position of the Group as at 30 June 2024.

Based on the unaudited pro forma financial information on the Group, the unaudited pro forma consolidated cash and cash equivalents of the Group as at 30 June 2024 would decrease by approximately RMB3,285 million, and the unaudited pro forma consolidated interests in joint ventures of the Group are expected to increase by approximately RMB3,285 million after the Capital Contribution, assuming that completion of the Capital Contribution had taken place on 30 June 2024. No impact is to be expected on the Group's consolidated statement of profit or loss.

7. VALUATION OF THE APPROVED ROAD SECTION R&E PROJECT

7.1 Valuation approaches

The Company has appointed Pengxin Appraisal to assess the market value of the concession operation right for the Approved Road Section R&E Project as at the Reference Date. Pengxin Appraisal has considered three valuation approaches, namely income approach, asset-based approach, and market approach.

The asset-based approach was not adopted as the Approved Road Section R&E Project will meet the conditions for opening to traffic on 1 July 2027. Therefore, as of 14 October 2024 (the “**Valuation Consultancy Report Date**”), the concession operation right for the Approved Road Section R&E Project has not yet been finally established, and the correlation between the value of the concession operation right and its total investment cost is relatively weak.

The market approach was not adopted as the value of the concession operation right for the Approved Road Section R&E Project mainly depends on its remaining toll collection period, annual income, road conditions, line orientation and the development trend of the surrounding road network, etc., resulting in a relatively low degree of comparability of the value between different expressways, and the information of comparable listed companies or comparable deals related to the above factors of the concession operation right for the Approved Road Section R&E Project is unavailable.

Therefore, the valuation of the concession operation right for the Approved Road Section R&E Project is prepared using the discounted cash flows method under the income approach, which is commonly used for valuing assets of infrastructure projects such as toll highways.

7.2 Principal assumptions of valuation

Principal assumptions (including business assumptions) for the subject valuation include:

Baseline Assumptions

- (1) It is assumed that the appraised object or all appraised assets are in the process of market transaction on the Reference Date, and Pengxin Appraisal will make corresponding value estimation or calculation based on a comparative market according to the market environment and the trading conditions of the appraised object or all appraised assets on the Reference Date;
- (2) It is assumed that the trading market of the appraised object or all appraised assets on the Reference Date is an open market; and
- (3) It is assumed that the economic entity corresponding to the appraisal target continues as a going concern according to its existing business objectives with the operation team, financial structure, business model and market environment

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on the Reference Date; and all assets/liabilities corresponding to the appraisal target asset will continue to be used according to the current purpose, using mode, scale, frequency and environment.

Assumptions of Appraisal Conditions

- (1) It is assumed that there are no significant changes in the relevant laws, regulations and policies in force and the macroeconomic situation in the PRC, and there are no significant changes in the political, economic and social environment in the region where the parties to this deal are located; it is assumed that there are no significant changes in interest rates, exchange rates, tax bases and rates, policy levies, financing conditions, etc.; it is assumed that there are no other force majeure factors and unforeseeable factors that would have a significant adverse impact on the appraised object;
- (2) It is assumed that the information required for the appraisal supplied by the Company is true, complete, legal and valid;
- (3) It is assumed that the information obtained from sources other than the Company reasonably reflects the corresponding market transaction logic, market conditions, market operation conditions, or market development trends, etc.; and
- (4) It is assumed that the acquisition, use and holding of the appraised object and all appraised assets conform to the provisions of the laws, regulations and normative documents in the PRC, that is, their legal ownership is clear.

General Assumptions

- (1) It is assumed that the Approved Road Section R&E Project will continue to operate until the end of the expressway toll collection period (25 years from 1 July 2027 to 30 June 2052)^{Note} during which the toll license for the Approved Road Section R&E Project will remain unchanged;
- (2) It is assumed that the management of the appraised object is responsible and dutiful after the Reference Date;
- (3) It is assumed that all operation activities of the appraised object can be carried out in accordance with the relevant laws, regulations and relevant industry standards and the relevant regulations on safe production and operation;
- (4) It is assumed that there will be no material changes in the existing business model of the appraised object in the future;
- (5) It is assumed that a reasonable competitive landscape will be maintained on the market for products or services of the appraised object after the Reference Date; and

LETTER FROM THE BOARD

- (6) It is assumed that the accounting policy adopted by the appraised object will remain consistent in all material aspects after the Reference Date.

Specific Assumptions

- (1) It is assumed that, within the forecast period (25 years from 1 July 2027 to 30 June 2052)^{Note}, the construction and road network layout of the Approved Road Section R&E Project are basically consistent with the senior-level planning, and there are no material adjustments;
- (2) It is assumed that the appraised object can be effectively maintained and managed during the operation period and remain in normal operation;
- (3) It is assumed that the Lianhua Mountain Passage project* (蓮花山通道工程) will be opened to traffic in 2035, the Shiziyang Passage project* (獅子洋通道工程) will be opened to traffic in 2028, the Lingdingyang Passage project* (伶仃洋通道) will be opened to traffic in 2040, the Dongguan-Shenzhen Expressway reconstruction & expansion project will be opened to traffic in 2030, and the long-term rail line will be completed and opened to traffic in 2035;
- (4) It is assumed that the Approved Road Section R&E Project will meet the conditions for opening to traffic and beginning toll collection on 1 July 2027;
- (5) It is assumed that the future toll standard of the Approved Road Section R&E Project after completion of the construction of, will be the same as the toll rate of the expressways in Guangdong Province as at 31 August 2024 and will remain unchanged during its 25-year operation;
- (6) It is assumed that the completion status of the Approved Road Section R&E Project on 1 July 2027 is basically the same as the planning and design scheme as at the Valuation Consultancy Report Date;
- (7) It is assumed that all parameters in relation to the discount rate are consistent with or similar to those as at the Reference Date. For the calculation of the discount rate, the selected time point of all parameters in relation to the discount rate is 31 August 2024; and
- (8) The investment amount (inclusive of interest) of the Approved Road Section R&E Project is approximately RMB28,099 million, including its own funds of approximately RMB7,300 million and borrowings (inclusive of principal and interest) of approximately RMB20,800 million; the investment amount (exclusive of interest) is approximately RMB26,220 million.

Note: The forecast period is set at 25 years from 1 July 2027 to 30 June 2052 because the existing concession right of the Approved Road Section will expire on 30 June 2027, Pengxin Appraisal assumed that GSZ Company's concession right of the Approved Road Section R&E Project can be extended from 1 July 2027 (the date immediately after 30 June 2027) for another 25 years (i.e. until 30 June 2052), which is in line with the assumption of the 25-year concession right extended for the Approved Road Section R&E Project adopted in the Traffic Study Report. In making the 25-year further concession right assumption, Pengxin Appraisal has taken into

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account: (i) the feasibility study concerning the Approved Road Section R&E Project for a concession period of 25 years up to 30 June 2052, which has already passed the preliminary examination by the traffic administration department of Guangdong Province in January 2021; and (ii) the Decree No. 417 of the State Council of the People's Republic of China — Regulations on Administration of Toll Roads* (中華人民共和國國務院令(第417號)《收費公路管理條例》), which requires that the time limit for toll collection of for-profit roads may not exceed 25 years.

7.3 Discounted cash flows method under the income approach

Valuation of the concession operation right for the Approved Road Section R&E Project has adopted the discounted cash flows method under the income approach, and the basic idea is to estimate the value of the concession operation right by estimating the free cash flow to firm before tax (FCFFBT) created by the concession operation right and adopting the pre-tax discount rate (R). The basic formula for the subject valuation is as follows:

$$P = \sum \frac{FCFFBT_t}{(1+R)^t} - \text{opening supporting net working capital} - \text{opening supporting office equipment}$$

P stands for the value of the concession operation right for the Approved Road Section R&E Project as at the Reference Date

t stands for the sustainable operation period of the Approved Road Section R&E Project (25 years from 1 July 2027 to 30 June 2052)

FCFFBT_t stands for the free cash flow to firm before tax created by the Approved Road Section R&E Project in the t-th year

R_t stands for the pre-tax discount rate of the Approved Road Section R&E Project in the t-th year

R's Calculation Method

According to the criteria of discounted cash flows, in determining the appropriate discount rate for the subject valuation, Pengxin Appraisal has adopted the weighted average cost of capital before tax (WACCBT) model to determine the discount rate. Consideration factors include: (a) the debt (D) and equity (E) structure of the Approved Road Section R&E Project; (b) the required rate of return on equity investment of the Approved Road Section R&E Project; and (c) the cost of debt financing for the Approved Road Section R&E Project.

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Where the required rate of return on equity investment for the Approved Road Section R&E Project is adjusted based on the following factors: (a) the market risk-free rate of return; (b) market risk premium; (c) the risk coefficient (beta) and specific risk rate of return of the Approved Road Section R&E Project. The main input and the scope of data are set out below:

Project	Scope of data within the forecast period	Note
Equity Proportion of the Approved Road Section R&E Project ($E/(D+E)$)	0.2696–1.0000	Debt is affected by the annual repayment of the Approved Road Section R&E Project; equity is affected by the free cash flow forecast of equity for each year of the remaining operation period of the Approved Road Section R&E Project
Beta of the Approved Road Section R&E Project (β)	0.4244–1.2866	β is determined as follows: $\beta = \beta_U * [1 + \frac{D}{E} * (1 - T)]$ β_U stands for the averaged amount of Comparable Companies' (defined hereinafter) unlevered beta. Select 11 listed A Share companies ("Comparable Companies") in the expressway industry and check the value of levered beta (β_L) of each Comparable Companies through the TongHuaShun iFinD system. The β_L of each Comparable Companies is adjusted based on their respective income tax rate and capital structure, and average the amount of adjusted β_L T stands for 25% of the income tax rate of the Approved Road Section R&E Project
Risk-free rate of return on the market (R_f)	3.46%	Calculation is made based on the yield to maturity of Chinese government bonds with a remaining period of more than ten years issued by China Central Depository and Clearing Co., Ltd.
Market Risk Premium ($R_m - R_f$)	6.41%	The average monthly return of the CSI 300 Index from December 2014 minus R_f

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Project	Scope of data within the forecast period	Note
Specific risk rate of return (ε)	-0.62%	Based on the specific risks of the Approved Road Section R&E Project compared with Comparable Companies in terms of business scale, operation risk, and regional economic development, etc., and the adjustment factor caused by the nonlinear relationship when the after-tax discount rate is converted into the pre-tax discount rate formula
Required rate of return on equity investment of the Approved Road Section R&E Project (R_e)	5.56%–11.09%	R_e is determined as follows $R_e = R_f + \beta * (R_m - R_f) + \varepsilon$
Cost of debt financing for the Approved Road Section R&E Project (R_d)	2.89%	Average interest rate of financing for the Approved Road Section R&E Project in various future periods
R calculated based on the WACCBT model	6.10%–7.41%	R is determined as follows: $R = R_e * \frac{E}{(D + E)} / (1 - T) + R_d * \frac{D}{(D + E)}$

FCFFBT's Calculation Method

Based on the specific analysis of the future operating data forecast, operating environment and macro economy and industry of the concession operation right for the Approved Road Section R&E Project, Pengxin Appraisal calculates the future operation and cash flow of the concession operation right for the Approved Road Section R&E Project. The expected annual FCFFBT is determined as follows:

FCFFBT = earnings before interest, tax, depreciation and amortisation (EBITDA) – capital expenditure – increase in net working capital + working capital recovered at the end of the period + fixed assets recovered at the end of the period

EBITDA = net profit^{Note} + income tax + interest expense + depreciation and amortisation

Note: toll revenue data included in net profit is sourced from the Traffic Study Report issued by the Traffic Consultant.

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The Company has engaged the Traffic Consultant to forecast the future traffic and toll revenue of the Approved Road Section R&E Project. The Traffic Study Report provides positive, negative and neutral scenarios in its forecast of the future operation of the Approved Road Section R&E Project. Pengxin Appraisal has adopted the neutral scenario in its Valuation Consultancy Report, which sets out the main traffic and toll revenue as follows:

Year	Passenger Car Unit in neutral scenario (PCU/day)	Toll revenue in neutral scenario (RMB0'000)
2027	145,677	219,514
2028	145,384	219,005
2029	173,739	261,640
2030	176,937	266,374
2035	182,180	274,039
2040	195,497	293,830
2045	200,048	300,588
2050	204,707	307,505
2051	205,652	308,907
2052	206,602	310,317

Based on the above assumptions and data, the assessed value of the concession operation right for the Approved Road Section R&E Project as at the Reference Date is RMB28,445 million, of which the shareholders' own funds are valued at RMB7,645 million, while the shareholders' own funds corresponding to Hopewell China Development's 45% equity interests are valued at RMB3,440 million.

Pengxin Assets conducted sensitivity analysis on the three key input parameters in the above discounted cash flow method (i.e., toll revenue, cash operating costs (excluding major repairs) and R of Approved Road Section R&E Project). When each parameter changes by -10% to +10% individually, the valuation of the concession operation right for the Approved Road Section R&E Project on the Reference Date changes in the range of -8.49% to +8.55%.

The Boards has issued report confirming that the profit forecast has been made after due and careful enquiries. The calculation of discounted future cash flows on which the valuation of Pengxin Appraisal is based has been reviewed by KPMG, the reporting accountants of the Company. The letter from the Board as well as the letter from KPMG are included in Appendix VII to this circular.

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8. INFORMATION OF THE PARTIES

The Group

The Group is principally engaged in the expressway business, with its development strategy focusing on the development of infrastructure and related businesses in the Greater Bay Area as well as land development and utilisation along expressway.

Hopewell China Development

Hopewell China Development is a limited company incorporated in Hong Kong, an indirect non wholly-owned subsidiary of the Company, and entitled to 45% of the profit-sharing interest in GSZ Company. It is principally engaged in expressway project investment.

Guangdong Highway Construction

Guangdong Highway Construction is a company established in the PRC with limited liability, principally engaged in the development, investment and operation of expressways in the Pearl River Delta. It is a non wholly-owned subsidiary of Guangdong Provincial Communication Group Company Limited, with the People's Government of Guangdong Province as its ultimate beneficial owner.

Guangdong Highway Construction is the PRC cooperative partner of the Group in GSZ Company and Guangdong Guangzhou-Zhuhai West Expressway Company Limited (another Sino-foreign co-operative joint venture established by the Group and Guangdong Highway Construction, with both parties each entitled to 50% of its profit-sharing interest). Given that GSZ Company is a deemed subsidiary of the Company, Guangdong Highway Construction is therefore a connected person of the Company at the subsidiary level.

9. REASONS FOR AND BENEFITS OF ENTERING INTO THE CAPITAL INCREASE AGREEMENT

The investment, construction, operation and maintenance of expressways is the Group's principal businesses. The entering into of the Capital Increase Agreement provides necessary funding sources of implementing the Approved Road Section R&E Project. The implementation of the Approved Road Section R&E Project will help enhance the traffic capacity and service level of the Approved Road Section, and strengthen the Group's core competitiveness in the toll road industry, which is in line with its development strategy.

GSZ Company is a Sino-foreign co-operative joint venture. The *Law on Sino-Foreign Co-operative Joint Ventures of the People's Republic of China* (《中華人民共和國中外合作經營企業法》) has been repealed. In accordance with the requirements of prevailing laws and regulations, GSZ Company must amend its organisational forms and structures, including, among others, determining registered capital and the shareholding percentages of the parties. Therefore, the entering into of the Capital Increase Agreement and the Capital Contribution, along with the stipulation of the relevant arrangements therein in GSZ Company's New

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Articles of Association, is firstly for complying with the new legal requirements in the PRC; and secondly, in considering the funding needs of GSZ Company in carrying out the Approved Road Section R&E Project, for contributing (together with Guangdong Highway Construction) in aggregate approximately RMB7,300 million to GSZ Company.

Having considered the aforementioned factors, the Directors (including the independent non-executive Directors) are of the view that the terms of the Capital Increase Agreement and the transactions contemplated thereunder are fair and reasonable, entered into on normal commercial terms in the ordinary course of business of the Group, and in the interests of the Company and its Shareholders as a whole.

10. EXPERTS AND CONSENTS

The following are the qualifications of the experts who have given opinion or advice contained in this circular:

Name	Qualifications
Pengxin Appraisal	an independent qualified valuer in the PRC engaged in valuation
KPMG	Certified Public Accountants
Shenzhen Urban Transport Planning Center Co., Ltd.* (深圳市城市交通規劃設計研究中心股份有限公司)	an independent qualified Traffic Consultant in the PRC

To the best of the knowledge, information and belief of the Directors, having made all reasonable enquiries, as of the Latest Practicable Date, none of the above experts has any shareholding in any member of the Group, nor do they have any right (whether legally enforceable or not) to subscribe for, or to nominate persons to subscribe for, securities in any member of the Group.

Each of the above experts has given and has not withdrawn its consent to the publication of this circular with the inclusion of its opinion and advice and all references to its name in the form and context in which they are included.

11. LISTING RULE IMPLICATIONS

As Guangdong Highway Construction, being a substantial shareholder of GSZ Company, is a connected person of the Company at the subsidiary level, the Capital Increase Agreement and the transactions contemplated thereunder constitute a connected transaction for the Company under Chapter 14A of the Listing Rules. However, as (i) the Board has approved the Capital Increase Agreement; and (ii) the independent non-executive Directors have confirmed that the terms of the Capital Increase Agreement are fair and reasonable, the transactions are entered into on normal commercial terms, and in the interests of the Company and its Shareholders as a whole, pursuant to Rule 14A.101 of the Listing Rules, the Capital Increase

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Agreement and the transactions contemplated thereunder are only subject to the reporting and announcement requirements, but exempt from the circular, independent financial advice and Shareholders' approval requirements under Chapter 14A of the Listing Rules.

As none of the Directors has any material interest in the Capital Increase Agreement and the transactions contemplated thereunder, none of the Directors is required to abstain from voting on the Board resolutions approving the Capital Increase Agreement and the transactions contemplated thereunder.

In addition, as one or more of the applicable percentage ratio(s) under the Listing Rules exceed 25% but are less than 100%, the Capital Increase Agreement and the transactions contemplated thereunder constitute a major transaction for the Company and is subject to the reporting, announcement and Shareholders' approval requirements under Chapter 14 of the Listing Rules.

Pursuant to Rule 14.44 of the Listing Rules, Shareholders' approval may be obtained by written Shareholders' approval in lieu of convening a general meeting if (a) no shareholder is required to abstain from voting if the Company was to convene a general meeting for the approval of the Capital Increase Agreement and the transactions contemplated thereunder; and (b) the written approval has been obtained from a Shareholder or a closely allied group of Shareholders who together hold more than 50% of the issued share capital of the Company having the right to attend and vote at the general meeting to approve the Capital Increase Agreement and the transactions contemplated thereunder.

To the best of the knowledge, information and belief of the Directors after having made all reasonable enquiries, none of its shareholders has any material interest in the Capital Increase Agreement and the transactions contemplated thereunder, and therefore no Shareholder is required to abstain from voting if the Company to convene a general meeting for the approval of the Capital Increase Agreement and the transactions contemplated thereunder.

On 24 January 2025, the Company has obtained a written approval from SIIC, the controlling Shareholder holding 2,213,449,666 Shares (representing approximately 71.83% of the issued share capital of the Company as at the date of such approval and as the Latest Practicable Date). Accordingly, no general meeting of the Company is required to be convened for the purpose of approving the Capital Increase Agreement and the transactions contemplated thereunder.

12. RECOMMENDATION

As the Board (including the independent non-executive Directors) considered that the terms of the Capital Increase Agreement and the transactions contemplated thereunder are on normal commercial terms, and are fair and reasonable, and in the best interests of the Group and the Shareholders as a whole, the Board would recommend the Shareholders to vote in favour of the resolutions to approve the Capital Increase Agreement and the transactions contemplated thereunder if the Company was to convene a general meeting for the approval of the same.

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13. ADDITIONAL INFORMATION

Your attention is drawn to the financial and general information set out in the appendices to this circular.

By Order of the Board
**Shenzhen Investment Holdings Bay Area
Development Company Limited**
Ji Liu*
Executive Director and Deputy General Manager

* *For identification purpose only*

1. FINANCIAL INFORMATION OF THE GROUP

The financial information of the Group for the financial year ended 31 December 2021, the financial year ended 31 December 2022 and the financial year ended 31 December 2023 and the six months ended 30 June 2024 respectively was set out in the annual reports and the interim report of the Company for these periods respectively and are available on the website of the Stock Exchange set out below:

Financial period ended	Website
31 December 2021	https://www1.hkexnews.hk/listedco/listconews/sehk/2022/0324/2022032400630.pdf
31 December 2022	https://www1.hkexnews.hk/listedco/listconews/sehk/2023/0418/2023041800951.pdf
31 December 2023	https://www1.hkexnews.hk/listedco/listconews/sehk/2024/0423/2024042300780.pdf
the six months ended 30 June 2024	https://www1.hkexnews.hk/listedco/listconews/sehk/2024/0919/2024091900589.pdf

2. INDEBTEDNESS STATEMENT

At the close of business on 31 January 2025, being the latest practicable date for the purpose of this statement of indebtedness prior to the printing of this circular, the Group had the following indebtedness:

- (a) bank loans of approximately RMB4,549,710,000, of which RMB30,000,000 was pledged by toll-collection rights of Coastal Expressway (Shenzhen Section) of the Coastal Company and unguaranteed, approximately RMB3,710,294,000 was unsecured and guaranteed by the Company, and the remaining of approximately RMB809,416,000 were unsecured and unguaranteed; and
- (b) lease liabilities amounting to approximately RMB4,840,000 which was unsecured and unguaranteed.

Contingent liabilities

As at the close of business on 31 January 2025, the Group did not have any material contingent liabilities.

Save as disclosed above, the Group did not, as at 31 January 2025 have any outstanding debt securities, whether issued and outstanding, authorised or otherwise created but unissued, term loans, whether guaranteed, unguaranteed, secured (whether the security is provided by the Group or by third parties) or unsecured, other borrowings or indebtedness in the nature of borrowing including bank overdrafts and liabilities under acceptances (other than normal trade bills) or acceptance credits or hire purchase commitments, whether guaranteed, unguaranteed, secured or unsecured borrowings or debt, mortgages, charges, guarantees or other material contingent liabilities.

3. FINANCIAL AND TRADING PROSPECTS OF THE GROUP

For the six months ended 30 June 2024, the revenue from investment projects attributable to the Group was approximately RMB1,271 million, representing an increase of approximately 1% compared to approximately RMB1,260 million for the six months ended 30 June 2023. The profit attributable to equity shareholders of the Company amounted to approximately RMB241 million, representing an increase of approximately 40% compared to approximately RMB172 million for the six months ended 30 June 2023.

The Group is principally engaged in expressway business and adopts development strategies focusing on the infrastructure and correlated business as well as land development and utilisation along the expressway within the Greater Bay Area. Since the promulgation of the “Outline Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area” (《粵港澳大灣區發展規劃綱要》) in 2019, Mainland China and Guangdong Province have successively introduced a series of policies to support the accelerated implementation of the construction process of the Greater Bay Area, which will benefit the operating environment of the Group’s expressway business in the long run and provide strong support for the long-term and sustainable development of the Group’s business.

The Guangzhou-Shenzhen Section of Beijing-Hong Kong-Macao Expressway connects the core cities in the Greater Bay Area and is a major transport artery between the Greater Bay Area and the core area of the Pearl River Delta, which enjoys obvious line position advantage. With the economic development and the increase in car ownership in the PRC, especially in Guangdong Province, the traffic flow on the Guangzhou-Shenzhen Section of Beijing-Hong Kong-Macao Expressway has been nearly saturated, resulting in an urgent need for reconstruction and expansion. The reconstruction and expansion project for the Guangzhou-Shenzhen Section of Beijing Hong Kong-Macao Expressway will be carried out in two segments: namely the Approved Road Section R&E Project and the reconstruction and expansion project for the Shenzhen section of Beijing-Hong Kong-Macao Expressway. Among which, the Approved Road Section R&E Project received the DRC Approval and commenced construction by the end of 2023 and is now in full swing. The implementation of the Approved Road Section R&E Project will help to enhance the traffic capacity and service level of the Approved Road Section, further strengthening the Group’s core competitiveness in the toll road industry, which is in line with the strategy of the Group.

The entering into of the Capital Increase Agreement provides necessary funding sources of implementing the Approved Road Section R&E Project and is intended to comply with new legal requirements in the PRC. Please refer to the section headed “Reasons for and benefits of the entering into the Capital Increase Agreement” in the “Letter from the Board” in this circular for the reasons for and the benefits of the entering into the Capital Increase Agreement that are expected to accrue to the Group.

Looking forward to the remainder of financial year ending 31 December 2025, the Group will continue to focus on its main business and the implementation of the Approved Road Section R&E Project.

4. SUFFICIENCY OF WORKING CAPITAL

The Directors are of the opinion that, after taking into account the financial resources available to the Group (including the Group's internal resources, available banking and other borrowing facilities) as well as the effect of the transactions contemplated under the Capital Increase Agreement, the working capital available to the Group is sufficient for the Group's requirements for at least 12 months from the date of this circular.

5. NO MATERIAL ADVERSE CHANGE

The Directors confirm that there was no material adverse change in the financial position or trading position of the Group since 31 December 2023, being the date to which the latest published audited consolidated financial statements of the Group were made up, up to and including the Latest Practicable Date.

The following is the text of a report set out on pages II-1 to II-44, received from the GSZ Company's reporting accountants, KPMG, Certified Public Accountants, Hong Kong, for the purpose of incorporation in this circular.



Accountants' report on Historical Financial Information of Guangzhou-Shenzhen-Zhuhai Superhighway Company Limited to the directors of Shenzhen Investment Holdings Bay Area Development Company Limited

Introduction

We report on the historical financial information of Guangzhou-Shenzhen-Zhuhai Superhighway Company Limited (the "**GSZ Company**") (廣深珠高速公路有限公司), set out on pages II-4 to II-44, which comprise the statements of financial position of the GSZ Company as at 31 December 2021, 2022 and 2023 and 31 August 2024 and the statements of profit or loss and other comprehensive income, the statements of changes in equity and the statements of cash flows, for each of the years ended 31 December 2021, 2022 and 2023 and the eight months ended 31 August 2024 (the "**Track Record Period**"), and material accounting policy information and other explanatory information (together, the "**Historical Financial Information**"). The Historical Financial Information set out on pages II-4 to II-44 forms an integral part of this report, which has been prepared for inclusion in the circular of Shenzhen Investment Holdings Bay Area Development Company Limited (the "**Company**") dated 28 February 2025 (the "**Circular**") in connection with the capital contribution to the GSZ Company.

Directors' responsibility for Historical Financial Information

The directors of the GSZ Company are responsible for the preparation of Historical Financial Information that gives a true and fair view in accordance with the basis of preparation and presentation set out in Note 1 to the Historical Financial Information.

The Underlying Financial Statements of the GSZ Company as defined on page II-4, on which the Historical Financial Information is based, were prepared by the directors of the GSZ Company. The directors of the GSZ Company are responsible for the preparation of the Underlying Financial Statements that give a true and fair view in accordance with IFRS Accounting Standards issued by the International Accounting Standards Board ("**IASB**"), and for such internal control as the directors of the GSZ Company determine is necessary to enable the preparation of the Underlying Financial Statements that is free from material misstatement, whether due to fraud or error.

Reporting accountants' responsibility

Our responsibility is to express an opinion on the Historical Financial Information and to report our opinion to you. We conducted our work in accordance with Hong Kong Standard on Investment Circular Reporting Engagements 200 "Accountants' Reports on Historical Financial Information in Investment Circulars" issued by the HKICPA. This standard requires that we comply with ethical standards and plan and perform our work to obtain reasonable assurance about whether the Historical Financial Information is free from material misstatement.

Our work involved performing procedures to obtain evidence about the amounts and disclosures in the Historical Financial Information. The procedures selected depend on the reporting accountants' judgement, including the assessment of risks of material misstatement of the Historical Financial Information, whether due to fraud or error. In making those risk assessments, the reporting accountants consider internal control relevant to the entity's preparation of Historical Financial Information that gives a true and fair view in accordance with the basis of preparation and presentation set out in Note 1 to the Historical Financial Information in order to design procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Our work also included evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the directors, as well as evaluating the overall presentation of the Historical Financial Information.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Opinion

In our opinion, the Historical Financial Information gives, for the purpose of the accountants' report, a true and fair view of the GSZ Company's financial position as at 31 December 2021, 2022 and 2023 and 31 August 2024 and of the GSZ Company's financial performance and cash flows for the Track Record Period in accordance with the basis of preparation and presentation set out in Note 1 to the Historical Financial Information.

Review of stub period corresponding financial information

We have reviewed the stub period corresponding financial information of the GSZ Company which comprises the statement of profit or loss and other comprehensive income, the statement of changes in equity and the statement of cash flows for the eight months ended 31 August 2023 and other explanatory information (the "**Stub Period Corresponding Financial Information**"). The directors of the Company are responsible for the preparation and presentation of the Stub Period Corresponding Financial Information in accordance with the basis of preparation and presentation set out in Note 1 to the Historical Financial Information. Our responsibility is to express a conclusion on the Stub Period Corresponding Financial Information based on our review. We conducted our review in accordance with Hong Kong Standard on Review Engagements 2410 "Review of Interim Financial Information Performed by the Independent Auditor of the Entity" issued by the HKICPA. A review consists of making enquiries, primarily of persons responsible for financial and accounting matters, and applying

analytical and other review procedures. A review is substantially less in scope than an audit conducted in accordance with Hong Kong Standards on Auditing and consequently does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion. Based on our review, nothing has come to our attention that causes us to believe that the Stub Period Corresponding Financial Information, for the purpose of the accountants' report, is not prepared, in all material respects, in accordance with the basis of preparation and presentation set out in Note 1 to the Historical Financial Information.

Report on matters under the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited

Adjustments

In preparing the Historical Financial Information, no adjustments to the Underlying Financial Statements as defined on page II-4 have been made.

KPMG

Certified Public Accountants

8th Floor, Prince's Building

10 Chater Road

Central, Hong Kong

28 February 2025

HISTORICAL FINANCIAL INFORMATION

Set out below is the Historical Financial Information which forms an integral part of this accountants' report.

The financial statements of the GSZ Company for the Track Record Period, on which the Historical Financial Information is based, were audited by KPMG Huazhen LLP Shenzhen Branch under separate terms of engagement with the GSZ Company in accordance with Hong Kong Standards on Auditing issued by the HKICPA (**“Underlying Financial Statements”**).

STATEMENTS OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME
(Expressed in RMB)

	<i>Notes</i>	Year ended 31 December			Eight months ended 31 August	
		2021 <i>RMB'000</i>	2022 <i>RMB'000</i>	2023 <i>RMB'000</i>	2023 <i>RMB'000</i> (unaudited)	2024 <i>RMB'000</i>
Revenue	4	2,914,882	2,310,875	3,971,939	2,001,272	2,029,607
Cost of sales		<u>(1,245,261)</u>	<u>(1,220,508)</u>	<u>(1,928,277)</u>	<u>(964,188)</u>	<u>(848,272)</u>
Gross profit		<u>1,669,621</u>	<u>1,090,367</u>	<u>2,043,662</u>	<u>1,037,084</u>	<u>1,181,335</u>
Other income	5	38,562	31,220	39,214	14,759	53,225
Other net gain/(loss)		243,491	216,947	(35,911)	(57,084)	27,133
Administrative expenses		(67,469)	(70,333)	(74,732)	(41,831)	(40,523)
Research and development costs		(11,867)	(15,378)	(7,508)	(3,045)	(1,881)
Finance costs	6(b)	<u>(84,254)</u>	<u>(87,438)</u>	<u>(147,440)</u>	<u>(96,535)</u>	<u>(89,023)</u>
Profit before taxation	6	1,788,084	1,165,385	1,817,285	853,348	1,130,266
Income tax	7	<u>(433,637)</u>	<u>(294,738)</u>	<u>(457,090)</u>	<u>(217,642)</u>	<u>(283,751)</u>
Profit and total comprehensive income for the year/period		<u>1,354,447</u>	<u>870,647</u>	<u>1,360,195</u>	<u>635,706</u>	<u>846,515</u>

The accompanying notes form part of the Historical Financial Information.

STATEMENTS OF FINANCIAL POSITION

(Expressed in RMB)

		As at 31 December			As at
		2021	2022	2023	31 August
	Notes	RMB'000	RMB'000	RMB'000	2024
					RMB'000
Non-current assets					
Property, plant and equipment	8	449,745	365,772	310,415	246,571
Right-of-use assets		2,170	988	5,166	7,142
Construction in progress		—	453	382	382
Concession intangible assets	9	5,462,841	4,925,157	5,125,565	4,718,167
Other intangible assets		7,506	5,824	4,290	3,440
Other non-current assets	10	—	—	58,808	368,396
		<u>5,922,262</u>	<u>5,298,194</u>	<u>5,504,626</u>	<u>5,344,098</u>
Current assets					
Inventories		—	—	876	719
Trade and other receivables	11	201,961	407,525	368,221	366,340
Cash and cash equivalents	12	<u>556,446</u>	<u>819,822</u>	<u>776,265</u>	<u>1,390,832</u>
		<u>758,407</u>	<u>1,227,347</u>	<u>1,145,362</u>	<u>1,757,891</u>
Total assets		<u>6,680,669</u>	<u>6,525,541</u>	<u>6,649,988</u>	<u>7,101,989</u>
Non-current liabilities					
Lease liabilities		1,024	811	590	2,580
Bank loans	14	2,751,178	2,365,793	2,031,725	1,595,962
Resurfacing obligations	15	485,419	513,650	—	—
Deferred income	16	324,050	317,637	305,949	389,842
Deferred tax liabilities	17	98,924	38,046	126,160	122,452
Other non-current liabilities		<u>24,334</u>	<u>25,976</u>	<u>27,729</u>	<u>28,936</u>
		<u>3,684,929</u>	<u>3,261,913</u>	<u>2,492,153</u>	<u>2,139,772</u>

		As at 31 December			As at 31 August
		2021	2022	2023	2024
	Notes	RMB'000	RMB'000	RMB'000	RMB'000
Current liabilities					
Trade and other payables	13	506,239	850,988	439,711	350,249
Lease liabilities		1,186	1,208	4,675	3,012
Bank loans	14	254,740	609,447	607,510	698,501
Tax payables		<u>115,446</u>	<u>216,941</u>	<u>400,700</u>	<u>358,701</u>
		877,611	1,678,584	1,452,596	1,410,463
Total liabilities		<u>4,562,540</u>	<u>4,940,497</u>	<u>3,944,749</u>	<u>3,550,235</u>
Capital and reserves					
Paid-in capital	18(a)	—	—	—	—
Reserves		<u>2,118,129</u>	<u>1,585,044</u>	<u>2,705,239</u>	<u>3,551,754</u>
Total equity		2,118,129	1,585,044	2,705,239	3,551,754
Total equity and liabilities		<u>6,680,669</u>	<u>6,525,541</u>	<u>6,649,988</u>	<u>7,101,989</u>

The accompanying notes form part of the Historical Financial Information.

STATEMENTS OF CHANGES IN EQUITY

(Expressed in RMB)

	Notes	Paid-in capital RMB'000 Note 18(a)	Statutory reserve RMB'000 Note 18(b)	Retained profits RMB'000	Total RMB'000
Balance at 1 January 2021		—	237,358	2,115,558	2,352,916
Changes in equity for the year ended 31 December 2021					
— Profit and total comprehensive income for the year		—	—	1,354,447	1,354,447
— Dividends declared	18(c)	—	—	(1,589,234)	(1,589,234)
Balance at 31 December 2021 and 1 January 2022		—	237,358	1,880,771	2,118,129
Changes in equity for the year ended 31 December 2022					
— Profit and total comprehensive income for the year		—	—	870,647	870,647
— Dividends declared	18(c)	—	—	(1,403,732)	(1,403,732)
Balance at 31 December 2022 and 1 January 2023		—	237,358	1,347,686	1,585,044
Changes in equity for the year ended 31 December 2023					
— Profit and total comprehensive income for the year		—	—	1,360,195	1,360,195
— Dividends declared	18(c)	—	—	(240,000)	(240,000)
Balance at 31 December 2023		—	237,358	2,467,881	2,705,239

	<i>Notes</i>	Paid-in capital <i>RMB'000</i> <i>Note 18(a)</i>	Statutory reserve <i>RMB'000</i> <i>Note 18(b)</i>	Retained profits <i>RMB'000</i>	Total <i>RMB'000</i>
Balance at 31 December 2022 and 1 January 2023		—	237,358	1,347,686	1,585,044
Changes in equity for the period ended 31 August 2023					
— Profit and total comprehensive income for the period (unaudited)		—	—	635,706	635,706
— Dividends declared (unaudited)	18(c)	—	—	(240,000)	(240,000)
Balance at 31 August 2023 (unaudited)		—	237,358	1,743,392	1,980,750
Balance at 31 December 2023 and 1 January 2024		—	237,358	2,467,881	2,705,239
Changes in equity for the period ended 31 August 2024					
— Profit and total comprehensive income for the period		—	—	846,515	846,515
Balance at 31 August 2024		—	237,358	3,314,396	3,551,754

The accompanying notes form part of the Historical Financial Information.

STATEMENTS OF CASH FLOWS

(Expressed in RMB)

	Year ended 31 December			Eight months ended 31 August	
	2021	2022	2023	2023	2024
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
				(unaudited)	
Operating activities					
Profit before taxation	1,788,084	1,165,385	1,817,285	853,348	1,130,266
Adjustments for:					
Depreciation of property, plant and equipment	95,212	99,044	98,205	65,879	65,459
Depreciation of right-of-use assets	2,145	1,182	3,518	146	3,078
Amortisation of concession intangible assets and other intangible assets	734,444	665,927	862,919	579,687	499,554
Loss/(gain) on disposal of property, plant and equipment	2,821	(2,242)	(4,844)	166	(36,444)
Increase/(decrease) in resurfacing obligations	31,864	28,231	(513,650)	19,454	—
Net exchange (gain)/loss	(55,729)	221,536	33,351	55,978	12,035
Net gain on disposal of land	—	(313,780)	—	—	—
(Reversals of)/impairment loss on trade and other receivables	(362)	—	3,036	—	—
Net finance costs	84,254	87,438	147,440	96,535	89,023
Changes in working capital:					
(Increase)/decrease in inventories	—	—	(876)	(924)	157
(Increase)/decrease in trade and other receivables	(132,006)	132,247	(123,337)	(60,279)	16,908
Increase/(decrease) in trade and other payables	6,954	(90,822)	83,263	(9,277)	(64,598)
(Decrease)/increase in deferred income	(6,413)	(6,413)	(11,688)	(4,276)	83,893
Cash generated from operations	2,551,268	1,987,733	2,394,622	1,596,437	1,799,331
Tax paid	(483,173)	(254,121)	(187,129)	(134,123)	(327,547)
Net cash generated from operating activities	<u>2,068,095</u>	<u>1,733,612</u>	<u>2,207,493</u>	<u>1,462,314</u>	<u>1,471,784</u>

	Year ended 31 December			Eight months ended 31 August	
	2021	2022	2023	2023	2024
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
				(unaudited)	
Investing activities					
Payment for purchases of property, plant and equipment, construction in progress and intangible assets	(263,867)	(221,743)	(1,135,747)	(123,791)	(419,344)
Proceeds from disposal of property, plant and equipment	4,402	130,907	43,982	38,944	3,988
Payment off guarantee deposits for toll road construction	(7,658)	(50,828)	(372)	(366)	(7)
Return of guarantee deposits for toll road construction	12,374	9,203	2,089	282	5,852
Net cash used in investing activities	<u>(254,749)</u>	<u>(132,461)</u>	<u>(1,090,048)</u>	<u>(84,931)</u>	<u>(409,511)</u>
Financing activities					
Proceeds from new bank loans	—	2,126,606	—	—	—
Repayment of bank loans	(574,121)	(2,380,830)	(368,841)	(183,234)	(375,044)
Interest paid on bank loans	(83,302)	(83,308)	(145,910)	(71,244)	(69,414)
Dividends paid	(1,589,234)	(1,000,000)	(643,732)	(643,732)	—
Capital element of lease rentals paid	(115)	(191)	(2,318)	(228)	(3,147)
Interest element of lease rentals paid	(133)	(57)	(204)	(20)	(101)
Net cash used in financing activities	<u>(2,246,905)</u>	<u>(1,337,780)</u>	<u>(1,161,005)</u>	<u>(898,458)</u>	<u>(447,706)</u>
Net (decrease)/increase in cash and cash equivalents	<u>(433,559)</u>	<u>263,371</u>	<u>(43,560)</u>	<u>478,925</u>	<u>614,567</u>
Cash and cash equivalents at 1 January	990,006	556,446	819,822	819,822	776,265
Effect of foreign exchanges rates changes	<u>(1)</u>	<u>5</u>	<u>3</u>	<u>2</u>	<u>—</u>
Cash and cash equivalents at 31 December/31 August	<u>556,446</u>	<u>819,822</u>	<u>776,265</u>	<u>1,298,749</u>	<u>1,390,832</u>

The accompanying notes form part of the Historical Financial Information.

NOTES TO THE HISTORICAL FINANCIAL INFORMATION

(Expressed in RMB unless otherwise indicated)

1 BASIS OF PREPARATION AND PRESENTATION OF HISTORICAL FINANCIAL INFORMATION

Guangzhou-Shenzhen-Zhuhai Superhighway Company Limited (the “GSZ Company”) (廣深珠高速公路有限公司) is a limited liability company incorporated in the People’s Republic of China (the “PRC”). The GSZ Company is principally engaged in construction, operation and management of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) in the PRC.

The GSZ Company’s functional currency and presentation currency are Renminbi (“RMB”).

The Historical Financial Information has been prepared in accordance with all applicable IFRS Accounting Standards issued by the International Accounting Standards Board (“IASB”). Material accounting policy information adopted by the GSZ Company are disclosed in Note 2.

The IASB has issued a number of new and revised IFRS Accounting Standards. For the purpose of preparing this Historical Financial Information, the GSZ Company has adopted all applicable new and revised IFRS Accounting Standards to the Track Record Period, except for any new standards or interpretations that are not yet effective for the Track Record Period. The revised and new accounting standards and interpretations issued but not yet effective for the Track Record Period are set out in Note 24.

The Historical Financial Information also complies with the applicable disclosure provisions of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited (the “Stock Exchange”).

The accounting policies set out below have been applied consistently to all periods presented in the Historical Financial Information.

The Stub Period Corresponding Financial Information has been prepared in accordance with the same basis of preparation and presentation adopted in respect of the Historical Financial Information.

The statutory financial statements of the GSZ Company were prepared in accordance with the Accounting Standards for Business Enterprises (the “PRC GAAP”) for the years ended 31 December 2021, 2022 and 2023 and audited by Shu Lun Pan Certified Public Accountants LLP Guangdong Branch (“Shu Lun Pan”) (立信會計師事務所(特殊普通合夥)廣東分所), Shu Lun Pan and Zhongshen Zhonghuan Certified Public Accountants LLP Guangdong Branch (中審眾環會計師事務所(特殊普通合夥)廣東分所) respectively.

2 MATERIAL ACCOUNTING POLICY INFORMATION**(a) Going concern assessment**

The directors of the GSZ Company have, as of the date of this report, a reasonable expectation that the GSZ Company has adequate resources (including but not limited to future operating cash flow and unused and estimated amount of bank facilities to be obtained) to continue in operational existence for the foreseeable future. Thus the GSZ Company continues to adopt the going concern basis of accounting in preparing the Historical Financial Information.

(b) Basis of measurement

The Historical Financial Information have been prepared on the historical cost basis, which is generally based on the fair value of the consideration given in exchange for goods and services.

(c) Property, plant and equipment

Property, plant and equipment are tangible assets that are held for use in the supply of goods or services, or for administrative purposes. Property, plant and equipment are stated in the statement of financial position at cost less subsequent accumulated depreciation and subsequent accumulated impairment losses, if any.

Depreciation is recognised so as to write off the cost of assets over their estimated useful lives, using the straight-line method. The estimated useful lives and depreciation method are reviewed at the end of each reporting period, with the effect of any changes in estimate accounted for on a prospective basis.

An item of property, plant and equipment is derecognised upon disposal or when no future economic benefits are expected to arise from the continued use of the asset. Any gain or loss arising on the disposal or retirement of an item of property, plant and equipment is determined as the difference between the sales proceeds and the carrying amount of the asset and is recognised in profit or loss.

Depreciation is calculated to write-off the cost or valuation of items of property and equipment, less their estimated residual value, if any, using the straight-line method over their estimated useful lives as follows:

	The estimated useful life of the asset
Land and buildings	30 years
Furniture, fixtures and equipment	5–10 years
Transportation equipment	5–10 years
Others	5 years

(d) Construction in progress

The cost of construction in progress is determined according to the actual expenditure for the construction, including all necessary construction expenditure incurred during the construction period, borrowing costs that should be capitalised before the construction is ready for its intended use and other relevant expenses. The amount is carried at cost, less any recognised impairment loss. Construction in progress is transferred to property, plant and equipment or intangible assets when the asset is ready for its intended use. Depreciation of these assets, on the same basis as other property assets, commences when the assets are ready for their intended use.

(e) Concession intangible assets

Concession intangible assets with finite useful lives are carried at costs less accumulated amortisation and any accumulated impairment losses.

Concession intangible assets refer to the rights granted by the respective concession grantors, which entitle the GSZ Company to receive the toll fees from users. When the GSZ Company has a right to charge for usage of concession infrastructure (as a consideration for providing construction service in a service concession arrangement), it recognises an intangible asset at fair value upon initial recognition. The concession intangible assets of the toll road that the GSZ Company has delivered but not yet completed the final settlement account are temporarily estimated based on the book value of the toll road project. When the final account is completed, the book value will be adjusted to the actual value.

When toll roads are ready for their intended use, amortisation of the intangible assets is calculated based on the traffic volume amortisation method. Amortisation is provided on projected units-of-usage, which is calculated based on the total projected traffic volume during the operating period of the concessions and the book value of the concession intangible assets combined with the actual traffic volume during each accounting period.

Subsequent expenditures incurred for the toll roads are included in the cost of the concession intangible assets when it is probable that the associated economic benefits will flow to the GSZ Company and the related cost can be reliably measured. All the other subsequent expenditures are recognised in profit or loss in the period in which they are incurred.

(f) Revenue from contracts with customers

The GSZ Company is the principal for its revenue transactions and recognises revenue on a gross basis. In determining whether the GSZ Company acts as a principal or as an agent, it considers whether it obtains control of the goods or services before they are transferred to the customers. Control refers to the GSZ Company's ability to direct the use of and obtain substantially all of the remaining benefits from the goods or services.

The GSZ Company recognises revenue when (or as) a performance obligation is satisfied, i.e. when "control" of the goods or services underlying the particular performance obligation is transferred to the customer.

A performance obligation represents a good or service (or a bundle of goods or services) that is distinct or a series of distinct goods or services that are substantially the same.

Control is transferred over time and revenue is recognised over time by reference to the progress towards complete satisfaction of the relevant performance obligation if one of the following criteria is met:

- the customer simultaneously receives and consumes the benefits provided by the GSZ Company's performance as the GSZ Company performs;
- the GSZ Company's performance creates or enhances an asset that the customer controls as the GSZ Company performs; or
- the GSZ Company's performance does not create an asset with an alternative use to the GSZ Company and the GSZ Company has an enforceable right to payment for performance completed to date.

Otherwise, revenue is recognised at a point in time when the customer obtains control of the distinct good or service.

Toll revenue is from operating toll roads, and is recognised in accordance with the amount collected and receivable when a vehicle is passing through.

During the construction period, the construction service provided by the GSZ Company shall be regarded as the performance obligations performed over time using the input method. Under the input method, the progress towards complete satisfaction of a performance obligation is measured based on input method, which is to recognise revenue on the basis of the GSZ Company's efforts or inputs to the satisfaction of a performance obligation relative to the total expected inputs to the satisfaction of that performance obligation, that best depict the GSZ Company's performance in transferring control of goods or services.

(g) Borrowing costs

Borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use or sale, are added to the cost of those assets until such time as the assets are substantially ready for their intended use or sale.

All other borrowing costs are recognised in profit or loss in the period in which they are incurred.

(h) Leases*Definition of a lease*

A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration.

For contracts entered into or modified on or after the date of initial application of IFRS 16 or arising from business combinations, the GSZ Company assesses whether a contract is or contains a lease based on the definition under IFRS 16 at inception, modification date or acquisition date, as appropriate. Such contract will not be reassessed unless the terms and conditions of the contract are subsequently changed.

*(i) The GSZ Company as a lessee**Short-term leases*

The GSZ Company applies the short-term lease recognition exemption to leases of car parks, office and staff quarters that have a lease term of 12 months or less from the commencement date and do not contain a purchase option. Lease payments on short-term leases are recognised as expense on a straight-line basis over the lease term.

Right-of-use asset

The cost of right-of-use asset includes:

- the amount of the initial measurement of the lease liability; and
- any initial direct costs incurred by the GSZ Company.

Right-of-use asset is measured at cost, less any accumulated depreciation and impairment losses, and adjusted for any remeasurement of lease liability.

Right-of-use asset in which the GSZ Company is reasonably certain to obtain ownership of the underlying leased asset at the end of the lease term is depreciated from commencement date to the end of the useful life. Otherwise, right-of-use asset is depreciated on a straight-line basis over the shorter of its estimated useful life and the lease term.

The GSZ Company presents right-of-use asset as a separate line item on the statement of financial position.

Lease liability

At the commencement date of a lease, the GSZ Company recognises and measures the lease liability at the present value of lease payments that are unpaid at that date. In calculating the present value of lease payments, the GSZ Company uses the incremental borrowing rate at the lease commencement date if the interest rate implicit in the lease is not readily determinable.

The lease payments include fixed payments (including in-substance fixed payments) less any lease incentives receivable.

After the commencement date, lease liability is adjusted by interest accretion and lease payments.

The GSZ Company presents lease liability as a separate line item on the statement of financial position.

Lease modifications

The GSZ Company accounts for a lease modification as a separate lease if:

- the modification increases the scope of the lease by adding the right to use one or more underlying assets; and
- the consideration for the leases increases by an amount commensurate with the stand-alone price for the increase in scope and any appropriate adjustments to that stand-alone price to reflect the circumstances of the particular contract.

For a lease modification that is not accounted for as a separate lease, the GSZ Company remeasures the lease liability based on the lease term of the modified lease by discounting the revised lease payments using a revised discount rate at the effective date of the modification.

The GSZ Company accounts for the remeasurement of lease liability by making corresponding adjustments to the relevant right-of-use asset.

(ii) *The GSZ Company as a lessor*

Leases for which the GSZ Company is a lessor are classified as finance or operating leases. Whenever the terms of the lease transfer substantially all the risks and rewards incidental to ownership of an underlying asset to the lessee, the contract is classified as a finance lease. All other leases are classified as operating leases.

Rental income from operating leases is recognised in profit or loss on a straight-line basis over the term of the relevant lease.

(i) **Cash and cash equivalents**

Cash and cash equivalents presented on the statement of financial position include:

- (i) cash, which comprises of cash on hand and demand deposits, excluding bank balances that are subject to regulatory restrictions that result in such balances no longer meeting the definition of cash; and
- (ii) cash equivalents, which comprises of short-term (generally with original maturity of three months or less), highly liquid investments that are readily convertible to a known amount of cash and which are subject to an insignificant risk of changes in value. Cash equivalents are held for the purpose of meeting short-term cash commitments rather than for investment or other purposes.

For the purposes of the statement of cash flows, cash and cash equivalents consist of cash and cash equivalents as defined above.

(j) **Inventories**

Inventories are stated at the lower of cost and net realisable value. Costs of inventories are determined on a first-in, first-out method. Costs necessary to make the sale include incremental costs directly attributable to the sale and non-incremental costs which the GSZ Company must incur to make the sale.

(k) **Government grants**

Government grants are not recognised until there is reasonable assurance that the GSZ Company will comply with the conditions attaching to them and that the grants will be received.

Government grants related to income that are receivable as compensation for expenses or losses already incurred or for the purpose of giving immediate financial support to the GSZ Company with no future related costs are recognised in profit or loss in the period in which they become receivable. Such grants are presented under "other income".

Government grants relating to the addition of property, plant and equipment or intangible assets are included in non-current liabilities as deferred government grants and are credited to the statements of profit or loss on a systematic basis over the expected lives of the related assets.

(l) Foreign currencies

In preparing the Historical Financial Information, transactions in currencies other than the functional currency of that entity (foreign currencies) are recognised at the rates of exchange prevailing on the dates of the transactions. At the end of the reporting period, monetary items denominated in foreign currencies are retranslated at the rates prevailing at that date. Non-monetary items that are measured in terms of historical cost in a foreign currency are not retranslated.

Exchange differences arising on the settlement of monetary items, and on the retranslation of monetary items, are recognised in profit or loss in the period in which they arise.

(m) Retirement benefit costs

Payments to defined contribution retirement benefit schemes are recognised as an expense when employees have rendered service entitling them to the contributions.

(n) Short-term employee benefits

Short-term employee benefits are recognised at the undiscounted amount of the benefits expected to be paid as and when employees rendered the services. All short-term employee benefits are recognised as an expense unless another IFRS Accounting Standards requires or permits the inclusion of the benefit in the cost of an asset.

A liability is recognised for benefits accruing to employees after deducting any amount already paid.

(o) Taxation

Income tax expense represents the sum of the current tax and deferred tax.

The current tax payable is based on the taxable profit for the year. Taxable profit differs from profit before tax because of income or expense that are taxable or deductible in other years and items that are never taxable or deductible. The GSZ Company's liability for current tax is calculated using tax rates that have been enacted or substantially enacted by the end of the reporting period.

Deferred tax is recognised on temporary differences between the carrying amounts of assets and liabilities in the Historical Financial Information and the corresponding tax bases used in the computation of taxable profit. Deferred tax liabilities are generally recognised for all taxable temporary differences. Deferred tax assets are generally recognised for all deductible temporary differences to the extent that it is probable that taxable profits will be available against which those deductible temporary differences can be utilised. Such deferred tax assets and liabilities are not recognised if the temporary difference arises from the initial recognition of assets and liabilities in a transaction that affects neither the taxable profit nor the accounting profit.

Deferred tax liabilities are recognised for taxable temporary differences, except where the GSZ Company is able to control the reversal of the temporary difference and it is probable that the temporary difference will not reverse in the foreseeable future. Deferred tax assets arising from deductible temporary differences are only recognised to the extent that it is probable that there will be sufficient taxable profits against which to utilise the benefits of the temporary differences and they are expected to reverse in the foreseeable future.

The carrying amount of deferred tax assets is reviewed at the end of each reporting period and reduced to the extent that it is no longer probable that sufficient taxable profits will be available to allow all or part of the asset to be recovered.

Deferred tax assets and liabilities are measured at the tax rates that are expected to apply in the period in which the liability is settled or the asset is realised, based on tax rate (and tax laws) that have been enacted or substantively enacted by the end of the reporting period.

The measurement of deferred tax liabilities and assets reflects the tax consequences that would follow from the manner in which the GSZ Company expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities.

Deferred tax assets and liabilities are offset when there is a legally enforceable right to set off current tax assets against current tax liabilities and when they relate to income taxes levied to the same taxable entity by the same taxation authority.

Current and deferred tax are recognised in profit or loss, except when they relate to items that are recognised in other comprehensive income or directly in equity, in which case, the current and deferred tax are also recognised in other comprehensive income or directly in equity respectively.

(p) Financial instruments

Financial assets and financial liabilities are recognised when a company entity becomes a party to the contractual provisions of the instrument. All regular way purchases or sales of financial assets are recognised and derecognised on a trade date basis. Regular way purchases or sales are purchases or sales of financial assets that require delivery of assets within the time frame established by regulation or convention in the market place.

Financial assets and financial liabilities are initially measured at fair value. Transaction costs that are directly attributable to the acquisition or issue of financial assets and financial liabilities (other than financial assets or financial liabilities at fair value through profit or loss ("FVTPL")) are added to or deducted from the fair value of the financial assets or financial liabilities, as appropriate, on initial recognition. Transaction costs directly attributable to the acquisition of financial assets or financial liabilities at FVTPL are recognised immediately in profit or loss.

The effective interest method is a method of calculating the amortised cost of a financial asset or financial liability and of allocating interest income and interest expense over the Track Record period. The effective interest rate is the rate that exactly discounts estimated future cash receipts and payments (including all fees and points paid or received that form an integral part of the effective interest rate, transaction costs and other premiums or discounts) through the expected life of the financial asset or financial liability, or, where appropriate, a shorter period, to the net carrying amount on initial recognition.

*Financial assets**Classification and subsequent measurement of financial assets*

Financial assets that meet the following conditions are subsequently measured at amortised cost:

- the financial asset is held within a business model whose objective is to collect contractual cash flows; and
- the contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.

Amortised cost and interest income

Interest income is recognised using the effective interest method for financial assets measured subsequently at amortised cost. For financial instruments other than purchased or originated credit-impaired financial assets, interest income is calculated by applying the effective interest rate to the gross carrying amount of a financial asset, except for financial assets that have subsequently become credit-impaired (see below). For financial assets that have subsequently become credit-impaired, interest income is recognised by applying the effective interest rate to the amortised cost of the financial asset from the next reporting period. If the credit risk on the credit-impaired financial instrument improves so that the financial asset is no longer credit-impaired, interest income is recognised by applying the effective interest rate to the gross carrying amount of the financial asset from the beginning of the reporting period following the determination that the asset is no longer credit-impaired.

Financial assets at FVTPL

Financial assets that do not meet the criteria for being measured at amortised cost is measured at FVTPL.

Financial assets at FVTPL are measured at fair value at the end of each reporting period, with any fair value gains or losses recognised in profit or loss. The net gain or loss recognised in profit or loss excludes any dividend or interest earned on the financial asset and is included in the “other income” line item.

Impairment of financial assets

The GSZ Company performs impairment assessment under expected credit loss (“ECL”) model on financial assets (including trade and other receivables, bank deposits and cash) and other item (financial guarantee contract) which are subject to impairment assessment under IFRS 9. The amount of ECL is updated at each reporting date to reflect changes in credit risk since initial recognition.

Lifetime ECL represents the ECL that will result from all possible default events over the expected life of the relevant instrument. In contrast, 12-month ECL represents the portion of lifetime ECL that is expected to result from default events that are possible within 12 months after the reporting date. Assessments are done based on the GSZ Company’s historical credit loss experience, adjusted for factors that are specific to the debtors, general economic conditions and an assessment of both the current conditions at the reporting date as well as the forecast of future conditions.

The GSZ Company always recognises lifetime ECL for trade receivables. The ECL on these assets are assessed individually.

For all other financial instruments, the GSZ Company measures the loss allowance equal to 12-month ECL, unless there has been a significant increase in credit risk since initial recognition, in which case the GSZ Company recognises lifetime ECL. The assessment of whether lifetime ECL should be recognised is based on significant increases in the likelihood or risk of a default occurring since initial recognition.

Significant increase in credit risk

In assessing whether the credit risk has increased significantly since initial recognition, the GSZ Company compares the risk of a default occurring on the financial instrument as at the reporting date with the risk of a default occurring on the financial instrument as at the date of initial recognition. In making this assessment, the GSZ Company considers both quantitative and qualitative information that is reasonable and supportable, including historical experience and forward-looking information that is available without undue cost or effort.

In particular, the following information is taken into account when assessing whether credit risk has increased significantly:

- an actual or expected significant deterioration in the financial instrument's external (if available) or internal credit rating;
- significant deterioration in external market indicators of credit risk, e.g. a significant increase in the credit spread, the credit default swap prices for the debtor;
- existing or forecast adverse changes in business, financial or economic conditions that are expected to cause a significant decrease in the debtor's ability to meet its debt obligations;
- an actual or expected significant deterioration in the operating results of the debtor;
- an actual or expected significant adverse change in the regulatory, economic, or technological environment of the debtor that results in a significant decrease in the debtor's ability to meet its debt obligations.

Irrespective of the outcome of the above assessment, the GSZ Company presumes that the credit risk has increased significantly since initial recognition when contractual payments are more than 30 days past due, unless the GSZ Company has reasonable and supportable information that demonstrates otherwise.

For financial guarantee contract, the date that the GSZ Company becomes a party to the irrevocable commitment is considered to be the date of initial recognition for the purposes of assessing impairment. In assessing whether there has been a significant increase in the credit risk since initial recognition of financial guarantee contract, the GSZ Company considers the changes in the risk that the specified debtor will default on the contract.

The GSZ Company regularly monitors the effectiveness of the criteria used to identify whether there has been a significant increase in credit risk and revises them as appropriate to ensure that the criteria are capable of identifying significant increase in credit risk before the amount becomes past due.

Definition of default

For internal credit risk management, the GSZ Company considers an event of default occurs when information developed internally or obtained from external sources indicates that the debtor is unlikely to pay its creditors, including the GSZ Company, in full (without taking into account any collaterals held by the GSZ Company).

Irrespective of the above, the GSZ Company considers that default has occurred when a financial asset is more than 90 days past due unless the GSZ Company has reasonable and supportable information to demonstrate that a more lagging default criterion is more appropriate.

Credit-impaired financial assets

A financial asset is credit-impaired when one or more events of default that have a detrimental impact on the estimated future cash flows of that financial asset have occurred. Evidence that a financial asset is credit-impaired includes observable data about the following events:

- significant financial difficulty of the issuer or the borrower;
- a breach of contract, such as a default or past due event;
- the lender(s) of the borrower, for economic or contractual reasons relating to the borrower's financial difficulty, having granted to the borrower a concession(s) that the lender(s) would not otherwise consider; or
- it is becoming probable that the borrower will enter bankruptcy or other financial reorganisation.

Write-off policy

The GSZ Company writes off a financial asset when there is information indicating that the counterparty is in severe financial difficulty and there is no realistic prospect of recovery, for example, when the counterparty has been placed under liquidation or has entered into bankruptcy proceedings. Financial assets written off may still be subject to enforcement activities under the GSZ Company's recovery procedures, taking into account legal advice where appropriate. A write-off constitutes a derecognition event. Any subsequent recoveries are recognised in profit or loss.

Measurement and recognition of ECL

ECLs are remeasured at each reporting date to reflect changes in the financial instrument's credit risk since initial recognition. Any change in the ECL amount is recognised as an impairment gain or loss in profit or loss. The GSZ Company recognises an impairment gain or loss for all financial instruments with a corresponding adjustment to their carrying amount through a loss allowance account, except for investments in non-equity securities that are measured at FVOCI (recycling), for which the loss allowance is recognised in OCI and accumulated in the fair value reserve (recycling) does not reduce the carrying amount of the financial asset in the statement of financial position.

Derecognition of financial assets

The GSZ Company derecognises a financial asset only when the contractual rights to the cash flows from the asset expire, or when it transfers the financial asset and substantially all the risks and rewards of ownership of the asset to another entity.

On derecognition of a financial asset measured at amortised cost, the difference between the asset's carrying amount and the sum of the consideration received and receivable is recognised in profit and loss.

Financial liabilities

All financial liabilities including trade and other payables, bank loans and dividend payables are subsequently measured at amortised cost, using the effective interest method.

Financial guarantee contracts

A financial guarantee contract is a contract that requires the issuer to make specified payments to reimburse the holder for a loss it incurs because a specified debtor fails to make payments when due in accordance with the terms of a debt instrument. Financial guarantee contract liabilities are measured initially at their fair values. It is subsequently measured at the higher of:

- the amount of the loss allowance determined in accordance with IFRS 9; and
- the amount initially recognised less, where appropriate, cumulative amortisation recognised over the guarantee period.

Derecognition of financial liabilities

The GSZ Company derecognises financial liabilities when, and only when, the GSZ Company's obligations are discharged, cancelled or have expired. The difference between the carrying amount of the financial liability derecognised and the consideration paid and payable is recognised in profit or loss.

(q) Impairment on property, plant and equipment, right-of-use assets and concession intangible assets

At the end of the reporting period, the GSZ Company reviews the carrying amounts of its property, plant and equipment, right-of-use assets and concession intangible assets to determine whether there is any indication that those assets have suffered an impairment. If any such indication exists, the recoverable amount of the relevant asset is estimated in order to determine the extent of the impairment (if any).

The recoverable amount of property, plant and equipment, right-of-use assets and concession intangible assets are estimated individually. When it is not possible to estimate the recoverable amount individually, the GSZ Company estimates the recoverable amount of the cash-generating unit to which the asset belongs.

In testing a cash-generating unit for impairment, corporate assets are allocated to the relevant cash-generating unit when a reasonable and consistent basis of allocation can be established, or otherwise they are allocated to the smallest group of cash generating units for which a reasonable and consistent allocation basis can be established. The recoverable amount is determined for the cash-generating unit or group of cash-generating units to which the corporate asset belongs, and is compared with the carrying amount of the relevant cash-generating unit or group of cash-generating units.

Recoverable amount is the higher of fair value less costs of disposal and value in use. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset (or a cash-generating unit) for which the estimates of future cash flows have not been adjusted.

If the recoverable amount of an asset (or a cash-generating unit) is estimated to be less than its carrying amount, the carrying amount of the asset (or a cash-generating unit) is reduced to its recoverable amount. For corporate assets or portion of corporate assets which cannot be allocated on a reasonable and consistent basis to a cash-generating unit, the GSZ Company compares the carrying amount of a group of cash-generating units, including the carrying amounts of the corporate assets or portion of corporate assets allocated to that group of cash-generating units, with the recoverable amount of the group of cash-generating units. In allocating the impairment loss, the impairment is allocated first to reduce the carrying amount of any goodwill (if applicable) and then to the other assets on a pro-rata basis based on the carrying amount of each asset in the unit or the group of cash-generating units. The carrying amount of an asset is not reduced below the highest of its fair value less costs of disposal (if measurable), its value in use (if determinable) and zero. The amount of the impairment that would otherwise have been allocated to the asset is allocated pro rata to the other assets of the unit or the group of cash-generating units. An impairment is recognised immediately in profit or loss.

Where an impairment subsequently reverses, the carrying amount of the asset (or cash-generating unit or a group of cash-generating units) is increased to the revised estimate of its recoverable amount, but so that the increased carrying amount does not exceed the carrying amount that would have been determined had no impairment been recognised for the asset (or a cash-generating unit or a group of cash-generating units) in prior years. A reversal of an impairment is recognised immediately in profit or loss.

(r) Resurfacing obligations

Resurfacing obligations are recognised when the GSZ Company's legal or constructive obligations have arisen as a result of a past event, it is probable that an outflow of economic benefits will be required to settle the obligation and a reliable estimate can be made. Where the time value of money is material, resurfacing obligations provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects current market assessment of the time value of money and the risks specific to the liability.

Where it is not probable that an outflow of economic benefits will be required, or the amount cannot be estimated reliably, the obligation is disclosed as a contingent liability, unless the probability of outflow of economic benefits is remote. Possible obligations, whose existence will only be confirmed by the occurrence or non-occurrence of one or more future events are also disclosed as contingent liabilities unless the probability of outflow of economic benefits is remote.

Where some or all of the expenditure required to settle a resurfacing obligation is expected to be reimbursed by another party, a separate asset is recognised for any expected reimbursement that would be virtually certain. The amount recognised for the reimbursement is limited to the carrying amount of the resurfacing obligation.

(s) Segment reporting

Operating segments, and the amounts of each segment item reported in the financial statements, are identified from the financial information provided regularly to the GSZ Company's chief operating maker for the purposes of allocating resources to, and assessing the performance of, the GSZ Company's various lines of business and geographical locations.

Individually material operating segments are not aggregated for financial reporting purposes unless the segments have similar economic characteristics and are similar in respect of the nature of products and services, the nature of production processes, the type or class of customers, the methods used to distribute the products or provide the services, and the nature of the regulatory environment. Operating segments which are not individually material may be aggregated if they share a majority of these criteria.

3 CRITICAL ACCOUNTING JUDGEMENTS AND KEY SOURCES OF ESTIMATION UNCERTAINTY

In the application of the GSZ Company's accounting policies, which are described in Note 2, the Directors are required to make judgements, estimates and assumptions about the carrying amounts of assets and liabilities that are not readily apparent from other sources. The estimates and associated assumptions are based on historical experience and other factors that are considered to be relevant. Actual results may differ from these estimates.

The estimates and underlying assumptions are reviewed on an on-going basis. Revisions to accounting estimates are recognised in the year in which the estimate is revised if the revision affects only that period, or in the year of the revision and future periods if the revision affects both current and future periods.

Key sources of estimation uncertainty

The followings are the key assumptions concerning the future, and other key sources of estimation uncertainty at the end of the reporting periods that may have a significant risk of causing a material adjustment to the carrying amounts of assets within the next financial year.

(i) Amortisation of concession intangible assets

When the toll road is ready for their intended use, amortisation of the concession intangible assets is calculated based on the traffic volume amortisation method. Amortisation is provided on projected units-of-usage, which is calculated based on the total projected traffic volume during the operating periods of the concessions and the book value of the concession intangible assets combined with the actual traffic volume during each accounting period. The total expected traffic volume over the remaining concession period was estimated by the management annually, taking into consideration of various factors such as the annual growth rate of the traffic volume, the actual traffic volume in the recent periods, the change of the transportation network of the region and government policies relating to the toll expressway operation in Chinese Mainland. When material differences between actual traffic volume and projected traffic volume exist, the GSZ Company will appoint an independent professional traffic consultant to perform a study on the future traffic volume, and then adjust the amortisation based on unit usage according to the revised total projected traffic volume, to ensure that the respective concession intangible assets would be fully amortised in the operation period.

In view of that the actual traffic volume of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) differs from the projected traffic volume in recent years and may last for further periods, the GSZ Company appoints independent professional traffic consultants to reassess the projected traffic volume for the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section). The GSZ Company has adjusted the units-of-usage for the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) according to the revised total projected traffic volume since 1 November 2023. Such change in accounting estimate has resulted in an increase in profit after tax of the GSZ Company of RMB25,489,000 for the year ended 31 December 2023 and affects the amortisation charges of the GSZ Company in the future.

(ii) Resurfacing obligations

The GSZ Company has contractual obligations under the contractual service arrangements to maintain the toll expressways to a specified level of serviceability over the respective concession periods. These obligations to maintain or restore the toll expressways, except for upgrade services, are to be recognised and measured as resurfacing obligations. Resurfacing obligations had been made at the present value of expenditures expected to be incurred by the GSZ Company to settle the obligations.

The resurfacing obligation at the end of the reporting period is determined based on the number of major resurfacing works to be undertaken over the concession periods under the service concession agreements and the expected costs to be incurred for each event. The costs are then discounted to the present value based on a pre-tax discount rate to derive the resurfacing obligation amount.

The expected costs for maintenance and resurfacing and the timing of such events to take place involve estimates made by the management, which were based on the resurfacing plans of the GSZ Company, historical costs incurred for similar activities and the latest quotations from the service provider.

If the expected expenditures, resurfacing plans and discount rate were different from the management's current estimates, the change in resurfacing obligations is required to be accounted for prospectively.

The management is of the view that the discount rate currently used in the current estimate should reflect the time value of money and the risks specific to the obligations.

Considering the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) reconstruction and expansion project, the GSZ Company appointed independent professional toll road experts to perform studies and concluded resurfacing works would not be undertaken over the remaining period of the existing concession rights. Therefore, the resurfacing obligations of the GSZ Company of RMB540,142,000 was reversed and resulted in an increase in profit after tax of the GSZ Company of RMB405,107,000 for the year ended 31 December 2023.

4 REVENUE

	Year ended 31 December			Eight months ended 31 August	
	2021	2022	2023	2023	2024
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
				(unaudited)	
Revenue from contracts with customers within the scope of IFRS 15					
Toll revenue	2,865,690	2,258,022	2,892,203	1,925,174	1,924,142
Construction revenue	—	21,585	1,048,476	58,180	74,997
Others	49,192	31,268	31,260	17,918	30,468
	<u>2,914,882</u>	<u>2,310,875</u>	<u>3,971,939</u>	<u>2,001,272</u>	<u>2,029,607</u>

The GSZ Company has applied the practical expedient in paragraph 121(a) of IFRS 15 to its contracts with customers, hence no information required by paragraph 120 of IFRS 15 was disclosed.

During the Track Record Period, the GSZ Company is principally engaged in construction, operation and management of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) and all of the revenue were derived in the Chinese Mainland. The chief operating maker reviews the operating results of the business as one operating segment to make decisions about resources to be allocated. Therefore, the GSZ Company's chief operating maker regards that there is only one segment which is used to make strategic decisions.

No geographical segment analysis is shown as all of the GSZ Company's revenue are derived from activities in, and from customers located in the Chinese Mainland and all of the GSZ Company's assets are situated in the Chinese Mainland.

5 OTHER INCOME

	Year ended 31 December			Eight months ended 31 August	
	2021	2022	2023	2023	2024
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
				(unaudited)	
Government subsidies (Note)	15,814	8,200	11,730	4,318	43,553
Interest income on time deposits	22,748	23,020	27,484	10,441	9,672
	<u>38,562</u>	<u>31,220</u>	<u>39,214</u>	<u>14,759</u>	<u>53,225</u>

Note: The amounts mainly represent the subsidies from local government authorities for certain reconstruction and expansion projects (Note 16).

6 PROFIT BEFORE TAXATION

Profit before taxation is arrived at after charging/(crediting):

	Year ended 31 December			Eight months ended 31 August	
	2021 RMB'000	2022 RMB'000	2023 RMB'000	2023 RMB'000 (unaudited)	2024 RMB'000
(a) Staff costs					
Directors' emoluments	461	440	457	356	215
Other staff costs	<u>274,663</u>	<u>282,382</u>	<u>294,002</u>	<u>171,063</u>	<u>167,146</u>
	<u>275,124</u>	<u>282,822</u>	<u>294,458</u>	<u>171,419</u>	<u>167,361</u>
(b) Finance costs					
Interest on bank loans	84,121	87,381	147,236	96,515	88,922
Interest on lease liabilities	<u>133</u>	<u>57</u>	<u>204</u>	<u>20</u>	<u>101</u>
	<u>84,254</u>	<u>87,438</u>	<u>147,440</u>	<u>96,535</u>	<u>89,023</u>
(c) Other items					
Depreciation of right-of-use assets	2,145	1,182	3,518	146	3,078
Depreciation of property, plant and equipment	95,212	99,044	98,205	65,879	65,459
Amortisation of concession intangible assets and other intangible assets	734,444	665,927	862,919	579,687	499,554
Net exchange (gain)/loss (Note (i))	(52,502)	221,777	38,463	57,377	19,804
Auditor's remuneration	108	128	128	128	137
Compensation income from Guangzhou Zhentong Development Company Limited ("Guangzhou Zhentong") (廣州臻通實業 發展有限公司) (Notes (i) and (ii))	(182,233)	(120,845)	—	—	(8,330)
Loss/(gain) on disposal of property, plant and equipment (Note (i))	2,821	(2,242)	(4,844)	166	(36,444)
Gain on disposal of land (Notes (i) and (iii))	<u>—</u>	<u>(313,780)</u>	<u>—</u>	<u>—</u>	<u>—</u>

Notes:

- (i) These items are included in other net gain/(loss) in the statements of profit or loss and other comprehensive income.
- (ii) The amounts represent compensation income in respect of the impact to traffic flow due to certain renovation projects carried by Guangzhou Zhentong, an entity jointly controlled by the shareholders of the GSZ Company.

- (iii) During the year ended 31 December 2022, a sale and purchase agreement of land was entered into by the GSZ Company and the local government. The GSZ Company disposed of certain land with a carrying amount RMB5,566,000 to the local government at a total consideration of RMB319,346,000 and the legal title of the land was transferred to local government in December 2022, resulting in a gain on disposal of RMB235,335,000 (net of tax).

7 INCOME TAX

	Year ended 31 December			Eight months ended 31 August	
	2021	2022	2023	2023	2024
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
				(unaudited)	
Current tax					
— Corporate Income Tax	473,407	355,616	368,976	250,399	287,459
Deferred tax (<i>Note 17</i>)	(39,770)	(60,878)	88,114	(32,757)	(3,708)
	<u>433,637</u>	<u>294,738</u>	<u>457,090</u>	<u>217,642</u>	<u>283,751</u>

Under the Law of the PRC on Enterprise Income Tax (the “EIT Law”) and Implementation Regulation of the EIT Law, the tax rate of the GSZ Company is 25% from 1 January 2008 onwards.

The reconciliation between income tax expense and profit before tax in the statements of profit or loss and other comprehensive income is set out below:

	Year ended 31 December			Eight months ended 31 August	
	2021	2022	2023	2023	2024
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
				(unaudited)	
Profit before taxation	<u>1,788,084</u>	<u>1,165,385</u>	<u>1,817,285</u>	<u>853,348</u>	<u>1,130,266</u>
CIT for current year/period					
— Tax calculated at PRC statutory income tax rate of 25%	447,021	291,346	454,321	213,337	282,567
— Tax effect of non-deductible expenses	5,364	7,454	3,800	3,459	1,146
— Reversal of previously recognised temporary differences	(18,959)	—	—	—	—
— Adjustment for research and development expenses	—	(4,079)	(1,031)	846	38
Under-provision in prior years	<u>211</u>	<u>17</u>	<u>—</u>	<u>—</u>	<u>—</u>
Income tax expense	<u>433,637</u>	<u>294,738</u>	<u>457,090</u>	<u>217,642</u>	<u>283,751</u>

8 PROPERTY, PLANT AND EQUIPMENT

	Land and buildings <i>RMB'000</i>	Furniture, fixtures and equipment <i>RMB'000</i>	Transportation equipment <i>RMB'000</i>	Others <i>RMB'000</i>	Total <i>RMB'000</i>
Cost					
At 1 January 2021	206,486	945,216	64,210	45,812	1,261,724
Additions	6,410	47,158	2,970	5,690	62,228
Disposals	—	(31,655)	(14,500)	(1,114)	(47,269)
At 31 December 2021 and 1 January 2022	212,896	960,719	52,680	50,388	1,276,683
Additions	—	19,477	—	2,850	22,327
Disposals	(28,931)	(11,965)	(16,675)	(1,861)	(59,432)
Adjustments	(172)	—	163	—	(9)
At 31 December 2022 and 1 January 2023	183,793	968,231	36,168	51,377	1,239,569
Additions	2,576	34,567	4,426	1,702	43,271
Disposals	—	(6,640)	(2,522)	(730)	(9,892)
At 31 December 2023 and 1 January 2024	186,369	996,158	38,072	52,349	1,272,948
Additions	—	1,475	—	508	1,983
Disposals	—	(5,628)	(75)	(972)	(6,675)
At 31 August 2024	186,369	992,005	37,997	51,885	1,268,256
Accumulated depreciation					
At 1 January 2021	94,552	592,169	51,675	31,247	769,643
Charge for the year	16,840	73,599	2,543	2,230	95,212
Write back on disposals	—	(23,237)	(13,649)	(1,031)	(37,917)
At 31 December 2021 and 1 January 2022	111,392	642,531	40,569	32,446	826,938
Charge for the year	17,517	73,448	2,310	5,769	99,044
Write back on disposals	(23,365)	(11,367)	(15,688)	(1,765)	(52,185)
At 31 December 2022 and 1 January 2023	105,544	704,612	27,191	36,450	873,797
Charge for the year	17,628	74,289	2,145	4,143	98,205
Write back on disposals	—	(6,383)	(2,396)	(690)	(9,469)
At 31 December 2023 and 1 January 2024	123,172	772,518	26,940	39,903	962,533
Charge for the period	12,226	48,642	1,825	2,766	65,459
Write back on disposals	—	(5,341)	(72)	(894)	(6,307)
At 31 August 2024	135,398	815,819	28,693	41,775	1,021,685

	Land and buildings <i>RMB'000</i>	Furniture, fixtures and equipment <i>RMB'000</i>	Transportation equipment <i>RMB'000</i>	Others <i>RMB'000</i>	Total <i>RMB'000</i>
Net book value					
At 31 December 2021	<u>101,504</u>	<u>318,188</u>	<u>12,111</u>	<u>17,942</u>	<u>449,745</u>
At 31 December 2022	<u>78,249</u>	<u>263,619</u>	<u>8,977</u>	<u>14,927</u>	<u>365,772</u>
At 31 December 2023	<u>63,197</u>	<u>223,640</u>	<u>11,132</u>	<u>12,446</u>	<u>310,415</u>
At 31 August 2024	<u>50,971</u>	<u>176,186</u>	<u>9,304</u>	<u>10,110</u>	<u>246,571</u>

9 CONCESSION INTANGIBLE ASSETS

	<i>RMB'000</i>
Cost	
As at 1 January 2021	15,816,130
Additions	189,564
Disposals	<u>(19,939)</u>
At 31 December 2021 and 1 January 2022	15,985,755
Additions	127,295
Disposals	<u>(14,365)</u>
At 31 December 2022 and 1 January 2023	16,098,685
Additions	1,061,797
Disposals	<u>(7,715)</u>
At 31 December 2023 and 1 January 2024	17,152,767
Additions	94,375
Disposals	<u>(18,151)</u>
At 31 August 2024	<u>17,228,991</u>
Accumulated depreciation	
As at 1 January 2021	9,809,079
Charge for the year	732,797
Disposals	<u>(18,962)</u>
At 31 December 2021 and 1 January 2022	10,522,914
Charge for the year	664,235
Disposals	<u>(13,621)</u>
At 31 December 2022 and 1 January 2023	11,173,528
Charge for the year	861,377
Disposals	<u>(7,703)</u>
At 31 December 2023 and 1 January 2024	12,027,202
Charge for the period	498,704
Disposals	<u>(15,082)</u>
At 31 August 2024	<u>12,510,824</u>

RMB'000

Carrying amounts

At 31 December 2021	<u>5,462,841</u>
At 31 December 2022	<u>4,925,157</u>
At 31 December 2023	<u>5,125,565</u>
At 31 August 2024	<u>4,718,167</u>

Concession intangible assets represent the rights to operate the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) granted by the relevant local government authorities in the PRC to the GSZ Company.

In accordance with the relevant governments' approval documents and the relevant regulations, the GSZ Company is responsible for the construction of the toll roads and the purchase of the related facilities and equipment. The GSZ Company is also responsible for the operations and management, maintenance and overhaul of the toll roads during the approved operating period. The toll fees collected and collectible during the operating period are attributable to the GSZ Company. The relevant toll roads assets are required to be returned to the local government authorities when the operating rights periods expire without any consideration payable to the GSZ Company. According to the relevant regulations, the operating right is generally not renewable and the GSZ Company does not have any termination options.

The GSZ Company has set policies to execute internal review on the total projected traffic volume during the operation period of the concessions annually. The GSZ Company also appoints an independent professional traffic consultant to perform independent professional traffic studies every 3 to 5 years, or when material differences between actual traffic volume and projected traffic volume exist and then adjust the amortisation based on unit usage according to the revised total projected traffic volume, to ensure that the respective concession intangible assets would be fully amortised in the operating period.

With the economic development and the increase in car ownership in Guangdong Province, the traffic flow on the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) has been nearly saturated and the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) reconstruction and expansion project ("the project") are required. The project will be divided into two sections, the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway and the reconstruction and expansion project of the Dongguan Chang'an to Shenzhen Huanggang section of the Beijing-Hong Kong-Macao Expressway. Among which, the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway was approved by the Guangdong Provincial Development and Reform Commission in 2023 and expansion work has been commenced by end of 2023. At present, it is expected that the total investment of this section will be about RMB29.4 billion. As of the date of this report, the feasibility study report for the reconstruction and expansion project of the Dongguan Chang'an Shenzhen Huanggang section of the Beijing-Hong Kong-Macao Expressway has been revised and submitted to the Provincial Department of Transport.

10 OTHER NON-CURRENT ASSETS

	As at 31 December			As at
	2021	2022	2023	31 August
	RMB'000	RMB'000	RMB'000	2024
Deductible value-added tax	—	—	13,459	16,085
Prepayments of construction	—	—	45,349	352,311
	—	—	58,808	368,396

11 TRADE AND OTHER RECEIVABLES

	As at 31 December			As at
	2021	2022	2023	31 August
	RMB'000	RMB'000	RMB'000	2024
Trade receivables	43,983	46,773	61,558	53,934
Consideration receivables for disposal of land (Note 6(iii))	—	192,551	192,551	192,551
Compensation receivables from Guangzhou Zhentong (Note 6(ii))	90,468	60,420	57,274	65,854
Advance for toll road projects	50,817	83,372	52,061	50,011
Others	16,693	24,409	4,777	3,990
	201,961	407,525	368,221	366,340

As at 31 December 2021, 2022 and 2023 and 31 August 2024, entire balances of trade receivables are pledged to banks to secure bank facilities granted by the bank.

The following is the ageing analysis of trade receivables presented based on the revenue recognition date:

	As at 31 December			As at
	2021	2022	2023	31 August
	RMB'000	RMB'000	RMB'000	2024
Within 30 days	43,983	46,773	60,658	53,934
Over 30 days	—	—	900	—
	43,983	46,773	61,558	53,934

Trade receivables are due within 30 days from the revenue recognition date.

12 CASH AND CASH EQUIVALENTS AND OTHER CASH FLOW INFORMATION

(a) Cash and cash equivalents comprise:

	As at 31 December			As at
	2021	2022	2023	31 August
	RMB'000	RMB'000	RMB'000	2024
				RMB'000
Cash at bank	<u>556,446</u>	<u>819,822</u>	<u>776,265</u>	<u>1,390,832</u>

(b) Reconciliation of liabilities arising from financing activities:

	Bank loans	Lease liabilities	Dividend payable	Total
	RMB'000	RMB'000	RMB'000	RMB'000
At 1 January 2021	<u>3,636,532</u>	<u>—</u>	<u>—</u>	<u>3,636,532</u>
Changes from financing cash flows:				
Repayment of bank loans	(574,121)	—	—	(574,121)
Interest paid on bank loans	(83,302)	—	—	(83,302)
Dividend paid	—	—	(1,589,234)	(1,589,234)
Capital element of lease rentals paid	—	(115)	—	(115)
Interest element of lease rentals paid	<u>—</u>	<u>(133)</u>	<u>—</u>	<u>(133)</u>
Total changes from financing cash flows	<u>(657,423)</u>	<u>(248)</u>	<u>(1,589,234)</u>	<u>(2,246,905)</u>
Other changes:				
Dividend declared	—	—	1,589,234	1,589,234
Interest expenses (<i>Note 6</i>)	84,121	133	—	84,254
New lease entered	—	2,325	—	2,325
Exchange difference	<u>(57,312)</u>	<u>—</u>	<u>—</u>	<u>(57,312)</u>
Total other changes	<u>26,809</u>	<u>2,458</u>	<u>1,589,234</u>	<u>1,618,501</u>
At 31 December 2021	<u>3,005,918</u>	<u>2,210</u>	<u>—</u>	<u>3,008,128</u>

	Bank loans <i>RMB'000</i>	Lease liabilities <i>RMB'000</i>	Dividend payable <i>RMB'000</i>	Total <i>RMB'000</i>
At 1 January 2022	3,005,918	2,210	—	3,008,128
Changes from financing cash flows:				
Proceeds from new bank loans	2,126,606	—	—	2,126,606
Repayment of bank loans	(2,380,830)	—	—	(2,380,830)
Interest paid on bank loans	(83,308)	—	—	(83,308)
Dividend paid	—	—	(1,000,000)	(1,000,000)
Capital element of lease rentals paid	—	(191)	—	(191)
Interest element of lease rentals paid	—	(57)	—	(57)
Total changes from financing cash flows	(337,532)	(248)	(1,000,000)	(1,337,780)
Other changes:				
Dividend declared	—	—	1,403,732	1,403,732
Interest expenses (<i>Note 6</i>)	87,381	57	—	87,438
Exchange difference	219,473	—	—	219,473
Total other changes	306,854	57	1,403,732	1,710,643
At 31 December 2022	2,975,240	2,019	403,732	3,380,991
	Bank loans <i>RMB'000</i>	Lease liabilities <i>RMB'000</i>	Dividend payable <i>RMB'000</i>	Total <i>RMB'000</i>
At 1 January 2023	2,975,240	2,019	403,732	3,380,991
Changes from financing cash flows:				
Repayment of bank loans	(368,841)	—	—	(368,841)
Interest paid on bank loans	(145,910)	—	—	(145,910)
Dividend paid	—	—	(643,732)	(643,732)
Capital element of lease rentals paid	—	(2,318)	—	(2,318)
Interest element of lease rentals paid	—	(204)	—	(204)
Total changes from financing cash flows	(514,751)	(2,522)	(643,732)	(1,161,005)
Other changes:				
Dividend declared	—	—	240,000	240,000
Interest expenses (<i>Note 6</i>)	147,236	204	—	147,440
New lease entered	—	6,559	—	6,559
Termination of lease	—	(995)	—	(995)
Exchange difference	31,510	—	—	31,510
Total other changes	178,746	5,768	240,000	424,514
At 31 December 2023	2,639,235	5,265	—	2,644,500

	Bank loans <i>RMB'000</i>	Lease liabilities <i>RMB'000</i>	Total <i>RMB'000</i>
At 1 January 2024	2,639,235	5,265	2,644,500
Changes from financing cash flows:			
Repayment of bank loans	(375,044)	—	(375,044)
Interest paid on bank loans	(69,414)	—	(69,414)
Capital element of lease rentals paid	—	(3,147)	(3,147)
Interest element of lease rentals paid	—	(101)	(101)
Total changes from financing cash flows	(444,458)	(3,248)	(447,706)
Other changes:			
Interest expenses (<i>Note 6</i>)	88,922	101	89,023
New lease entered	—	3,474	3,474
Exchange differences	10,764	—	10,764
Total other changes	99,686	3,575	103,261
At 31 August 2024	2,294,463	5,592	2,300,055

13 TRADE AND OTHER PAYABLES

	As at 31 December			As at
	2021	2022	2023	31 August
	<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>
Trade payables	345,119	269,096	233,587	171,973
Accrued expenses	113,416	113,885	115,338	113,901
Amounts due to related parties	15,277	14,125	17,510	18,510
Payroll payables	15,862	35,576	18,057	16,913
Construction deposits and other retention payables	16,565	14,574	55,219	28,952
Dividend payable	—	403,732	—	—
	161,120	581,892	206,124	178,276
	506,239	850,988	439,711	350,249

The following is the ageing analysis of trade payables presented based on the recognition dates:

	As at 31 December			As at
	2021	2022	2023	31 August
	RMB'000	RMB'000	RMB'000	2024
Within 1 year	128,499	88,450	153,312	44,802
Over 1 year	216,620	180,646	80,275	127,171
	<u>345,119</u>	<u>269,096</u>	<u>233,587</u>	<u>171,973</u>

14 BANK LOANS

	As at 31 December			As at
	2021	2022	2023	31 August
	RMB'000	RMB'000	RMB'000	2024
Secured (<i>Note</i>)	<u>3,005,918</u>	<u>2,975,240</u>	<u>2,639,235</u>	<u>2,294,463</u>

Note: As at 31 December 2021, 2022, 2023 and 31 August 2024, the bank loans are pledged by the toll collection rights.

Included in bank loans are amounts denominated in the following currency:

	As at 31 December			As at
	2021	2022	2023	31 August
	RMB'000	RMB'000	RMB'000	2024
USD	1,961,173	—	—	—
HKD	168,936	2,349,758	2,023,781	1,753,038
RMB	<u>875,809</u>	<u>625,482</u>	<u>615,454</u>	<u>541,425</u>
	<u>3,005,918</u>	<u>2,975,240</u>	<u>2,639,235</u>	<u>2,294,463</u>

	As at 31 December			As at
	2021	2022	2023	31 August
	RMB'000	RMB'000	RMB'000	2024
The borrowings are repayable as follows:				
Within one year	254,740	609,447	607,510	698,501
After 1 year but within 2 years	572,355	878,529	735,875	697,632
After 2 years but within 5 years	<u>2,178,823</u>	<u>1,487,264</u>	<u>1,295,850</u>	<u>898,330</u>
	3,005,918	2,975,240	2,639,235	2,294,463
Less: Amounts due for settlement within one year (shown under current liabilities)	<u>(254,740)</u>	<u>(609,447)</u>	<u>(607,510)</u>	<u>(698,501)</u>
Amounts due for settlement after 1 year	<u>2,751,178</u>	<u>2,365,793</u>	<u>2,031,725</u>	<u>1,595,962</u>

15 RESURFACING OBLIGATIONS

	<i>RMB'000</i>
As at 1 January 2021	453,555
Provision for resurfacing obligations	<u>31,864</u>
At 31 December 2021 and 1 January, 2022	485,419
Provision for resurfacing obligations	<u>28,231</u>
At 31 December 2022 and 1 January, 2023	513,650
Provision for resurfacing obligations	26,492
Reversal of provision for resurfacing obligations	<u>(540,142)</u>
At 31 December 2023, 1 January, 2024 and 31 August 2024	<u><u>—</u></u>

Note: Considering the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) reconstruction and expansion project, the GSZ Company appointed independent professional toll road experts to perform studies and concluded resurfacing works would not be undertaken over the remaining period of the existing concession rights. Therefore, the resurfacing obligations provided was fully reversed during 2023.

16 DEFERRED INCOME

	<i>RMB'000</i>
At 1 January 2021	330,463
Amortisation in profit or loss for the year	<u>(6,413)</u>
At 31 December 2021 and 1 January 2022	324,050
Amortisation in profit or loss for the year	<u>(6,413)</u>
At 31 December 2022 and 1 January 2023	317,637
Amortisation in profit or loss for the year	<u>(11,688)</u>
At 31 December 2023 and 1 January 2024	305,949
Received during the period	126,701
Amortisation in profit or loss for the period	<u>(42,808)</u>
At 31 August 2024	<u><u>389,842</u></u>

Deferred income mainly represents subsidies received from local government authorities for certain reconstruction and expansion project (Note 5).

17 DEFERRED TAX LIABILITIES

The movement of deferred tax liabilities is as follows:

Deferred tax arising from:	Deferred income <i>RMB'000</i>	Excess of tax amortisation over accounting amortisation <i>RMB'000</i>	Accrued expenses <i>RMB'000</i>	Others <i>RMB'000</i>	Total <i>RMB'000</i>
At 1 January 2021	(18,653)	185,554	(25,161)	(3,046)	138,694
(Credited)/Charged to profit or loss	<u>3,244</u>	<u>(49,107)</u>	<u>4,526</u>	<u>1,567</u>	<u>(39,770)</u>
At 31 December 2021 and 1 January 2022	(15,409)	136,447	(20,635)	(1,479)	98,924
(Credited)/Charged to profit or loss	<u>3,237</u>	<u>(65,525)</u>	<u>2,839</u>	<u>(1,429)</u>	<u>(60,878)</u>
At 31 December 2022 and 1 January 2023	(12,172)	70,922	(17,796)	(2,908)	38,046
(Credited)/Charged to profit or loss	<u>6,468</u>	<u>86,172</u>	<u>(2,346)</u>	<u>(2,180)</u>	<u>88,114</u>
At 31 December 2023 and 1 January 2024	(5,704)	157,094	(20,142)	(5,088)	126,160
(Credited)/Charged to profit or loss	<u>9,462</u>	<u>(16,009)</u>	<u>(4,793)</u>	<u>7,632</u>	<u>(3,708)</u>
At 31 August 2024	<u>3,758</u>	<u>141,085</u>	<u>(24,935)</u>	<u>2,544</u>	<u>122,452</u>

18 CAPITAL, RESERVES, AND DIVIDENDS**(a) Paid-in capital**

According to the cooperation contract, the GSZ Company's articles of association, and the relevant agreements, the register capital of the GSZ Company is invested by the foreign shareholder Hopewell China Development (Superhighway) Limited (the "Hopewell China"). The GSZ Company had repaid all registered capital amounted to RMB471,000,000 invested on 15 May 2007.

(b) Statutory reserve

Pursuant to applicable PRC regulations, PRC companies are required to appropriate 10% of their profit after taxation (after offsetting prior years' losses) to the reserve until such reserve reaches 50% of the registered capital.

(c) Dividends

During the years ended 31 December 2021, 2022 and 2023, dividends of RMB1,589,234,000, RMB1,403,732,000 and RMB240,000,000 were declared respectively.

19 CAPITAL RISK MANAGEMENT

The GSZ Company manages its capital to ensure the GSZ Company will be able to continue as a going concern while maximising the return to owners through the optimisation of the debt and equity balance. the GSZ Company's overall strategy remains unchanged from that of the prior years.

The capital structure of the GSZ Company consists of the borrowings and lease liabilities, net of cash and cash equivalents and equity attributable to equity shareholders of the GSZ Company.

The Directors review the capital structure periodically. As part of this review, the Directors consider the cost of capital and the risks associated with each class of capital. The GSZ Company will balance its overall capital structure through the issue of new debt or the repayment of existing debt.

The Directors monitor the utilisation of bank loans and ensures full compliance with loan covenants during the year.

20 FINANCIAL RISK MANAGEMENT AND FAIR VALUES OF FINANCIAL INSTRUMENTS

The Directors have overall responsibility for the establishment and oversight of the GSZ Company's risk management framework. The GSZ Company's risk management policies are established to identify and analyzed the risks faced by the GSZ Company, to set appropriate risk limits and controls to monitor risks and adherence to market conditions and the GSZ Company's activities. The GSZ Company, through its training and management standards and procedures, aims to develop a disciplined and constructive control environment in which all employees understand their roles and obligations. The Directors monitor and manage the financial risks relating to the operations of the GSZ Company to ensure appropriate measures are implemented on a timely and effective manner. Exposure to credit, liquidity, interest rate and currency risks arises in the normal course of the GSZ Company's business.

The GSZ Company's exposure to these risks and the financial risk management policies and practices used by the GSZ Company to manage these risks are described below.

(a) Credit risk

Credit risk refers to the risk that the GSZ Company's counterparties default on their contractual obligations resulting in financial losses to the GSZ Company. The GSZ Company's credit risk exposures are primarily attributable to trade and other receivables and bank deposits. the GSZ Company does not hold any collateral or other credit enhancements to cover its credit risks associated with its financial assets.

Trade receivables

The GSZ Company is not exposed to significant concentration credit risk as all trade receivables are from debtors as at 31 December 2021, 2022 and 2023 and 31 August 2024. The debtors are governmental organisations and state-owned enterprises with good reputation and repayment records.

The management of the GSZ Company regularly follows up the subsequent settlement from the counterparties. In this regard, the management of the GSZ Company considers that this credit concentration risk has been significantly mitigated. In order to minimise the credit risk on trade receivables, the management of the GSZ Company has monitoring procedures to ensure that follow-up action is taken to recover overdue debts. In addition, the management of the GSZ Company reviews the recoverable amount of each individual debt at the end of the reporting period to ensure that adequate impairment losses are made for irrecoverable amounts.

The GSZ Company applies simplified approach and always recognises lifetime ECL for trade receivables on an individual basis. Taking into account the financial condition of the customers and historical settlement pattern with no history of default in the past and the forward-looking information, the management of the GSZ Company considers the trade receivables are at lower risk under internal credit rating assessment and the probability of default of the counterparties was low. The ECL arising from the trade receivables was insignificant and no loss allowance provision was recognised as at 31 December 2021, 2022 and 2023 and 31 August 2024. There were no credit-impaired trade receivables as at 31 December 2021, 2022 and 2023 and 31 August 2024.

(b) Liquidity risk

The GSZ Company's policy is to regularly monitor its liquidity requirements and its compliance with lending covenants, to ensure that it maintains sufficient reserves of cash and adequate committed lines of funding from major financial institutions to meet its liquidity requirements in the short and longer term. Historically, the GSZ Company has relied principally on both operational sources of cash and debt financing to fund its operations and business development.

Considered historical cash requirements, working capital and capital expenditures plans, estimated cash flows provided by operations, existing cash on hand, ability to renew or refinance banking and other financing facilities upon maturity as well as other key factors, including utilisation of credit facilities granted by financial institutions and ability to adjust the scheduled capital commitments. Management believes the assumptions used in the cash forecast are reasonable.

The following tables show the remaining contractual maturities at the end of the reporting period of the GSZ Company's non-derivative financial liabilities and derivative financial liabilities, which are based on contractual undiscounted cash flows (including interest payments computed using contractual rates or, if floating, based on rates current at the end of the reporting period) and the earliest date the GSZ Company can be required to pay.

As at 31 December 2021					
Contractual undiscounted cash outflow					
	More than 1 year but less than 2 years	More than 2 years but less than 5 years	More than 5 years	Total undiscounted cash flows	Carrying amount at 31 December
Within 1 year	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
Trade and other payables	506,239	—	—	506,239	506,239
Lease liabilities	1,243	248	743	2,358	2,210
Bank loans	255,841	593,742	2,312,564	3,162,147	3,005,918
	<u>763,323</u>	<u>593,990</u>	<u>2,313,307</u>	<u>3,670,744</u>	<u>3,514,367</u>

As at 31 December 2022					
Contractual undiscounted cash outflow					
	More than 1 year but less than 2 years	More than 2 years but less than 5 years	More than 5 years	Total undiscounted cash flows	Carrying amount at 31 December
Within 1 year	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
Trade and other payables	850,988	—	—	850,988	850,988
Lease liabilities	1,241	248	619	2,108	2,019
Bank loans	620,533	944,886	1,805,918	3,371,337	2,975,240
	<u>1,472,762</u>	<u>945,134</u>	<u>1,806,537</u>	<u>4,224,433</u>	<u>3,828,247</u>

As at 31 December 2023					
Contractual undiscounted cash outflow					
		More than			
	More than	2 years but		Total	Carrying
Within 1 year	1 year but less	less than	More than	undiscounted	amount at
<i>RMB'000</i>	than 2 years	5 years	5 years	cash flows	31 December
	<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>
Trade and other payables	439,711	—	—	439,711	439,711
Lease liabilities	4,796	248	372	5,416	5,265
Bank loans	744,013	836,525	1,321,640	2,902,178	2,639,235
	<u>1,188,520</u>	<u>836,773</u>	<u>1,322,012</u>	<u>3,347,305</u>	<u>3,084,211</u>

As at 31 August 2024					
Contractual undiscounted cash outflow					
		More than			
	More than	2 years but		Total	Carrying
Within 1 year	1 year but less	less than	More than	undiscounted	amount at
<i>RMB'000</i>	than 2 years	5 years	5 years	cash flows	31 August
	<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>
Trade and other payables	350,249	—	—	350,249	350,249
Lease liabilities	4,318	2,513	124	6,955	5,592
Bank loans	780,766	766,951	932,160	2,479,877	2,294,463
	<u>1,135,333</u>	<u>769,464</u>	<u>932,284</u>	<u>2,837,081</u>	<u>2,650,304</u>

(c) **Interest rate risk**

(i) **Interest rate risk**

Interest rate risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market interest rates. The GSZ Company's interest rate risk arises primarily from long-term borrowings. Borrowings issued at variable rates and fixed rates expose the GSZ Company to cash flow interest rate risk.

(ii) Interest rate profile

The following table details the interest rate profile of the GSZ Company's borrowings at the end of the reporting period.

	<i>Effective interest rate</i>	As at 31 December		As at 31 August	
		2021	2022	2023	2024
		<i>RMB'000</i>	<i>Effective interest rate</i> <i>RMB'000</i>	<i>Effective interest rate</i> <i>RMB'000</i>	<i>Effective interest rate</i> <i>RMB'000</i>
Fixed rate					
 borrowings:					
Lease liabilities	3.85%	<u>2,210</u>	3.85% <u>2,019</u>	3.85% <u>5,265</u>	3.45%–3.85% <u>5,592</u>
Variable rate					
 borrowings:					
	LIBOR+1.5%				
	~HIBOR+1.5%				
Bank loans	~LPR-1.25%	<u>3,005,918</u>	HIBOR+1.2% ~LPR-1.25% <u>2,975,240</u>	HIBOR+1.2% ~LPR-1.25% <u>2,639,235</u>	HIBOR+1.2% ~LPR-1.25% <u>2,294,463</u>
Total borrowings		<u>3,008,128</u>	<u>2,977,259</u>	<u>2,644,500</u>	<u>2,300,055</u>

At 31 December 2021, 2022 and 2023 and 31 August 2024, it is estimated that a general increase/decrease of 100 basis points in interest rates, with all other variables held constant, would have decreased/increased the GSZ Company's profit after tax by approximately RMB22,529,000, RMB22,277,000, RMB19,760,000 and RMB17,036,000 respectively.

The sensitivity analysis above indicates the cash flow interest rate risk arising from floating rate non-derivative instruments held by the GSZ Company at the end of the reporting period, the impact on the GSZ Company's profit after tax is estimated as an annualised impact on interest expense or income of such a change in interest rates.

(d) Currency risk**(i) Exposure to currency risk**

The GSZ Company undertake certain transactions denominated in foreign currencies, hence exposure to exchange fluctuation arises. The GSZ Company manages its foreign currency risk by constantly monitoring the movement of the foreign exchange rates.

The carrying amounts of monetary assets and monetary liabilities of the GSZ Company denominated in currencies other than their respective functional currencies at the end of the reporting period are as follows:

	As at 31 December			As at
	2021	2022	2023	31 August
	<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>	<i>RMB'000</i>
Carrying amount				
Liabilities				
— HKD	168,847	2,345,407	2,019,756	1,748,605
— USD	<u>1,960,145</u>	<u>—</u>	<u>—</u>	<u>—</u>
	<u>2,128,992</u>	<u>2,345,407</u>	<u>2,019,756</u>	<u>1,748,605</u>

The GSZ Company currently does not have a foreign currency hedging policy in respect of foreign currency exposure.

(ii) Sensitivity analysis

The foreign currency risk of the GSZ Company is mainly concentrated on the fluctuation of RMB, the functional currency of the GSZ Company as at 31 August 2024, against HKD. The following sensitivity analysis includes currency risk related to HKD and USD denominated monetary items of the GSZ Company.

3% is the sensitivity rate used when reporting foreign currency risk internally to key management personnel and represents management's assessment of the reasonably possible change in foreign exchange rates. The sensitivity analysis includes only outstanding foreign currency denominated monetary items and adjusts their translation at the end of the reporting period for a 3% change in foreign currency rate and all other variables are held constant.

As at 31 August 2024, the GSZ Company had monetary liabilities denominated in HKD that are not the functional currency (i.e. RMB). If exchange rate of RMB against HKD and USD had been strengthened/weakened by 3%, the profit after tax of the GSZ Company for the current year/period would decrease/increase by RMB47,901,000, RMB52,770,000, RMB45,444,000 and RMB39,343,000 respectively for each of the year ended 31 December 2021, 2022 and 2023 and the eight months ended 31 August 2024.

(e) Fair value measurement

The fair values of financial asset and financial liabilities are determined in accordance with generally accepted pricing models based on discounted cash flow analysis.

The directors of the GSZ Company consider that the carrying amounts of financial assets and financial liabilities recorded at amortised cost in the Historical Financial Information of the GSZ Company approximate their fair values.

21 CAPITAL COMMITMENTS

Commitments outstanding at 31 December 2021, 2022 and 2023 and 31 August 2024 contracted for but not provided in the Historical Financial Information:

	As at 31 December			As at
	2021	2022	2023	31 August
	RMB'000	RMB'000	RMB'000	2024
				RMB'000
Construction of expressway	428,678	476,147	2,384,912	6,999,927

22 RELATED PARTY TRANSACTIONS**(a) Transaction with related parties**

The GSZ Company entered into the following transactions with Guangdong Provincial Communications Group Co., Ltd. (廣東省交通集團有限公司) and Shenzhen Investment Holdings Bay Area Development Company Limited ("Bay Area") (深圳投控灣區發展有限公司), the shareholders of the GSZ Company, and certain entities controlled or jointly controlled by these two shareholders during the years ended 31 December 2021, 2022 and 2023 and the eight months ended 31 August 2024:

	Year ended 31 December			Eight months ended 31 August	
	2021	2022	2023	2023	2024
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
				(unaudited)	
Construction costs	119,952	102,442	32,343	1,763	39,183
Maintenance expenses	10,811	18,436	23,514	8,800	13,108
Compensation income (Note 6(ii))	182,233	120,845	—	—	8,330
Rental income	17,521	8,929	7,033	979	7,248
Service fee expenses	17,847	14,638	19,000	3,572	2,701
Operation income	3,693	3,066	649	456	467
Acceptance of research and development services	—	6,728	3,881	—	—
Remuneration of key management personnel	2,157	3,428	5,868	3,232	2,259
Technical service cost	—	—	7,075	7,075	—

(b) Balances with related parties

The balances with related parties are set out in Note 13.

23 NON-ADJUSTING EVENTS AFTER THE TRACK RECORD PERIOD

Hopewell China Development (Superhighway) Limited ("Hopewell China Development") (a non-wholly owned subsidiary of Bay Area) and Guangdong Provincial Highway Construction Company Limited ("Guangdong Highway Construction") (廣東省公路建設有限公司) entered into a capital increase agreement, pursuant to which, Hopewell China Development and Guangdong Highway Construction agreed to contribute, by way of registered capital, RMB3,285 million and RMB4,015 million, respectively, to the GSZ Company, the agreed capital will be injected in phases, according to the work progress of reconstruction and expansion project of the approved road section.

24 POSSIBLE IMPACT OF AMENDMENTS, NEW STANDARDS AND INTERPRETATIONS ISSUED BUT NOT YET EFFECTIVE FOR THE TRACK RECORD PERIOD

Up to the date of issue of this report, the IASB has issued a number of amendments and new standards, which are not yet effective for the Track Record Period and which have not been adopted in the Historical Financial Information. These developments include the following which may be relevant to the GSZ Company.

	Effective for accounting periods beginning on or after
Amendments to IAS 21, <i>The effects of changes in foreign exchange rates</i> “ <i>Lack of exchangeability</i> ”	1 January 2025
Amendments to IFRS 9, <i>Financial instruments</i> and IFRS 7, <i>Financial instruments: disclosures</i> “ <i>Amendments to the classification and measurement of financial instruments</i> ”	1 January 2026
Annual Improvements to IFRS Accounting Standards — Volume 11	1 January 2026
IFRS 18, <i>Presentation and Disclosure in Financial Statements</i>	1 January 2027
IFRS 19, <i>Subsidiaries without Public Accountability: Disclosures</i>	1 January 2027
Amendments to IFRS 10, <i>Consolidated financial statements</i> and IAS 28, <i>Investments in associates and joint ventures</i> “ <i>Sale or contribution of assets between an investor and its associate or joint venture</i> ”	To be determined

The GSZ Company is in the process of making an assessment of what the impact of these amendments and new standards is expected to be in the period of initial application. So far, the GSZ Company has concluded that the adoption of them is unlikely to have a significant impact on the Historical Financial Information.

SUBSEQUENT FINANCIAL STATEMENTS

No audited financial statements have been prepared by the GSZ Company in respect of any period subsequent to 31 August 2024.

A. UNAUDITED PRO FORMA FINANCIAL INFORMATION OF THE GROUP**Introduction to the pro forma financial information**

The following is the unaudited pro forma consolidated statement of assets and liabilities of Shenzhen Investment Holdings Bay Area Development Company Limited (the “**Company**”) and its subsidiaries (collectively, the “**Group**”) as if the Capital Contribution had been completed on 30 June 2024, and is based on the consolidated statement of assets and liabilities of the Company as extracted from the consolidated financial statements of the Company for the six months ended 30 June 2024 as set out in the Company’s 2024 interim report after giving effect to the pro forma adjustments described in the notes.

The pro forma financial information of the Group is based on a number of assumptions, estimates and uncertainties. Among other key assumptions, the directors of the Company have assumed that the Group would be able to raise sufficient funding through internal resources and/or external financing to finance the Capital Contribution.

The unaudited pro forma consolidated statement of assets and liabilities has been prepared by the directors in accordance with Rules 4.29 of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited, for the purposes of illustrating the effect of the Capital Contribution only and, because of its hypothetical nature, it may not give a true picture of the financial position of the Group had the Capital Contribution been completed on 30 June 2024 or any future date.

Unaudited pro forma consolidated statement of assets and liabilities of the Group as at 30 June 2024

	The Group as at 30 June 2024 RMB’000	Pro forma adjustments RMB’000 (Note 1)	Unaudited pro forma consolidated statement of assets and liabilities of the Group RMB’000
Non-current assets			
Property, plant and equipment	262,030	—	262,030
Right-of-use assets	9,243	—	9,243
Construction in progress	6,677	—	6,677
Concession intangible assets	5,835,234	—	5,835,234
Other intangible assets	17,172	—	17,172
Interests in joint ventures	5,132,205	3,285,000	8,417,205
Equity instrument at fair value through other comprehensive income	19,439	—	19,439
Deferred tax assets	82,348	—	82,348
Other non-current assets	978	—	978
	11,365,326		14,650,326

	The Group as at 30 June 2024 RMB'000	Pro forma adjustments RMB'000 (Note 1)	Unaudited pro forma consolidated statement of assets and liabilities of the Group RMB'000
Current assets			
Inventories	264	—	264
Trade and other receivables	246,279	—	246,279
Structured deposits	100,450	—	100,450
Time deposits	368,930	—	368,930
Restricted bank deposits	2,025	—	2,025
Cash and cash equivalents	<u>510,026</u>	(3,285,000)	<u>(2,774,974)</u>
	<u>1,227,974</u>		<u>(2,057,026)</u>
Total assets	<u><u>12,593,300</u></u>		<u><u>12,593,300</u></u>
Non-current liabilities			
Lease liabilities	775	—	775
Bank loans	2,195,869	—	2,195,869
Deferred tax liabilities	<u>174,656</u>	—	<u>174,656</u>
	2,371,300		2,371,300
Current liabilities			
Trade and other payables	703,361	—	703,361
Lease liabilities	12,263	—	12,263
Bank loans	1,912,798	—	1,912,798
Tax payables	<u>95</u>	—	<u>95</u>
	<u>2,628,517</u>		<u>2,628,517</u>
Total liabilities	<u><u>4,999,817</u></u>		<u><u>4,999,817</u></u>
Net assets	<u><u>7,593,483</u></u>		<u><u>7,593,483</u></u>

Notes:

- (1) The adjustment represents the Capital Contribution to GSZ Company, which is accounted for as a joint venture in the Group's consolidated financial statements. Under the Capital Increase Agreement, the Group agreed to contribute, by way of registered capital, RMB3,285 million to GSZ Company, which is expected to be financed through internal resources and/or external financing. The Group will make the Capital Contribution in phases according to the work progress and funding needs of the Approved Road Section R&E Project. For the purpose of the pro forma financial information, the directors assume that the entire Capital Contribution of RMB3,285 million is made on 30 June 2024 and fully financed by internal resources.
- (2) No adjustment has been made to the pro forma financial information for the Capital Contribution related costs (including fees to legal advisers, financial adviser, reporting accountants, valuer, printer and other expenses) as the directors determined that such costs are insignificant.
- (3) No adjustment has been made to reflect any trading results or other transactions of the Group entered into subsequent to 30 June 2024, including the dividend of RMB356 million declared on 23 August 2024.

B. INDEPENDENT REPORTING ACCOUNTANTS' ASSURANCE REPORT ON THE COMPILATION OF UNAUDITED PRO FORMA FINANCIAL INFORMATION OF THE GROUP

The following is the text of a report received from the reporting accountants, KPMG, Certified Public Accountants, Hong Kong, in respect of the Group's pro forma financial information for the purpose of incorporation in this circular.

**INDEPENDENT REPORTING ACCOUNTANTS' ASSURANCE REPORT ON THE COMPILATION OF PRO FORMA FINANCIAL INFORMATION****To the Directors of Shenzhen Investment Holdings Bay Area Development Company Limited**

We have completed our assurance engagement to report on the compilation of pro forma financial information of Shenzhen Investment Holdings Bay Area Development Company Limited (the “**Company**”) and its subsidiaries (collectively the “**Group**”) by the directors of the Company (the “**Directors**”) for illustrative purposes only. The pro forma financial information consists of the unaudited pro forma consolidated statement of assets and liabilities as at 30 June 2024 and related notes as set out in Part A of Appendix III to the circular dated 28 February 2025 (the “**Circular**”) issued by the Company. The applicable criteria on the basis of which the Directors have compiled the pro forma financial information are described in Part A of Appendix III to the Circular.

The pro forma financial information has been compiled by the Directors to illustrate the impact of the capital contribution to Guangzhou-Shenzhen-Zhuhai Superhighway Company Limited (“**GSZ Company**”) (the “**Capital Contribution**”) on the Group's financial position as at 30 June 2024 as if the Capital Contribution had taken place at 30 June 2024. As part of this process, information about the Group's financial position as at 30 June 2024 has been extracted by the Directors from the consolidated financial statements of the Company for the six months ended 30 June 2024, on which a review report has been published.

Directors' Responsibilities for the Pro Forma Financial Information

The Directors are responsible for compiling the pro forma financial information in accordance with paragraph 4.29 of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited (the “**Listing Rules**”) and with reference to Accounting Guideline 7 “Preparation of Pro Forma Financial Information for Inclusion in Investment Circulars” (“**AG 7**”) issued by the Hong Kong Institute of Certified Public Accountants (“**HKICPA**”).

Our Independence and Quality Management

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the HKICPA, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

Our firm applies Hong Kong Standard on Quality Management 1 “Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements”, which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Reporting Accountants’ Responsibilities

Our responsibility is to express an opinion, as required by paragraph 4.29(7) of the Listing Rules, on the pro forma financial information and to report our opinion to you. We do not accept any responsibility for any reports previously given by us on any financial information used in the compilation of the pro forma financial information beyond that owed to those to whom those reports were addressed by us at the dates of their issue.

We conducted our engagement in accordance with Hong Kong Standard on Assurance Engagements (“**HKSAE**”) 3420 “Assurance Engagements to Report on the Compilation of Pro Forma Financial Information Included in a Prospectus” issued by the HKICPA. This standard requires that the reporting accountants plan and perform procedures to obtain reasonable assurance about whether the Directors have compiled the pro forma financial information in accordance with paragraph 4.29 of the Listing Rules, and with reference to AG 7 issued by the HKICPA.

For purpose of this engagement, we are not responsible for updating or reissuing any reports or opinions on any historical financial information used in compiling the pro forma financial information, nor have we, in the course of this engagement, performed an audit or review of the financial information used in compiling the pro forma financial information.

The purpose of pro forma financial information included in an investment circular is solely to illustrate the impact of a significant event or transaction on the unadjusted financial information of the Group as if the event had occurred or the transaction had been undertaken at an earlier date selected for purposes of the illustration. Accordingly, we do not provide any assurance that the actual outcome of the events or transactions at 30 June 2024 would have been as presented.

A reasonable assurance engagement to report on whether the pro forma financial information has been properly compiled on the basis of the applicable criteria involves performing procedures to assess whether the applicable criteria used by the Directors in the compilation of the pro forma financial information provide a reasonable basis for presenting the significant effects directly attributable to the event or transaction, and to obtain sufficient appropriate evidence about whether:

- the related pro forma adjustments give appropriate effect to those criteria; and
- the pro forma financial information reflects the proper application of those adjustments to the unadjusted financial information.

The procedures selected depend on the reporting accountants' judgement, having regard to the reporting accountants' understanding of the nature of the Group, the event or transaction in respect of which the pro forma financial information has been compiled, and other relevant engagement circumstances.

The engagement also involves evaluating the overall presentation of the pro forma financial information.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Opinion

In our opinion:

- (a) the pro forma financial information has been properly compiled on the basis stated;
- (b) such basis is consistent with the accounting policies of the Group; and
- (c) the adjustments are appropriate for the purposes of the pro forma financial information as disclosed pursuant to paragraph 4.29(1) of the Listing Rules.

KPMG

Certified Public Accountants

Hong Kong

28 February 2025

This appendix summarises the management discussion and analysis of the GSZ Company for the years ended 31 December 2021, 2022 and 2023 and the eight months ended 31 August 2024 (the “**Reporting Period**”). The following financial information is principally based on the accountants’ report of the GSZ Company as set out in Appendix II to this circular.

The GSZ Company holds and operates the Guangzhou-Shenzhen section of Beijing-Hong Kong-Macao Expressway through its concession rights. For more information on GSZ Company and its assets, please refer to section headed “INFORMATION OF GSZ COMPANY” of the Letter from the Board.

OPERATING RESULTS

Revenue

During the Reporting Period, the GSZ Company derived its revenue from (i) toll revenue from toll expressway operation; (ii) construction revenue; and (iii) other revenue such as rental, etc.

	Year ended 31 December			Eight months ended 31 August	
	2021	2022	2023	2023	2024
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
				(unaudited)	
Toll revenue	2,865,690	2,258,022	2,892,203	1,925,174	1,924,142
Construction revenue	—	21,585	1,048,476	58,180	74,997
Others	49,192	31,268	31,260	17,918	30,468
	<u>2,914,882</u>	<u>2,310,875</u>	<u>3,971,939</u>	<u>2,001,272</u>	<u>2,029,607</u>

Toll revenue from toll expressway operation

Toll revenue from toll expressway operation of the GSZ Company:

- (a) decreased by 21.2% from approximately RMB2,865,690,000 for the year ended 31 December 2021 to approximately RMB2,258,022,000 for the year ended 31 December 2022, mainly due to the movement restrictions imposed in the PRC in response to the COVID-19 pandemic in 2022;
- (b) increased by 28.1% from approximately RMB2,258,022,000 for the year ended 31 December 2022 to approximately RMB2,892,203,000 for the year ended 31 December 2023, mainly attributable to the social transportation volume in the PRC experienced restorative growth, the economy of the cities along the expressways maintained stable growth, the operation performance of the toll roads grew at the same pace with economic growth, as well as a low comparison of toll revenue last year; and

- (c) decreased by 0.1% from approximately RMB1,925,174,000 for the eight months ended 31 August 2023 to approximately RMB1,924,142,000 for the eight months ended 31 August 2024.

Construction revenue

Pursuant to International Financial Reporting Interpretations Committee (“IFRIC”) 12 “Service Concession Arrangements” issued by the International Accounting Standards Board, if an operator constructs the infrastructure, the operator is required to account for its construction revenue and construction costs and to account for the fair value of the consideration received and receivable for the construction services as a concession intangible asset to the extent that the operator receives a right to charge users of the public service. The construction revenue of the GSZ Company is determined with reference to the performance progress of reconstruction and expansion project on the Guangzhou-Shenzhen section of Beijing-Hong Kong-Macao Expressway, and is recognised according to the proportion of the costs incurred to the estimated total costs.

Cost of sales

During the Reporting Period, the cost of sales of the GSZ Company mainly included (i) depreciation of property, plant and equipment, amortisation of concession intangible assets; (ii) staff costs; (iii) repairs and maintenance expense; and (iv) construction cost (reconstruction and expansion project on the Guangzhou-Shenzhen section of Beijing-Hong Kong-Macao Expressway).

The table below sets forth the breakdown of cost of sales of the GSZ Company during the Reporting Period:

	Year ended 31 December			Eight months ended 31 August	
	2021	2022	2023	2023	2024
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
				(unaudited)	
Operating costs of toll expressway	1,241,670	1,196,151	864,096	890,779	800,039
Construction costs	—	21,585	1,048,476	58,180	47,595
Others	<u>3,591</u>	<u>2,772</u>	<u>15,705</u>	<u>15,229</u>	<u>638</u>
	<u>1,245,261</u>	<u>1,220,508</u>	<u>1,928,277</u>	<u>964,188</u>	<u>848,272</u>

During the Reporting Period, the operating costs of toll expressway of the GSZ Company:

- (a) decreased by 3.7% from approximately RMB1,241,670,000 for the year ended 31 December 2021 to approximately RMB1,196,151,000 for the year ended 31 December 2022;

- (b) decreased by 27.8% from approximately RMB1,196,151,000 for the year ended 31 December 2022 to approximately RMB864,096,000 for the year ended 31 December 2023, mainly due to the reversed of the resurfacing obligations and adjustment on the units-of-usage for the expressway.

In 2023, considering the on-going reconstruction and expansion of Guangzhou-Shenzhen Section of Beijing-Hong Kong-Macao Expressway, and the conclusion of independent professional toll road experts, the GSZ Company assessed that resurfacing works would not be undertaken over the remaining period of the existing concession rights, and reversed the resurfacing obligations for the expressway. In addition, the GSZ Company has adjusted the units-of-usage for the Guangzhou-Shenzhen Section of Beijing-Hong Kong-Macao Expressway according to the revised total projected traffic volume since 1 November 2023; and

- (c) decreased by 10.2% from approximately RMB890,779,000 for the eight months ended 31 August 2023 to approximately RMB800,039,000 for the eight months ended 31 August 2024, mainly due to the GSZ Company has adjusted the units-of-usage for the Guangzhou-Shenzhen Section of Beijing-Hong Kong-Macao Expressway according to the revised total projected traffic volume since 1 November 2023.

Other Income

During the Reporting Period, other income of the GSZ Company included (i) government subsidies; and (ii) interest income on time deposits.

The table below sets forth the breakdown of other income of the GSZ Company during the Reporting Period:

	Year ended 31 December			Eight months ended	
	2021	2022	2023	31 August 2023	2024
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
				(unaudited)	
Government subsidies	15,814	8,200	11,730	4,318	43,553
Interest income on time deposits	<u>22,748</u>	<u>23,020</u>	<u>27,484</u>	<u>10,441</u>	<u>9,672</u>
	<u>38,562</u>	<u>31,220</u>	<u>39,214</u>	<u>14,759</u>	<u>53,225</u>

- (a) decreased by 19.0% from approximately RMB38,562,000 for the year ended 31 December 2021 to approximately RMB31,220,000 for the year ended 31 December 2022, mainly due to the decrease of government subsidies;

- (b) increased by 25.6% from approximately RMB31,220,000 for the year ended 31 December 2022 to approximately RMB39,214,000 for the year ended 31 December 2023, mainly due to the increase of interest income, and also the amortisation of the government subsidies of approximately RMB11,688,000 in 2023; and
- (c) increased by 260.6% from approximately RMB14,759,000 for the eight months ended 31 August 2023 to approximately RMB53,225,000 for the eight months ended 31 August 2024, mainly due the amortisation of the government subsidies of approximately RMB42,808,000 in 2024.

Finance Costs

During the Reporting Period, the finance costs of the GSZ Company mainly consisted of (i) the interest on bank loans; and (ii) the interest on lease liabilities.

The table below sets forth the breakdown of finance costs of the GSZ Company during the Reporting Period:

	Year ended 31 December			Eight months ended 31 August	
	2021	2022	2023	2023	2024
	RMB'000	RMB'000	RMB'000	RMB'000	RMB'000
				(unaudited)	
Interest on bank loans	84,121	87,381	147,236	96,515	88,922
Interest on lease liabilities	<u>133</u>	<u>57</u>	<u>204</u>	<u>20</u>	<u>101</u>
	<u>84,254</u>	<u>87,438</u>	<u>147,440</u>	<u>96,535</u>	<u>89,023</u>

During the Reporting Period, the finance costs of the GSZ Company:

- (a) increased by 3.8% from approximately RMB84,254,000 for the year ended 31 December 2021 to approximately RMB87,438,000 for the year ended 31 December 2022;
- (b) increased by 68.6% from approximately RMB87,438,000 for the year ended 31 December 2022 to approximately RMB147,440,000 for the year ended 31 December 2023, mainly due to increase of interest on bank loans, which were mainly denominated in HKD and affected by the increase in the interest rate of Hong Kong Dollar loans in 2023; and
- (c) decreased by 7.8% from approximately RMB96,535,000 for the eight months ended 31 August 2023 to approximately RMB89,023,000 for the eight months ended 31 August 2024.

Income Tax

During the Reporting Period, the GSZ Company recognized Enterprise Income Tax in accordance with the Enterprise Income Tax Law of the PRC, and the applicable PRC Enterprise Income Tax rate for the GSZ Company is 25%.

For the year ended 31 December 2021, the GSZ Company recognized the income tax expense of approximately RMB433,637,000, which was mainly due to the operating profit recorded during the year of approximately RMB1,788,084,000.

For the year ended 31 December 2022, the GSZ Company recorded the income tax expense of approximately RMB294,738,000, which was mainly due to the operating profit recorded during the year of approximately RMB1,165,385,000.

For the year ended 31 December 2023, the GSZ Company recorded the income tax expense of approximately RMB457,090,000, which was mainly due to the operating profit recorded during the year of approximately RMB1,817,285,000.

For the eight months ended 31 August 2023 the GSZ Company recorded the income tax expense of approximately RMB217,642,000, which was mainly due to the operating profit recorded during the period of approximately RMB853,348,000. For the eight months ended 31 August 2024, the GSZ Company recorded the income tax expense of approximately RMB283,751,000, which was mainly due to the operating profit recorded during the period of approximately RMB1,130,266,000.

Profit and total comprehensive income for the year/period

During the Reporting Period, the profit and total comprehensive income for the year/period of the GSZ Company:

- (a) decreased from a profit of approximately RMB1,354,447,000 for the year ended 31 December 2021 to a profit of approximately RMB870,647,000 for the year ended 31 December 2022, mainly the decrease in revenue from toll expressway;
- (b) increased from a profit of approximately RMB870,647,000 for the year ended 31 December 2022 to a profit of approximately RMB1,360,195,000 for the year ended 31 December 2023, mainly due to the increase in revenue from toll expressway, the reversal of the resurfacing obligations and adjustment on the units-of-usage for the expressway; and
- (c) increased from a profit of approximately RMB635,706,000 for the eight months ended 31 August 2023 to a profit of approximately RMB846,515,000 for the eight months ended 31 August 2024, mainly due to the adjustment on the units-of-usage for the expressway since November 2023.

FINANCIAL RESOURCES AND CAPITAL STRUCTURE

The GSZ Company financed its operation and working capital by internal resources, and its construction will be primarily financed by capital injection and bank financings.

Cash and cash equivalents

As at 31 December 2021, 2022 and 2023 and 31 August 2024, the cash and cash equivalents of the GSZ Company was approximately RMB556,446,000, RMB819,822,000, RMB776,265,000 and RMB1,390,832,000, respectively. The cash and cash equivalents held by the GSZ Company were mainly denominated in RMB.

Bank loans

As at 31 December 2021, 2022 and 2023 and 31 August 2024, the GSZ Company had outstanding bank loans of approximately RMB3,005,918,000, RMB2,975,240,000, RMB2,639,235,000 and RMB2,294,463,000, respectively. Before 2022, these bank loans were denominated in USD, HKD and RMB, respectively, while the GSZ Company refinanced the USD loans by new HK Dollar loans to reduce the impact of rate hike cycle in 2022, that made the bank loans were denominated in HKD and RMB separately from then. The bank loans are pledged by the toll collection rights, and carried interest rates are floating with the Loan Prime Rate or HKD hibor.

DEBT TO ASSET RATIO

As at 31 December 2021, 2022 and 2023 and 31 August 2024, the debt to asset ratio (total liabilities/total assets) of the GSZ Company were approximately 68.3%, 75.7%, 59.3% and 50.0%, respectively.

FUTURE PLANS FOR MATERIAL INVESTMENTS OR CAPITAL ASSETS

As at 31 August 2024, the GSZ Company had capital commitments contracted but not provided for in respect of the construction of expressway of approximately RMB6,999,927,000.

The capital commitments come from agreements entered into between GSZ Company and other contractors and service suppliers for the implementation of Approved Road Section R&E Project, including but not limited to construction works agreements, supervision agreements, etc. GSZ Company should make payments to the contractors and service suppliers based on the progress of the relevant works in accordance with the terms of these agreements, resulting in contingent commitments based on the progress of works. GSZ Company would use its internal resources, future operating cash flow and bank loans to fulfil these future capital expenditure. As at 31 August 2024, GSZ Company had cash and cash equivalents of approximately RMB1,390 million and available bank facilities of approximately RMB5,500 million.

CONTINGENT LIABILITIES

As at 31 August 2024, the GSZ Company did not have any material contingent liabilities.

FOREIGN CURRENCY AND HEDGING

The GSZ Company conducts its business in the PRC, while some of bank loans were undertaken in foreign currencies. Therefore, the foreign exchange risk exposure for the GSZ Company arises with exchange fluctuation. The GSZ Company manages its foreign currency risk by constantly monitoring the movement of the foreign exchange rates, and has not used any financial instrument to hedge potential fluctuation in exchange rates.

EMPLOYEES AND REMUNERATIONS

As at 31 August 2024, the GSZ Company had approximately 1,900 employees in the PRC. For the years ended 31 December 2021, 2022 and 2023 and the eight months ended 31 August 2024, the staff costs of the GSZ Company consisted primarily of wages and salaries, social security and housing funds and other benefits, amounting to approximately RMB275,124,000, RMB282,822,000, RMB294,458,000 and RMB167,361,000, respectively.

**MATERIAL ACQUISITIONS AND DISPOSALS OF SUBSIDIARIES, ASSOCIATES
AND JOINT VENTURES**

During the Reporting Period, there were no material acquisitions and disposals of subsidiaries, associates and joint ventures by the GSZ Company.

SIGNIFICANT INVESTMENTS

During the Reporting Period, except for the reconstruction and expansion of the Guangzhou-Shenzhen Section of Beijing-Hong Kong-Macao Expressway, there was no significant investment held by the GSZ Company.

**Appraisal Report on
the Concession Rights Concerning
the reconstruction and expansion project of
the Guangzhou Huocun to Dongguan Chang'an section of
the Beijing-Hong Kong-Macao Expressway and
Guangzhou Huangcun to Guangzhou Huocun section of
the Guangzhou-Foshan Expressway
Formed by the Proposed Investment from
Shenzhen Investment Holdings Bay Area
Development Company Limited**

PENG XIN ZI XUN ZI [2024] No. 960
Base Date of Appraisal: June 30, 2027
Date of Appraisal Report: October 14, 2024



**深圳市鵬信資產評估土地房地產估價有限公司
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Declaration

1. This Appraisal Report is prepared in accordance with the Assets Appraisal Criteria-Basic Criteria issued by the Ministry of Finance and the Standard of Assets Appraisal Practice and Code of Professional Ethics for Assets Appraisal issued by the China Appraisal Society.
2. The use of this Appraisal Report is limited to the client and report users stipulated by laws and administrative regulations — that is, this Report shall be only used by the client and users as stipulated by laws and administrative regulations; no other organization or individual may become the user of this Appraisal Report.
3. Users shall use this Appraisal Report within the scope stipulated by laws, administrative regulations, and the scope of use specified herein. The Company shall not be liable for the failure on the part of users of this Report to use it in accordance with the provisions of laws and administrative regulations, and the scope of use stated above.
4. Users of this Appraisal Report shall correctly understand and use the appraisal conclusion, which is not the same as appraisal target's realizable price, and should not be considered as a guarantee for appraisal target's realizable price.
5. Users shall pay due attention to the assumptions, Notes on Special Matters, and usage restrictions stated herein.
6. The Company upholds the principles of independence, objectivity, and impartiality, complies with laws, administrative regulations, and asset appraisal criteria, and accepts full legal responsibility for the issuance of this Appraisal Report.
7. The appraisers (including evaluation professionals who assisted the appraisers in their work) have duly examined the legal ownership of the appraisal target and associated assets, conducted spot checks on ownership documentation, duly disclosed issues identified, and advised relevant parties to address ownership deficiencies to meet the requirements for issuing this report.
8. The Company and the appraisers do not have any existing or anticipated interest relationships with the appraisal target or related parties or with relevant parties, and maintain a position of impartiality toward all parties involved.
9. Without the written consent of the Company, the contents of this Report shall not be extracted, quoted or disclosed to the public media, unless otherwise stipulated by laws, administrative regulations and the asset appraisal entrustment contract.

Concession Rights Concerning the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway Formed by the Proposed Investment from Shenzhen Investment Holdings Bay Area Development Company Limited.

Summary of the Appraisal Report

PENG XIN ZI XUN ZI [2024] No. 960

Readers and users of this Report are kindly reminded that the contents of this Summary are all extracted from the main body of the Appraisal Report. To understand the details of this appraised project and the appraisal conclusions, please read the full text of the Appraisal Report.

Shenzhen Pengxin Appraisal Ltd., entrusted by Shenzhen Investment Holdings Bay Area Development Company Limited (hereinafter referred to as “**SIH Bay**”), following the principles of independence, objectivity, and impartiality, and in accordance with relevant laws, regulations and asset appraisal criteria and necessary procedures, appraised the market value of the concession rights of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway as of June 30, 2027. The main contents of the Appraisal Report are hereby summarized as follows:

Purpose of Appraisal: this appraisal is to evaluate the concession rights of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway as of June 30, 2027, so as to provide reference regarding the value of the proposed investment by SIH Bay.

Target Assets of the Appraisal: concession rights of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway.

Scope of the Appraisal: the portfolio of assets associated with the concession rights of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway.

Type of Value: market value.

Method of Appraisal: the income method is adopted to evaluate the concession rights of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway.

Conclusions of the Appraisal: The appraisal result of the concession rights of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway on the base date June 30, 2027 is RMB28,444,853,200. The value of 45% of the shareholder's own funds corresponding to the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway is appraised at RMB3,440,199,600. The details are shown in the following table:

Item	Interest-free investment amount discounted to base date			Appraisal value
	Total static investment			
	(Note (i)) (RMB10,000)	(Note (ii)) (RMB10,000)	(RMB10,000)	
Concession rights of the reconstructed/expanded of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway				
	2,809,931.11	2,760,650.65		2,844,485.32
Total value of shareholders' own funds (Note (iii)) (RMB10,000)	Value of shareholders' own funds (Note (iv)) (RMB10,000)	45% of shareholders' own funds (Note (v)) (RMB10,000)	Value of 45% of shareholders' own funds (Note (vi)) (RMB10,000)	
729,934.58	764,488.79	328,470.56	344,019.96	

Notes:

- (i) "Total static investment" is the investment amount with interest borne by the GSZ Company with approximately RMB28.10 billion;
- (ii) "Interest-free investment amount discounted to base date" stands for "Discounted present value of non-interest bearing investment to the base date". Since the GSZ Company will invest gradually in future years, the static total investment at different time points cannot be simply summed up to calculate its corresponding dynamic total investment. Those investment amounts expended in future years need to be calibrated and discounted to the same time point. It is discounted to the base date (i.e. June 30, 2027), a date on which the project is expected to be ready for opening to traffic and beginning toll collection;
- (iii) "Total value of shareholders' own funds" is the portion of the entire project's investment financed by shareholders' own funds, which represents 25% of the entire project's investment;

- (iv) “Value of shareholders’ own funds” is the appraisal value of the investment financed by shareholders’ own funds, which is the total appraisal value of the entire project minus the investment amount financed by the GSZ Company’s external borrowings;
- (v) 45% of shareholders’ own funds” is 45% of the “Total value of shareholders’ own funds”, which corresponds to the capital contribution amount of the SIH Bay; and
- (iv) “Value of 45% of shareholders’ own funds” is 45% of the “Value of shareholders’ own funds”, which corresponds to the appraisal value of the SIH Bay’s capital contribution.

The appraisal valuation (approximately RMB28.44 billion) of the Beijing-Hong Kong-Macao Expressway Guangzhou Huocun to Dongguan Chang’an section and the Guangzhou-Foshan Expressway Guangzhou Huangcun to Huocun section is greater than the “Total static investment” (approximately RMB28.10 billion) and the “Interest-free investment amount discounted to base date” (approximately RMB27.61 billion), it means that the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang’an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway has the corresponding investment value and is worthy to invest. The appraisal conclusion is only valid on the appraisal base date specified in this report.

Users of this Appraisal Report are kindly reminded that the above contents are extracted from the main body of the Appraisal Report. To understand the details of this appraised project and the its conclusions s, please read the full text of the Appraisal Report.

PENG XIN ZI XUN ZI [2024] No. 960

Appraisal Report on

the Concession Rights Concerning
the reconstruction and expansion project of the Guangzhou Huocun to
Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and
Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway
Formed by the Proposed Investment from Shenzhen Investment Holdings Bay Area
Development Company Limited

Shenzhen Investment Holdings Bay Area Development Company Limited:

Shenzhen Pengxin Appraisal Ltd., upon the acceptance of your entrustment, following the principles of independence, objectivity and impartiality, and in accordance with relevant laws, regulations and asset appraisal criteria, adopted the income method and certain appraisal procedures to appraise the market value of the concession rights associated with the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway formed in the planned investment from your company as of June 30, 2027, and the process and results of the appraisal are reported as follows:

I. BASIC INFORMATION OF THE CLIENT

Name of Client: Shenzhen Investment Holdings Bay Area Development Company Limited
(hereinafter referred to as “**SIH Bay**”)

Registered Address: P.O. Box 309 Ugland House Grand Cayman KY1-1104 Cayman Islands

Legal Representative: Liao Xiangwen

Registered Capital: HKD1 billion

Economic Nature: Local state-owned enterprise

Operating Period: non-fixed term, starting from January 14, 2003

Business Scope: Development, promotion, operation, and management of toll expressways and bridges in China.

II. OTHER USERS OF THE APPRAISAL REPORT

Other users of this Appraisal Report include: superior competent units and supervision and management departments responsible for examination, approval and filing of the Appraisal Report and its corresponding economic behaviors in accordance with relevant regulations.

III. PURPOSE OF THE APPRAISAL

Purpose of Appraisal: this appraisal is to evaluate the concession rights of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway as of June 30, 2027, so as to provide reference regarding the value of the proposed investment by SIH Bay.

The Company has not analyzed the objectivity or feasibility of utilizing this Report, in whole or in part, for purposes other than those explicitly stated above and, therefore, assumes no responsibility for any consequences arising therefrom.

IV. TARGET ASSETS AND SCOPE OF THE APPRAISAL

Target Assets of the Appraisal: Concession Rights Concerning the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway.

The corresponding scope of appraisal: the portfolio of assets associated with the concession rights of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway. Details are presented as follows:

Item	Interest-bearing investment amount (RMB10,000)	Interest-free investment amount discounted to base date (RMB10,000)
Concession rights of the reconstructed/expanded of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway	2,809,931.11	2,760,650.65

According to the relevant approval documents, the composition of the investment amount for the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway is as follows:

	Mainline (RMB10,000)	Government funding (RMB10,000)	Mainline (excl. government- funded) (RMB10,000)	Luogang Interchange (RMB10,000)	Total (RMB10,000)
Interest-bearing investment amount	2,919,738.32	133,143.17	2,786,595.15	23,335.96	2,809,931.11
Interest (construction period)	195,422.51	8,571.73	186,850.78	1,084.46	187,935.24
Interest-free investment amount	2,724,315.81	124,571.44	2,599,744.37	22,251.50	2,621,995.86
Capital:			729,934.58	—	729,934.58

On discounting the total investment at different times to the base date of Appraisal.

“Total static investment” also named as “Interest-bearing investment amount” is the investment amount with interest borne by the GSZ Company with approximately RMB28.10 billion. “Interest-free investment amount discounted to base date” stands for “Discounted present value of non-interest bearing investment to the base date”. Since the GSZ Company will invest gradually in future years, the static total investment at different time points cannot be simply summed up to calculate its corresponding dynamic total investment. Those investment amounts expended in future years need to be calibrated and discounted to the same time point. It is discounted to the base date (i.e. June 30, 2027), a date on which the project is expected to be ready for opening to traffic and beginning toll collection. The discount rate used for calculating “Interest-free investment amount discounted to base date” is WACCBT as specified in the following calculation table and calculation result is approximately RMB27.61 billion.

	2022	2023	2024	2025	2026	2027	2028	2029
Interest-free investment amount (RMB10,000)	—	100,610.11	246,517.23	394,411.95	654,386.39	784,373.61	441,696.57	—
Discount term	-5	-4	-3.00	-2.00	—	1.00	-1.00	2.00
Pre-tax discount rate	6.10%	6.10%	6.10%	6.10%	6.10%	6.10%	6.19%	6.27%
Discount coefficient	1.3443	1.2671	1.1943	1.1256	1.0610	1.0000	0.9421	0.8869
Discounted value (RMB10,000)	—	127,481.62	294,409.45	443,969.41	694,281.74	784,373.61	416,134.83	—
Discounted value of the investment to base date (RMB10,000)	2,760,650.65							

Note: The appraisal valuation of the Beijing-Hong Kong-Macao Expressway Guangzhou Huocun to Dongguan Chang'an section and the Guangzhou-Foshan Expressway Guangzhou Huangcun to Huocun section is greater than the "Total static investment "(approximately RMB28.10 billion) and the "Interest-free investment amount discounted to base date" (approximately RMB27.61 billion), it means that the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway has the corresponding investment value and is worthy to invest.

The target assets and scope of the entrusted appraisal are consistent with those involved in the behavior mentioned above.

(i) Overview of the Concession Rights

The Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) comprises the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway and the Beijing-Hong Kong-Macao Expressway (Shenzhen section), with a total length of approximately 122.8 kilometers, including 71.126 kilometers within the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway.

The concession rights of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway include toll collection right, service area operation right, and rental right for advertising facilities.

The main indicators of the project are as follows:

Toll collection period	Toll collection end date	Tolling kilometers	Lane counts	Designed speed limit
25 years	30/06/2052	71.126	2-way 10 lanes	100km/h

The Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section), China's first expressway developed in partnership between Guangdong and Hong Kong, commenced full-scale trial operations on July 18, 1994, and officially opened for traffic on July 1, 1997. As a vital economic corridor driving reform and opening-up in the Pearl River Delta region and Guangdong Province, the expressway has played a pivotal role in supporting the economic development of Guangzhou, Dongguan, Shenzhen, and the greater Pearl River Delta area. To this day, it remains one of the busiest highways in China. For more than two decades since its launch, the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) has significantly enhanced economic exchanges and social progress among Guangzhou, Dongguan, Shenzhen, and Hong Kong, bearing witness to the rise of the Pearl River Delta as a world-class urban cluster.

The expressway starts at the Huangcun Interchange in Guangzhou, where it connects with the northern segment of the Guangzhou Ring Expressway, and extends southward to the Huanggang Port in Shenzhen. The segment between the Hezhou Interchange and the Huocun Interchange is a shared route of the Beijing-Hong Kong-Macau Expressway (G4) and the Shenhai Expressway (G15).

(ii) Assets Involved in the Quoted Evaluation Conclusions of other Institutions

In this Appraisal, where the income method is adopted to assess the concession rights, the forecast data of toll income, etc. in the traffic volume and toll revenue forecast analysis of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway — Technical Report issued by Shenzhen Urban Transport Planning Center (SUTPC) are quoted.

V. VALUE TYPE

(i) Value Type of this Appraisal and the Definitions

The type of value in this Appraisal is the market value under the premise of continuous operation until the end of the toll period.

Market value refers to the estimated value of the normal and fair transaction of the appraised target assets on the base date when the voluntary buyer and the voluntary seller act rationally without any compulsion.

(ii) Choice of Value Type

The economic behavior corresponding to the purpose of this Appraisal is the transaction related to the appraisal target, whose market conditions are essentially similar to those defined by market value. Considering factors such as the state of the target assets of the appraisal, the value type selected herein is the market value under the premise of continuous operation until the end of the toll period.

VI. BASE DATE OF THE APPRAISAL

According to the special notes supplied by the Company, the reconstruction and expansion of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) are divided into the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway and the Beijing-Hong Kong-Macao Expressway (Shenzhen section). Construction in both sections is planned to commence, with completion and operation scheduled for the end of 2028 and the end of 2029, respectively. Toll collection for the existing expressway is set to expire on June 30, 2027, prior to the completion of the reconstruction and expansion. Based on initial discussions with the project developer, toll collection on the existing expressway will continue after this date. However, this toll period will be included within the 25-year tolling term for the reconstruction and expansion project,

which spans from July 1, 2027, to June 30, 2052. Accordingly, the base date of the Appraisal is set at **June 30, 2027**, which is the anticipated date for opening the project to traffic and beginning toll collection.

The client has established the end date of such accounting period as the appraisal base date with a view to ensuring the timing of the economic activity aligns as closely as possible with the base date, and taking into account factors such as the Company's accounting cycle, asset verification process, financial statement preparation, and the overall economic planning considerations.

VII. BASIS FOR THE APPRAISAL

The basis followed in this Appraisal mainly includes economic behavior, laws and regulations, appraisal criteria, ownership, and the pricing basis and other reference materials used, as follows:

(i) Basis of Economic Behavior

The Asset Appraisal Contract signed by the client with us.

(ii) Legal Basis

1. Asset Appraisal Law of the People's Republic of China
2. Company Law of the People's Republic of China
3. Highway Law of the People's Republic of China
4. Regulations on the Management of Toll Roads
5. Measures for Transfer of Rights and Interests of Toll Roads
6. Relevant tax laws and regulations
7. Other relevant laws, regulations, and normative documents

(iii) Professional Norms

1. Assets Appraisal Criteria — Basic Criteria (Cai Zi [2017] No. 43).
2. Code of Professional Ethics for Assets Appraisal (Zhong Ping Xie [2017] No. 30).
3. Standard of Asset Appraisal Practice — Asset Appraisal Procedure (Zhong Ping Xie [2018] No. 36).
4. Standard of Asset Appraisal Practice — Asset Appraisal Report (Zhong Ping Xie [2018] No. 35).

5. Standard of Assets Appraisal Practice — Entrusting Contract of Assets Appraisal (Zhong Ping Xie [2017] No. 33).
6. Standard of Assets Appraisal Practice — Assets Appraisal Method (Zhong Ping Xie [2017] No. 35).
7. Standard of Asset Appraisal Practice — Utilization of Experts' Work and Related Reports (Zhong Ping Xie [2017] No. 35).
8. Guidelines for Business Quality Control of Asset Appraisal Institutions (Zhong Ping Xie [2017] No. 46).
9. Guiding Opinions on Value Types of Assets Appraisal (Zhong Ping Xie [2017] No. 47).
10. Guiding Opinions on Legal Ownership of Assets Appraisal Target Asset (Zhong Ping Xie [2017] No. 48).
11. Experts Guidelines for Assets Appraisal No. 12 — Calculation of Discount Rate in Evaluating Enterprise Value by Income Method.
12. Standard of Asset Appraisal Practice — Intangible Assets (Zhong Ping Xie [2017] No. 37).
13. Other relevant authority files.

(iv) Basis of Property Rights

1. Business License, Articles of Association, industrial and commercial registration information of the client;
2. Relevant statements and commitments provided by SIG Bay.
3. Relevant government approvals for the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway.

(v) Basis and Reference Materials of Price Selection

1. Information related to the operations of GSZ Company, including financial accounting records and financial reports provided by the company.
2. Traffic volume and toll revenue forecast analysis of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway — Technical Report.

3. Other relevant information collected by the appraisers through on-site investigation and market investigation.
4. Information from iFinD, a finance app.
5. Other relevant information.

VIII. METHODS OF THE APPRAISAL

According to the Standard of Asset Appraisal Practice — Intangible Assets: to carry out the intangible asset appraisal, asset appraisers should analyze the applicability of the three basic methods, namely, cost method, income method and market method, and select the appraisal method based on the appraisal purpose, target assets of the appraisal, value type and data collection, etc.

The asset-based method in asset appraisal refers to the approach where the reconstruction or replacement cost is taken as the basis to determine the value of the target assets of the appraisal, assuming that the target assets are rebuilt or replaced, with asset depreciation deducted.

The income method in asset appraisal refers to the valuation method in which the expected income is capitalized or discounted to determine the value of the target assets of the appraisal.

The market method in asset appraisal refers to the method that determines the value of the target assets of the appraisal based on the market price of the comparable reference object upon the comparison between the target assets of the appraisal and the comparable reference object.

(I) Applicability Analysis and Selection of Appraisal Method

Since the anticipated date for opening the project to traffic and beginning toll collection is July 1, 2027, the operation of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway have not yet been finalized as of the reporting date. There is a weak correlation between the concession rights of the Outer Ring Expressway and its total input cost on the base date of appraisal. Therefore, the asset-based method is not suitable for this appraisal.

According to Article 18 of the Measures for Transfer of Rights and Interests of Toll Roads (No. 11, 2008) issued by the Ministry of Transport, the National Development and Reform Commission and the Ministry of Finance, the value of toll rights for transfer of rights and interests of toll roads should be evaluated using the method of present value of income. Furthermore, according to the Standard of Asset Appraisal Practice — Intangible Assets, through the analysis of the target assets of the appraisal, under the usual assumptions, the future income of the appraised asset group and its corresponding risks can be reasonably predicted and estimated, making the income method suitable for this appraisal.

The value of the operation of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway mainly depends on its remaining toll years, annual income, road conditions, line orientation and the development trend of the surrounding road network, etc., resulting in relatively low comparability of values among expressways. Due to the unavailability of the data of listed companies or comparable transaction cases comparable to the above factors of the target assets of the appraisal, it is not suitable for this appraisal to adopt the market method.

According to the appraisal purpose, the target assets of the appraisal, value type, data collection and other related conditions, the income method is adopted in this Appraisal to evaluate the operation of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway.

(II) Introduction to the Income Method

Income statistical criterion: considering that the target assets of the appraisal is concession, there is no clear stipulation in the Appraisal Standard as to which cash flow data should be adopted, except that the cash flow data adopted should match the discount rate data; according to the provisions of Circular No. 8 of CSRC and Accounting Standards No. 8 for goodwill impairment test, the pre-tax cash flow should be adopted for the evaluation of these assets.

The discount method of pre-tax free cash flow of concession rights is hereby adopted based on the above analysis to evaluate the concession rights. The idea is to calculate the value of the concession by estimating the free cash flow to firm before tax (FCFFBT) generated by the concession with the selection of an appropriate discount rate.

The basic formula of income method is:

$$P = \sum FCFFBT_t (1+r)^{-t} - \text{opening supporting net working capital} - \text{opening supporting office equipment}$$

Where: $FCFFBT_t$: the free cash flow to firm before tax generated by the asset group in the next t year.

r: the corresponding pre-tax discount rate;

t: the future term of continuous operation of the asset group.

In this appraisal, the FCFFBT generated by the concession is defined as:

$$FCFFBT = EBITDA - \text{capital expenditure} - \text{increase in net working capital} + \text{working capital recovered at the end of the period} + \text{fixed assets recovered at the end of the period}$$

Where: EBITDA = earnings before interest and tax + depreciation and amortization = net profit + income tax + interest expense + depreciation and amortization.

The income period: the income period is estimated according to the maximum period of 25 years specified in relevant government documents.

Discount rate: according to the cash flow data adopted, the discount rate in concession evaluation is determined employing the pre-tax weighted average cost model. The pre-tax discount rate is calculated as follows:

$$WACCBT = R_e * [E/(D + E)]/(1-T) + R_d * D/(D + E)$$

In the calculation of WACCBT, the rate of return of interest-bearing debt capital is calculated according to the interest rate of future project financing, the rate of return of equity capital is determined according to CAPM (capital asset pricing model), and the weights of interest-bearing debt capital and equity capital are calculated according to the future borrowing and repayment plan of the project.

IX. IMPLEMENTATION PROCESS AND SITUATION OF THE APPRAISAL PROCEDURE

(I) Clarifying the Basic Matters of the Appraisal

Through an inquiry with the client on the overall plan, we defined the client and other users of the appraisal report, purpose, target assets, and scope of the appraisal, value type, base date, application scope, submission time and method of the appraisal report and other basic matters of the appraisal business.

(II) Concluding an Appraisal Entrustment Contract

According to the basic situation of the appraisal business, we analyzed and evaluated our professional competence, independence, and business risks on a comprehensive scale, and ultimately decided to conclude an appraisal entrustment contract with the client.

(III) Drawing up an Appraisal Plan

According to the specific conditions of the appraisal, the project team leader was responsible for preparing the appraisal plan, arranging the specific implementation procedures, time requirements and personnel division, and reporting the plan to the relevant personnel of our company for review and approval.

(IV) Collecting and Sorting out the Appraisal Data

On the basis of on-site investigation, according to the needs of the appraisal, the appraisers collected all kinds of data and information related to this Appraisal, including the financial data of the appraised target assets, proof of asset ownership, market transaction information of relevant assets, industry information, relevant market data, etc.

(V) Forming the Conclusion upon the Assessment

According to the on-site investigation and the collected data, and taking into account the actual situation and characteristics of the target assets of the appraisal, the corresponding appraisal method was selected to evaluate the market value of the target assets, and form the conclusion on such a basis.

(VI) Preparing and Issuing the Appraisal Report

On the basis of the above work, the project team leader prepared an asset appraisal report, which would be issued and submitted to the client after being approved by the internal audit of the Company.

(VII) Sorting and Keeping the Files

Appraisers sorted out working papers, asset appraisal reports and other relevant materials to compile asset appraisal files.

X. ASSUMPTIONS OF THE APPRAISAL

The establishment of the appraisal conclusion in this Appraisal Report depends on the following appraisal assumptions, including baseline assumptions and conditional assumptions:

(I) Baseline Assumptions**1. Transaction Baseline Assumptions**

It is assumed that the appraised target assets or all appraised assets are in the process of market transaction on the base date of appraisal, and the asset appraisers will make corresponding value estimation or calculation according to the market environment and the trading conditions of the appraised target assets or all appraised assets on the base date.

2. Open Market Baseline Assumptions

It is assumed that the trading market of the appraised target assets or all appraised assets on the base date of appraisal is an open market, i.e. a trading market that meets at least the following conditions: (1) there is a sufficient number of buyers in the market and their status is equal to each other, and all buyers are voluntary, rational and possess sufficient professional knowledge; (2) there is a sufficient number of sellers in the market and their status is equal, and all sellers are voluntary, rational and possess enough professional knowledge; (3) the status of all buyers and sellers in the market is also equal; (4) all trading rules in the market are clear and open; (5) all buyers and sellers in the market are fully informed and can obtain the same and sufficient transaction information; (6) all transactions in the market are conducted freely in sufficient time, rather than under compulsory or unrestricted conditions.

3. Going Concern/Continuing Use Baseline Assumptions

It is assumed that the economic entity corresponding to the appraisal target continues as a going concern according to its existing business objectives with the management team, financial structure, business model and market environment as at the base date of appraisal; it is assumed that all assets corresponding to the appraisal target will continue to be used according to the current purpose, using mode, scale, frequency and environment.

(II) Conditional Assumptions

1. Conditional Assumptions on External Situation

It is assumed that there are no major changes in the existing national laws, regulations and policies and the national macroeconomic situation, there are no major changes in the political, economic and social environment of the areas where the parties to this transaction are located; it is assumed that the relevant interest rates, exchange rates, tax standards and tax rates, policy-based collection fees, financing conditions, etc. will not change significantly; and it is assumed that there are no other force majeure or unforeseeable factors that may have a significant adverse impact on the appraised target assets.

2. Conditional Assumptions on the Information Necessary for the Appraisal Provided by the Client and/or Relevant Parties

It is assumed that the information (including but not limited to the business data and information, relevant financial reports and information and other important information related to the assets and liabilities associated with the appraised target assets included in the corresponding appraisal scope or the appraised target assets) necessary for the appraisal provided by client and/or relevant parties (referring to the units and their staff who have the responsibility and obligation to provide the necessary information for the appraisal according to the relevant provisions of relevant national laws and regulations, appraisal criteria and the requirements of economic behavior corresponding to the appraisal purpose, including but not limited to: the property right holder or the actual controller of the appraised target assets; the appraised target assets and its related parties; the actual occupants, users, controllers, managers, creditors and debtors related to the appraised target assets and the assets and liabilities thereof included in corresponding appraisal scope) are true, complete, legal and effective.

This Appraisal relies heavily on the necessary information provided by the client and/or relevant parties. Although the client and/or relevant parties have promised the Company that the information provided by them is true, complete, legal and effective, and the appraisers of the Company have conducted spot checks and verifications in the process of on-site investigation, including observation, inquiry, on-site investigation, and review, and explained the relevant situation in this Appraisal Report, it does not mean that we have made any guarantee for its accuracy.

3. *Conditional Assumptions on Information Obtained from Parties Other Than the Client and Relevant Parties*

It is assumed that the information obtained in this Appraisal from other parties other than the client and relevant parties can reasonably reflect the corresponding market transaction logic, or market transaction conditions, or market operation conditions, or market development trends, etc. We have truthfully disclosed the price-related standards and parameters cited in this Appraisal Report.

4. *Conditional Assumptions on the Legal Ownership of the Appraised Target Assets and Related Important Assets Thereof*

Unless otherwise stated, described, and considered in this Appraisal Report, the acquisition, use and holding of the appraisal target assets and all appraised assets are assumed to have been conducted in compliance with the provisions of national laws, regulations and normative documents- that is, their legal ownership is clear.

This Appraisal is to estimate the value of the appraised target assets and express professional opinions. It is beyond the professional scope of appraisers to confirm or express opinions on the legal ownership of the appraised target assets and all the appraised assets. We do not provide any guarantee for the legal ownership of the appraised target assets and all appraised assets.

5. *Other Assumptions*

Unless otherwise specified in this Appraisal Report, the following situations are assumed to be in normal state:

- (1) All assets or parts of assets that are invisible or inconvenient to observe, such as building foundations and pipe networks buried underground, facilities and equipment placed near high-voltage grids, assets that are not suitable for unpacking, and assets that are still working in different places when we carry out on-site inspection, are assumed to be normal;
- (2) The internal structure, performance, quality and function of all physical assets are assumed to be normal;
- (3) All appraised assets are assumed to be recorded, kept and stored in compliance with the requirements of laws or professional norms, so they are in a safe, economical and reliable environment, and their potential risk factors are not included in the consideration scope of this Appraisal.

(iii) General Assumptions

1. It is assumed that there is no material change in future economic, market or social environment (such as national macroeconomic policies, market supply and demand, fiscal and taxation policies, domestic and foreign trade policies, environmental protection policies, financial and monetary policies, etc.) and other factors;

2. It is assumed that the operation of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway will continue until the end of the toll period;
3. It is assumed that the operation of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway will remain unchanged during the forecast period;
4. It is assumed that there is no material change in the tax and tax rate policies currently applicable to the target asset of the Appraisal belongs;
5. It is assumed that there is no force majeure, which has a material adverse impact on the appraised entity, after the base date;
6. It is assumed that the appraised entity is responsibly and duly managed after the base date;
7. It is assumed that all business activities of the appraised entity can be carried out in accordance with the provisions of relevant laws and regulations, industry standards and relevant provisions of safe production and operation;
8. It is assumed that there is no material change in the current business operation model of the appraised entity in the future;
9. It is assumed that after the appraisal base date, the products or services of the appraised entity will maintain a reasonable competitive position in the marketplace;
10. It is assumed that the acquisition and use of all assets conform to the provisions of national laws, regulations and normative documents;
11. It is assumed that the accounting policies adopted by the appraised entity after the base date are consistent in important aspects;
12. It is assumed that the information provided by the client about this Appraisal is true, accurate and complete.

(iv) Special Assumptions

1. It is assumed that within the forecast period, the project construction and road network layout are essentially consistent with the superior plan, and no major adjustment will occur;
2. It is assumed that the appraised entity can be effectively maintained and managed and normally operated during the operation period;

3. It is assumed that the Lianhua Mountain Passage project will be open to traffic in 2035, the Shiziyang Passage project in 2028, the Lingdingyang Passage project in 2040, the Dongguan-Shenzhen Expressway expansion project in 2030, and the long-term rail lines will be completed and operational in 2035.
4. Based on the special notes provided by the Company, it is assumed that the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway will meet the conditions for opening to traffic and beginning toll collection on July 1, 2027.
5. It is assumed that the future toll standard of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway is the same as that of Guangdong Expressway as of August 31, 2024, and will remain unchanged during its 25-year operation period.
6. It is assumed that on July 1, 2027, the completion status of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway is basically consistent with the planning and design plan on the date when the Appraisal Report is issued.
7. It is assumed that all parameters of the discount rate will remain consistent with or close to those effective on the base date — for the calculation of the discount rate, all the parameters are selected as of August 31, 2024.
8. According to the special notes provided by the Company, the total investment required for the project is approximately RMB28.099 billion, with interest-bearing investments amounting to approximately RMB26.220 billion, including self-owned funds of about RMB7.3 billion and loans of RMB20.8 billion (principal and interest combined).

XI. SELECTION OF IMPORTANT PARAMETERS FOR THE CALCULATION OF CONCESSION RIGHTS WITH INCOME METHOD

(i) Basis of Analysis and Forecast

The basis of this analysis and forecast is the operating performance of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway in previous years, with horizontal and vertical analyses conducted respectively regarding the income structure and cost structure and vertical analysis of the development trend, growth rate and change rate; taking into consideration the analysis of the future operation status of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway and the future development of the surrounding road network, the

concession rights of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway are evaluated and estimated.

To ensure the accuracy of the forecast, the client has engaged the SUTPC, a specialized service provider, to conduct research, act as an advisor, and forecast future traffic volumes and revenues for the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway. The SUTPC has issued traffic volume and toll revenue forecast analysis of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway — Technical Report (hereinafter referred to as the “**Traffic Volume Report**”), following the principles of independence, objectivity, and impartiality, in accordance with relevant professional standards, and adhering to relevant basis of analysis and forecast, operating procedures, and established forecasting methodologies. The findings of the Traffic Volume Report have been incorporated into this Appraisal.

It is worth noting that the revenue in the Traffic Volume Report is tax-inclusive. For the toll income, when we quoted it, we converted it into tax-exclusive income under the accounting standard according to the VAT rate of 3% (the formula is: tax-exclusive income = tax-inclusive income/(1+ VAT rate)).

On the basis of a thorough analysis of the work foundation, analysis and forecasting process and methods of the above-mentioned agency, the following forecast data are directly quoted in the Traffic Volume Report in this Appraisal:

Income: the toll income (specifically, the second scheme).

Except the data specified above, there are no other cited items in this Report.

(ii) Determination of the Revenue Period and Forecast Period

According to the special notes supplied by the Company, the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway are divided into the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) and the Beijing-Hong Kong-Macao Expressway (Shenzhen section). Construction in both sections is planned to commence in 2024, with completion and operation scheduled for the end of 2028 and the end of 2029, respectively. Toll collection for the existing expressway is set to expire on June 30, 2027, prior to the completion of the reconstruction and expansion. Based on initial discussions with the project developer, toll collection on the existing expressway will continue after this date. However, this toll period will be included within the 25-year tolling term for the reconstruction and expansion project, which spans from July 1, 2027, to June 30, 2052. Accordingly, the base date of the Appraisal is set at **June 30, 2027**, which is the anticipated date for opening the project to traffic and beginning toll collection.

According to the documents specified above, the toll period of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway lasts between July 1, 2027 and June 30, 2052. All expressways are categorized as BOT projects, and all the road assets and attached facilities will be transferred to the government free of charge upon the expiration of the concession period. Therefore, the concession rights of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway are valued using a model based on a limited operation period.

Based on the above analysis, the income period and forecast period of this Appraisal are: from July 1, 2027 to June 30, 2052.

(iii) Forecast of Operating Income

Forecast of toll income

The income in the quoted Traffic Volume Report is converted into tax-exclusive income according to the accounting system.

The forecast assumptions and methods of toll revenue in the Traffic Volume Report are as follows:

(1) Forecasts and Assumptions:

According to the Reply of the People's Government of Guangdong Province on Adjusting the Toll Charging Method of Toll Roads (Yue Fu Han [2019] No. 416), from 0: 00 on January 1, 2020, the tolling of expressways in Guangdong (including expressway bridges, tunnels, except the main project of Hong Kong-Zhuhai-Macao Bridge) will be adjusted and the tolling of vehicles subject to Vehicle Type Classifications for Toll Road (JT/T489-2019) would be uniformly implemented: The toll rate for four-lane expressways is set at RMB0.45 per standard vehicle kilometer, and the rate for expressways with six lanes or more is at RMB0.60 per standard vehicle kilometer, while the previously approved toll rates for passenger vehicles continue to apply to large bridges and tunnels. The toll coefficients for passenger vehicles are as follows: 1, 1.5, 2, and 3 for type 1, type 2, type 3, and type 4 passenger vehicles (with category 3 coefficient applying to coaches seating more than 40 passengers). For trucks, the toll coefficients are 1, 2.1, 3.16, 3.75, 3.86, and 4.09 for type 1, type 2, type 3, type 4, type 5, and type 6 trucks. For trucks with six or more axles, the toll coefficient increases by 0.17 for each additional axle beyond the type 6 coefficient. The toll rates for special-purpose vehicles are determined by reference to the truck rate structure.

Table of Vehicle Type Classification and Toll Coefficient

Type	Passenger vehicle		Type	Truck	
	Models and Specifications	Tolling coefficient		Models and Specifications	Tolling coefficient
Type 1	≤9 seats	1	Type 1	2-axle, <4.5T, <6,000mm	1
Type 2	10 ~ 19 seat	1.5	Type 2	2-axle, <4.5T, <6,000mm	2.1
Type 3	20 ~ 39 seat	2	Type 3	3-axle	3.16
Type 4	≥40 seats	3	Type 4	4-axle	3.75
			Type 5	5-axle	3.86
			Type 6	6-axle	4.09

The Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway has a total length of 71.126 kilometers. Using the aforementioned toll rates and vehicle-type-specific toll coefficients, the amount of toll charged on each vehicle type for driving across the entire length of the expressway are as follows:

Full-Length Toll Charges by Vehicle Type (RMB)

	Passenger vehicle				Truck (including special-purpose vehicles)					
	Type 1	Type 2	Type 3	Type 4	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6
Unit price (Km/yuan)	0.6	0.9	1.2	1.8	0.6	1.26	1.896	2.25	2.316	2.454
Toll charge for full-length (yuan)	42.68	64.01	85.35	128.03	42.68	89.62	134.85	160.03	164.73	174.54

(2) Forecast Method:

Annual Toll = Σ (average daily traffic volume of each model per year * tolling standard of each model * section length * tolling days * K)

Where, the traditional “four-stage method” is adopted for traffic volume prediction, and the future traffic volume is predicted based on the existing traffic conditions and the analysis of regional economic, social and transportation development.

Tolling Days: according to the Implementation Plan for Exempting Toll of Mini-buses on Major Holidays issued by the State Council, the toll of mini-buses on expressways is waived on national statutory holidays, so road toll for type-1 passenger vehicles is charged on 345 days per year, and for other bus models 365 days a year.

K — toll rate, K = 100%

The traffic volume forecast for this project is derived from internet-based provincial toll data. As such, the forecast results reflect the number of valid toll-paying vehicles, with a toll rate of 100%.

Forecast of rental income

The rental income of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway include revenues from gas stations, service areas, billboard rentals, etc.

Rental income generated by the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) during the past five years is as follows:

	2019	2020	2021	2022	2023
	(RMB10,000)	(RMB10,000)	(RMB10,000)	(RMB10,000)	(RMB10,000)
Rental income of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section)	3,185.55	2,800.40	2,837.12	2,533.54	2,765.50

Based on historical data of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section), the total rental income for the entire expressway is approximately between RMB25 million and RMB30 million. Due to increasingly stringent regulations on billboards along the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section), there is a certain degree of uncertainty surrounding the future operations of the expressway expansion after the project is completed. Following the principle of prudence, the rental income for the first year of operation is projected to be RMB20 million. Over the past five years, toll revenue from the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway has accounted for approximately 65% of the total revenue generated by the expressway. As such, the rental income for the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway has been revised accordingly.

Based on the above analysis, the predicted main business income of the company is as follows (unit: RMB10,000):

Item/Year	Jul-Dec 2027	2028	2029	2030	2031	2032
Toll income	106,560.19	212,626.21	254,019.42	258,615.53	262,766.99	266,985.44
Increase (year-on-year)		99.54%	19.47%	1.81%	1.61%	1.61%
Rental income	650.00	1,300.00	1,339.00	1,379.17	1,420.55	1,463.16
Other income	—	—	—	—	—	—
Total	107,210.19	213,926.21	255,358.42	259,994.70	264,187.54	268,448.60

Item/Year	2033	2034	2035	2036	2037	2038
Toll income	271,272.82	275,631.07	266,057.28	270,333.98	274,680.58	279,099.03
Increase (year-on-year)	1.61%	1.61%	-3.47%	1.61%	1.61%	1.61%
Rental income	1,507.06	1,552.27	1,598.84	1,646.80	1,696.21	1,747.09
Other income	—	—	—	—	—	—
Total	272,779.87	277,183.34	267,656.12	271,980.78	276,376.79	280,846.12

Item/Year	2039	2040	2041	2042	2043	2044
Toll income	283,589.32	285,271.84	286,571.84	287,877.67	289,190.29	290,508.74
Increase (year-on-year)	1.61%	0.59%	0.46%	0.46%	0.46%	0.46%
Rental income	1,799.50	1,853.49	1,909.09	1,966.37	2,025.36	2,086.12
Other income	—	—	—	—	—	—
Total	285,388.82	287,125.33	288,480.94	289,844.04	291,215.65	292,594.86

Item/Year	2045	2046	2047	2048	2049	2050
Toll income	291,833.01	293,163.11	294,500.00	295,843.69	297,192.23	298,548.54
Increase (year-on-year)	0.46%	0.46%	0.46%	0.46%	0.46%	0.46%
Rental income	2,148.70	2,213.16	2,279.56	2,347.94	2,418.38	2,490.93
Other income	—	—	—	—	—	—
Total	293,981.71	295,376.27	296,779.56	298,191.63	299,610.62	301,039.48

Item/Year	2051	Jan-Jun 2052
Toll income	299,909.71	150,639.32
Increase (year-on-year)	0.46%	
Rental income	2,565.66	1,321.32
Other income	—	—
Total	302,475.37	151,960.64

(iv) Forecast of Operating Costs***Detailed Forecast of Each Component in Cash Cost***

- (1) Routine road and mechanical and electrical maintenance, labor cost, and other collection cost:

According to the special notes supplied by the Company, the reconstruction and expansion of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway are divided into the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) and the Beijing-Hong Kong-Macao Expressway (Shenzhen section). Construction in both sections is planned to commence, with completion and operation scheduled for the end of 2028 and the end of 2029, respectively. Toll collection for the existing expressway is set to expire on June 30, 2027, prior to the completion of the reconstruction and expansion. Based on initial discussions with the project developer, toll collection on the existing expressway will continue after this date. However, this toll period will be included within the 25-year tolling term for the reconstruction and expansion project, which spans from July 1, 2027, to June 30, 2052.

The Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) has been in operation for over 25 years, and this project involves an expansion and reconstruction of the expressway. Consequently, forecasts for cash costs beyond 2027 are based on historical data and reasonable projections.

Analysis and forecast of operating cash costs, excluding special expenditures such as road overhaul: during the nine years between 2015 and 2023, the annual cash costs fluctuated between RMB400 million and RMB490 million, with an average of approximately RMB440 million, and the average of annual cash costs in the latest five years (2019–2023) is about RMB450 million. Excluding the impact of the pandemic in 2020 and 2022, which led to abnormal revenue and operating cost rates, the operating cost ratio generally ranged between 12% and 16%, with an average of 13.88%.

In this Appraisal, it is assumed that, when the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway becomes fully operational in 2029, the cash cost ratio from 2015 to 2023 (excluding 2020 and 2022) will be rounded up to 14%, corresponding to RMB356 million. This amount will be allocated to road maintenance, labor cost, and other collection costs as per the detailed ratios of 2023. In 2027 and 2028, the cash cost is projected to decrease by RMB10 million based on full expressway opening scheduled for 2029. Cash cost will increase by 2% annually in 2030 and thereafter.

- (2) Overhaul-expenditure: the overhaul cost is estimated at 17 times the maintenance cost of the preceding year, with an additional 0.5 times the maintenance cost expected. Following the management practices of existing toll roads, a restorative overhaul is anticipated before the project is transferred to the government upon the expiration of its operation period. The restorative overhaul is calculated as 9 times the maintenance cost of the previous year, or 0.5 times the overhaul cost.

Forecast of Non-cash Cost

Non-cash cost mainly refers to depreciation and amortization, which is calculated and determined employing the straight-line method based on the long-term assets such as concession assets, fixed assets and long-term deferred expenses on the base date of the appraised target assets and the newly added capital expenditure assets after the base date.

Forecast Result of Operating Cost

The predicted operating costs in the coming years are shown in the table below (unit: RMB10,000):

Item/Year	Jul-Dec 2027	2028	2029	2030	2031	2032
Routine road and mechanical and electrical maintenance	1,848.00	3,806.00	3,916.00	3,994.32	4,074.21	4,155.69
Overhaul-expenditure	—	—	—	—	—	—
Labor cost	11,088.00	22,836.00	23,496.00	23,965.92	24,445.24	24,934.14
Other collection cost	3,864.00	7,958.00	8,188.00	8,351.76	8,518.80	8,689.17
Depreciation and amortization	56,483.62	112,967.24	112,967.24	112,967.24	112,967.24	112,777.24
Total of operating cost	73,283.62	147,567.24	148,567.24	149,279.24	150,005.48	150,556.25
Item/Year	2033	2034	2035	2036	2037	2038
Routine road and mechanical and electrical maintenance	4,238.80	4,323.58	4,410.05	4,498.25	4,588.22	4,679.98
Overhaul-expenditure	—	—	—	—	—	—
Labor cost	25,432.83	25,941.48	26,460.31	26,989.52	27,529.31	28,079.89
Other collection cost	8,862.95	9,040.21	9,221.02	9,405.44	9,593.55	9,785.42
Depreciation and amortization	112,587.24	112,587.24	112,587.24	112,587.24	112,682.24	112,777.24
Total of operating cost	151,121.83	151,892.52	152,678.63	153,480.45	154,393.32	155,322.54

Item/Year	2039	2040	2041	2042	2043	2044
Routine road and mechanical and electrical maintenance	4,773.58	2,434.53	2,483.22	5,065.76	5,167.08	5,270.42
Overhaul-expenditure	—	40,575.45	40,575.45	—	—	—
Labor cost	28,641.49	29,214.32	29,798.61	30,394.58	31,002.47	31,622.52
Other collection cost	9,981.13	10,180.75	10,384.36	10,592.05	10,803.89	11,019.97
Depreciation and amortization	112,777.24	112,777.24	112,777.24	112,682.24	112,587.24	112,587.24
Total of operating cost	156,173.45	195,182.29	196,018.88	158,734.64	159,560.69	160,500.16

Item/Year	2045	2046	2047	2048	2049	2050
Routine road and mechanical and electrical maintenance	5,375.83	5,483.35	5,593.01	5,704.87	5,818.97	5,935.35
Overhaul-expenditure	—	—	—	—	—	—
Labor cost	32,254.97	32,900.07	33,558.07	34,229.24	34,913.82	35,612.10
Other collection cost	11,240.37	11,465.18	11,694.48	11,928.37	12,166.94	12,410.28
Depreciation and amortization	112,587.24	112,587.24	112,777.24	112,967.24	112,967.24	112,967.24
Total of operating cost	161,458.42	162,435.84	163,622.81	164,829.72	165,866.97	166,924.97

Item/Year	2051	Jan-Jun 2052
Routine road and mechanical and electrical maintenance	—	3,087.57
Overhaul-expenditure	53,418.14	—
Labor cost	36,324.34	18,525.41
Other collection cost	12,658.48	6,455.83
Depreciation and amortization	112,967.24	56,983.62
Total of operating cost	215,368.21	85,052.43

(v) Forecast of Tax and Surcharges

Taxes and surcharges are mainly calculated based on the VAT of toll income. The forecast data of each coming year is shown in the table below (unit: RMB10,000):

Item/Year	Jul-Dec 2027	2028	2029	2030	2031	2032
Total of business tax and surcharges	387.52	773.25	922.50	939.29	954.48	969.93
Item/Year	2033	2034	2035	2036	2037	2038
Total of business tax and surcharges	985.62	1,001.59	967.40	983.08	999.03	1,015.24
Item/Year	2039	2040	2041	2042	2043	2044
Total of business tax and surcharges	1,031.72	1,038.10	1,043.11	1,048.16	1,053.24	1,058.35
Item/Year	2045	2046	2047	2048	2049	2050
Total of business tax and surcharges	1,063.49	1,068.67	1,073.88	1,079.12	1,084.40	1,089.72
Item/Year	2051	Jan-Jun 2052				
Total of business tax and surcharges	1,095.07	550.23				

(vi) Forecast of Administration Expenses

For administration expense forecasts, predictions for 2027 and thereafter is based on the operating and management costs that are consolidated to operating cost.

(vii) Forecast of Financial Expenses

Forecast of interest expense: interest expense is calculated according to the interest-bearing loan of the Company on the base date of appraisal, taking into account the future project loan repayment plan provided by the enterprise and by reference to the financing plan provided by the client. For this project, income is measured by cash flow before interest and tax, so there is no need to calculate the income tax. However, in order to enable the report users to understand the net profit situation of this project, the income tax is predicted and specified.

Forecast of interest income: Only the minimum cash required for normal operation is left in the net asset value of this operation, and the interest income generated by this part of cash in the operation is very small, so the interest income is simplified and no longer predicted here.

Discount expense and service fee expense: according to the historical expenditure of these expenses, and taking into consideration the company's future business development and the forecast model of the above-mentioned loan interest expense, a corresponding forecast is made. As the amount is small, no forecast is made here.

The predicted financial expenses for each coming year are shown in the table below (unit: RMB10,000):

Item/Year	Jul-Dec 2027	2028	2029	2030	2031	2032
Opening amount of loan	2,079,996.53	2,079,996.53	1,929,996.53	1,779,996.53	1,629,996.53	1,479,996.53
Amount of borrowing in the current year	—	—	—	—	—	—
Repayment in current year	—	150,000.00	150,000.00	150,000.00	150,000.00	50,000.00
Closing amount of borrowing	2,079,996.53	1,929,996.53	1,779,996.53	1,629,996.53	1,479,996.53	1,429,996.53
Comprehensive interest rate	2.89%	2.89%	2.89%	2.89%	2.89%	2.89%
Interest expense in current year	—	674.41	55,776.90	51,441.90	47,106.90	42,771.90
Item/Year	2033	2034	2035	2036	2037	2038
Opening amount of loan	1,429,996.53	1,379,996.53	1,329,996.53	1,279,996.53	1,229,996.53	1,179,996.53
Amount of borrowing in the current year	—	—	—	—	—	—
Repayment in current year	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00	50,000.00
Closing amount of borrowing	1,379,996.53	1,329,996.53	1,279,996.53	1,229,996.53	1,179,996.53	1,129,996.53
Comprehensive interest rate	2.89%	2.89%	2.89%	2.89%	2.89%	2.89%
Interest expense in current year	41,326.90	39,881.90	38,436.90	36,991.90	35,546.90	34,101.90

Item/Year	2039	2040	2041	2042	2043	2044
Opening amount of loan	1,129,996.53	1,079,996.53	1,029,996.53	979,996.53	879,996.53	779,996.53
Amount of borrowing in the current year	—	—	—	—	—	—
Repayment in current year	50,000.00	50,000.00	50,000.00	100,000.00	100,000.00	100,000.00
Closing amount of borrowing	1,079,996.53	1,029,996.53	979,996.53	879,996.53	779,996.53	679,996.53
Comprehensive interest rate	2.89%	2.89%	2.89%	2.89%	2.89%	2.89%
Interest expense in current year	32,656.90	31,211.90	29,766.90	28,321.90	25,431.90	22,541.90
Item/Year	2045	2046	2047	2048	2049	2050
Opening amount of loan	679,996.53	579,996.53	479,996.53	379,996.53	279,996.53	179,996.53
Amount of borrowing in the current year	—	—	—	—	—	—
Repayment in current year	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00
Closing amount of borrowing	579,996.53	479,996.53	379,996.53	279,996.53	179,996.53	79,996.53
Comprehensive interest rate	2.89%	2.89%	2.89%	2.89%	2.89%	2.89%
Interest expense in current year	19,651.90	16,761.90	13,871.90	10,981.90	8,091.90	5,201.90
Item/Year	2051	Jan-Jun 2052				
Opening amount of loan	79,996.53	—				
Amount of borrowing in the current year	—	—				
Repayment in current year	79,996.53	—				
Closing amount of borrowing	—	—				
Comprehensive interest rate	2.89%	2.89%				
Interest expense in current year	2,311.90	—				

(viii) Non-operating income and expenditure (estimate)

Non-operating income and expenses are categorized as non-recurring items and are of relatively minor financial significance. Therefore, no forecast is made for non-operating income and expenses in this Appraisal.

(ix) Forecast of Income Tax

The income tax rate of 25% applies to the appraised enterprise.

The predicted future income tax expenses are shown in the table below (unit: RMB10,000):

Item/Year	Jul-Dec 2027	2028	2029	2030	2031	2032
Total profit of statements	33,539.06	64,911.31	50,091.77	58,334.27	66,120.67	74,150.52
Subtotal of total profit adjustment	—	—	—	—	—	—
Plus: depreciation and amortization of accounting caliber (positive)	—	—	—	—	—	—
Less: depreciation and amortization of tax caliber (negative)	—	—	—	—	—	—
Total adjusted profit	33,539.06	64,911.31	50,091.77	58,334.27	66,120.67	74,150.52
Income tax paid	8,384.76	16,227.83	12,522.94	14,583.57	16,530.17	18,537.63
Item/Year	2033	2034	2035	2036	2037	2038
Total profit of statements	79,345.52	84,407.33	75,573.19	80,525.34	85,437.54	90,406.44
Subtotal of total profit adjustment	—	—	—	—	—	—
Plus: depreciation and amortization of accounting caliber (positive)	—	—	—	—	—	—
Less: depreciation and amortization of tax caliber (negative)	—	—	—	—	—	—
Total adjusted profit	79,345.52	84,407.33	75,573.19	80,525.34	85,437.54	90,406.44
Income tax paid	19,836.38	21,101.83	18,893.30	20,131.34	21,359.39	22,601.61

Item/Year	2039	2040	2041	2042	2043	2044
Total profit of statements	95,526.76	59,693.04	61,652.04	101,739.34	105,169.82	108,494.45
Subtotal of total profit adjustment	—	—	—	—	—	—
Plus: depreciation and amortization of accounting caliber (positive)	—	—	—	—	—	—
Less: depreciation and amortization of tax caliber (negative)	—	—	—	—	—	—
Total adjusted profit	95,526.76	59,693.04	61,652.04	101,739.34	105,169.82	108,494.45
Income tax paid	23,881.69	14,923.26	15,413.01	25,434.83	26,292.46	27,123.61

Item/Year	2045	2046	2047	2048	2049	2050
Total profit of statements	111,807.91	115,109.87	118,210.97	121,300.89	124,567.34	127,822.89
Subtotal of total profit adjustment	—	—	—	—	—	—
Plus: depreciation and amortization of accounting caliber (positive)	—	—	—	—	—	—
Less: depreciation and amortization of tax caliber (negative)	—	—	—	—	—	—
Total adjusted profit	111,807.91	115,109.87	118,210.97	121,300.89	124,567.34	127,822.89
Income tax paid	27,951.98	28,777.47	29,552.74	30,325.22	31,141.84	31,955.72

Item/Year	2051	Jan-Jun 2052
Total profit of statements	83,700.19	66,357.98
Subtotal of total profit adjustment	—	—
Plus: depreciation and amortization of accounting caliber (positive)	—	—
Less: depreciation and amortization of tax caliber (negative)	—	—
Total adjusted profit	83,700.19	66,357.98
Income tax paid	20,925.05	16,589.49

(x) About the Supporting Net Working Capital and Supporting Office Equipment

In order to enable the concession to operate in the future and obtain operating cash flow, it is necessary to allocate the required net working capital and equip the required office fixed assets (such as electronic equipment and vehicles) at the beginning of the forecast. The initial working capital is preliminarily determined as RMB50 million. The supporting office equipment is determined as RMB40 million with reference to the actual amount of electronic equipment and vehicles on the enterprise account at the end of 2023.

(xi) Determination of the Value of Mature Assets

After the concession expires, the operation will also expire accordingly, and the assets related to the Expressway will be taken back by the government free of charge. By the end of the operation period, the net value and discounted value of office equipment and transportation equipment are extremely small and will be discarded. Therefore, the value of mature assets is mainly the last working capital, which is calculated to be RMB55,488,700.

(xii) Determination of Discount Rate

As this Appraisal adopts cash flow for income calculation, the discount rate in concession evaluation is determined employing the model of weighted average cost of capital before tax (WACCBT). The pre-tax discount rate is calculated as follows:

$$WACCBT = R_e * [E/(D+E)] / (1-T) + R_d * D/(D+E)$$

Capital structures D and E

On the base date of appraisal, the value of interest-bearing debts of the project to which the concession rights belong is D= RMB20,799,965,300, the value of equity capital E+ the value of interest-bearing debts D = the evaluation value of the asset group including the concession rights = RMB28,534,853,200.

When calculating D and D+E in the coming years, the following two models are usually used in the practice:

- 1) Model of constant capital structure: D/E of the coming years is simplified as remaining unchanged.
- 2) Model of changing capital structure: the interest-bearing debts D in the coming years are calculated according to the borrowing and repayment plan; simplification of D+E is made as unchanged in the coming years, and then the corresponding D/E of each year is calculated.

Compared with the Model 1, Model 2 is closer to the actual operating situation of the company in the future if the future borrowing and repayment amount changes substantially, so it is easier to be accepted by the report users.

However, for this project, as the concession of expressway has a limited term, the value of its concession will decrease with the decrease of the toll period, until it ultimately becomes 0. However, in Model 2, it is assumed that the future D+E (concession rights value) simplification will remain unchanged in the coming years, which is obviously seriously inconsistent with the actual value in the future.

Based on the above analysis, during the appraisal of this project, we estimate D and D+E in the coming years according to the following model:

- 1) Interest-bearing debts D in the coming years is calculated according to the borrowing and repayment plan provided by the enterprise;
- 2) D+E (for this project, the concession rights value) of the coming years is calculated according to the pre-tax cash flow forecast value of each year, and the valuation of concession rights of each year is taken as D+E of each year;

Cost of equity capital R_e

The expected rate of return on equity is estimated by CAPM model. The formula is:

$$\text{Expected rate of return on equity } R_e = R_f + \beta * (R_m - R_f) + \varepsilon$$

Where: R_f : risk-free interest rate in the market;

$R_m - R_f$: market risk premium;

β : risk coefficient;

ε : specific risk return rate;

R_f — Risk-free interest rate in the market

First of all, according to the yield to maturity curve for government bonds with a remaining maturity of more than 10 years published by China Central Depository & Clearing Co., Ltd. (CCDC), the arithmetic mean of yield to maturity of China government bonds with a remaining maturity of more than 10 years in each month is calculated from December 2014 (the starting time of calculating the expected rate of return in the market is the same, see the market risk premium part later). Then, the arithmetic mean of the yield to maturity of China's long-term national debts in each calculation interval since December 2014 is the estimated value of the risk-free interest rate R_f at the end of the calculation interval.

Using the above method, the risk-free interest rate R_f on August 31, 2024 is 3.46%.

Market risk premium $R_m - R_f$

$R_m - R_f$ stands for market risk premium, which refers to the expected excess return required by investors for equity investment with the same average risk exposure as the market as a whole — that is, the risk compensation that exceeds the risk-free interest rate.

When determining the market risk premium, the historical risk premium data of China's securities market index is used for the calculation. The relevant calculation principles are as follows:

Index type: CSI 300 Index. Among the indexes in China's securities market, the CSI 300 Index has a more comprehensive market representation.

Time span and data frequency: no less than 10 years (120 months). The base period of the CSI 300 Index is December 31, 2004, and the historical starting month corresponding to the yield meeting the investment period of no less than 10 years (120 months) is December 2014 (the first sample data). The frequency is monthly.

Average method: firstly, the annual return rate R_m satisfying the time span is calculated by geometric mean, and then the market risk premium of each year is calculated accordingly; then the arithmetic mean is used to determine the final market risk premium.

According to the above method, the market risk premium $R_m - R_f$ on August 31, 2024 is 6.41%.

β value

Risk coefficient β : it is obtained by adjusting the average equity β coefficient of comparable listed companies — that is, if the of listed companies with leverage is queried and adjusted to without leverage, and the of the appraised enterprise is obtained by taking the average value, and the by considering the capital structure applicable to the appraised enterprise. The calculation formula is as follows:

$$\beta_U = \beta_L / [1 + D/E \times (1 - T)]$$

β_U stands for β coefficient without financial leverage, β_L for the β coefficient with financial leverage, T stands for income tax rate, D for creditor's rights value, and E for equity value (corresponding to the valuation part in income method — that is, the net operating equity).

Capital structures D and E of the appraised enterprise are determined as follows:

When calculating D/E in the coming years, the following two models are usually used in the practice:

- 1) Model of constant capital structure: D/E of the coming years is simplified as remaining unchanged.
- 2) Model of changing capital structure: the interest-bearing debts D in the coming years are calculated according to the borrowing and repayment plan; simplification of $D+E$ is made as unchanged in the coming years, and then the corresponding D/E of each year is calculated.

Compared with the Model 1 and in the case of expressway project companies, Model 2 is closer to the actual operating situation of the company in the future if the future borrowing and repayment amount changes substantially until it ultimately becomes 0, so it is easier to be accepted by the report users.

However, for expressway project companies, in particular, as the concession of expressway has a limited term, the value of its concession will decrease with the decrease of the toll period, until it ultimately becomes 0. Consequently, the equity cash flows generated from business operations also diminish significantly as the toll period ends, eventually resulting in a net operational equity value of 0, as calculated using the income approach. However, in Model 2, it is assumed that the future E simplification will remain unchanged in the coming years, which is obviously seriously inconsistent with the actual value in the future.

Based on the above analysis, during the appraisal of this project, we estimate D and E in the coming years according to the following model:

- 1) Interest-bearing debts D in the coming years is calculated according to the borrowing and repayment plan estimates;
- 2) E (the net operating equity, which refers to the total equity value of shareholders excluding surplus and equivalent to operational assets minus interest-bearing debt) of the coming years is determined through an iterative calculation based on the forecasted equity free cash flow for the remaining period.

β_U of the appraised enterprise are determined as follows:

In this Appraisal, companies of the expressway industry listed in Shanghai and Shenzhen stock exchanges were selected, and the β_L values of these companies were inquired via the iFinD system (starting transaction date: August 31, 2021; deadline of transaction: August 31, 2024; calculation period: weekly; calculation method of yield: ordinary yield; target index: CSI 300), then the β_U value of each comparable company is calculated according to the income tax rate and capital structure of comparable listed companies and Bloom adjustment method, with its average value as the β_U value of the appraised assets. See the table below for calculation details:

No.	Stock Code	Stock Abbreviation	β coefficient	D/E	Income tax rate	Adjusted β_U
1.	000429.SZ	Guangdong Expressway A	0.1954	0.3584	25%	0.4332
2.	000755.SZ	Shanxi Expressway	0.0143	1.0700	25%	0.3353
3.	001965.SZ	China Merchants Expressway	0.3568	0.7083	25%	0.4861
4.	600020.SH	Zhongyuan Expressway	0.4341	3.7830	25%	0.4058
5.	600033.SH	Fujian Expressway	0.2449	0.1559	25%	0.4769
6.	600035.SH	Chutian Expressway	0.4183	1.2591	25%	0.4741
7.	600269.SH	Ganyue Expressway	0.3235	1.0050	25%	0.4536
8.	600350.SH	Shandong Expressway	0.1934	1.5978	25%	0.3889
9.	600377.SH	Ninghu Expressway	0.1361	0.5067	25%	0.3961
10.	600548.SH	Shenzhen Expressway	0.3431	1.7005	25%	0.4310
11.	601107.SH	Chengyu Expressway	0.3125	3.1277	15%	0.3872
Average of comparable companies			0.2702			0.4244

Enterprise-specific risk premium rate ε

Considering the specific risks associated with the assets under evaluation relative to the peer companies in terms of business scale, operational risks, and the regional economic development conditions, the baseline value for the specific risk adjustment for this project is set at 1.0%;

In addition, through trial calculation, when the after-tax discount rate is converted into the pre-tax discount rate, the adjustment factor caused by the nonlinear relationship in the formula is -1.62% (this adjustment factor is calculated based on the essentially consistent results of pre-tax and after-tax calculations).

To sum up, the risk adjustment value specific to this project is ultimately determined to be -0.62%.

Cost of debt capital R_d

The cost of debt capital R_d = the average interest rate of financing in each period that allows pre-tax deduction for future projects.

Determination of WACCBT

Substituting the parameters in the above discount rate into the WACC calculation formula, WACCBT in the coming years can be calculated:

Item/Year	Base date of assets appraisal	Jul-Dec 2027	2028	2029	2030	2031
Value of concession rights (unit: RMB10,000)	2,853,485.32	2,847,816.90	2,841,157.06	2,794,496.28	2,742,369.50	2,685,409.85
Interest-bearing liabilities (unit: RMB10,000)	2,079,996.53	2,079,996.53	1,929,996.53	1,779,996.53	1,629,996.53	1,479,996.53
Net value of operating equity (unit: RMB10,000)	773,488.79	767,820.38	911,160.54	1,014,499.76	1,112,372.97	1,205,413.32
Equity holding (%)	0.2711	0.2696	0.3207	0.3630	0.4056	0.4489
Interest-bearing liabilities (% of total liabilities)	0.7289	0.7304	0.6793	0.6370	0.5944	0.5511
Industry-average β_u	0.4244	0.4244	0.4244	0.4244	0.4244	0.4244
β coefficient of the Company with financial leverage	1.2803	1.2866	1.0986	0.9829	0.8908	0.8152
Risk-free premium rate ε	3.4600%	3.4600%	3.4600%	3.4600%	3.4600%	3.4600%
Risk premium	6.41%	6.41%	6.41%	6.41%	6.41%	6.41%
Project-specific risk adjustment value specific to the project	-0.62%	-0.62%	-0.62%	-0.62%	-0.62%	-0.62%
CAPM	11.0469%	11.0874%	9.8820%	9.1401%	8.5500%	8.0654%
Cost of debt	2.89%	2.89%	2.89%	2.89%	2.89%	2.89%
Income tax rate	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
After-tax cost of debt	2.1675%	2.1675%	2.1675%	2.1675%	2.1675%	2.1675%
Pre-tax WACC	6.0992%	6.0966%	6.1887%	6.2651%	6.3419%	6.4199%

Item/Year	2032	2033	2034	2035	2036	2037
Value of concession rights (unit: RMB10,000)	2,621,452.38	2,549,846.60	2,470,015.11	2,395,125.59	2,312,580.97	2,223,139.36
Interest-bearing liabilities (unit: RMB10,000)	1,429,996.53	1,379,996.53	1,329,996.53	1,279,996.53	1,229,996.53	1,179,996.53
Net value of operating equity (unit: RMB10,000)	1,191,455.86	1,169,850.07	1,140,018.59	1,115,129.07	1,082,584.45	1,043,142.83
Equity holding (%)	0.4545	0.4588	0.4615	0.4656	0.4681	0.4692
Interest-bearing liabilities (% of total liabilities)	0.5455	0.5412	0.5385	0.5344	0.5319	0.5308
Industry-average β_u	0.4244	0.4244	0.4244	0.4244	0.4244	0.4244
β coefficient of the Company with financial leverage	0.8064	0.7999	0.7957	0.7897	0.7860	0.7844
Risk-free premium rate ϵ	3.4600%	3.4600%	3.4600%	3.4600%	3.4600%	3.4600%
Risk premium	6.41%	6.41%	6.41%	6.41%	6.41%	6.41%
Project-specific risk adjustment value specific to the project	-0.62%	-0.62%	-0.62%	-0.62%	-0.62%	-0.62%
CAPM	8.0091%	7.9671%	7.9406%	7.9023%	7.8785%	7.8683%
Cost of debt	2.89%	2.89%	2.89%	2.89%	2.89%	2.89%
Income tax rate	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
After-tax cost of debt	2.1675%	2.1675%	2.1675%	2.1675%	2.1675%	2.1675%
Pre-tax WACC	6.4300%	6.4378%	6.4427%	6.4500%	6.4546%	6.4566%
Item/Year	2038	2039	2040	2041	2042	2043
Value of concession rights (unit: RMB10,000)	2,122,064.26	2,010,514.08	1,931,580.18	1,845,730.92	1,715,855.76	1,576,932.93
Interest-bearing liabilities (unit: RMB10,000)	1,129,996.53	1,079,996.53	1,029,996.53	979,996.53	879,996.53	779,996.53
Net value of operating equity (unit: RMB10,000)	992,067.74	930,517.56	901,583.66	865,734.39	835,859.23	796,936.41
Equity holding (%)	0.4675	0.4628	0.4668	0.4690	0.4871	0.5054
Interest-bearing liabilities (% of total liabilities)	0.5325	0.5372	0.5332	0.5310	0.5129	0.4946
Industry-average β_u	0.4244	0.4244	0.4244	0.4244	0.4244	0.4244
β coefficient of the Company with financial leverage	0.7869	0.7938	0.7880	0.7847	0.7595	0.7359
Risk-free premium rate ϵ	3.4600%	3.4600%	3.4600%	3.4600%	3.4600%	3.4600%
Risk premium	6.41%	6.41%	6.41%	6.41%	6.41%	6.41%
Project-specific risk adjustment value specific to the project	-0.62%	-0.62%	-0.62%	-0.62%	-0.62%	-0.62%
CAPM	7.8843%	7.9284%	7.8912%	7.8699%	7.7084%	7.5573%
Cost of debt	2.89%	2.89%	2.89%	2.89%	2.89%	2.89%
Income tax rate	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
After-tax cost of debt	2.1675%	2.1675%	2.1675%	2.1675%	2.1675%	2.1675%
Pre-tax WACC	6.4535%	6.4450%	6.4521%	6.4563%	6.4889%	6.5218%

Item/Year	2044	2045	2046	2047	2048	2049
Value of concession rights (unit: RMB10,000)	1,428,991.54	1,271,380.44	1,103,397.18	926,361.79	735,473.49	531,835.23
Interest-bearing liabilities (unit: RMB10,000)	679,996.53	579,996.53	479,996.53	379,996.53	279,996.53	179,996.53
Net value of operating equity (unit: RMB10,000)	748,995.01	691,383.91	623,400.65	546,365.26	455,476.96	351,838.71
Equity holding (%)	0.5241	0.5438	0.5650	0.5898	0.6193	0.6616
Interest-bearing liabilities (% of total liabilities)	0.4759	0.4562	0.4350	0.4102	0.3807	0.3384
Industry-average β_u	0.4244	0.4244	0.4244	0.4244	0.4244	0.4244
β coefficient of the Company with financial leverage	0.7134	0.6914	0.6695	0.6458	0.6201	0.5872
Risk-free premium rate ϵ	3.4600%	3.4600%	3.4600%	3.4600%	3.4600%	3.4600%
Risk premium	6.41%	6.41%	6.41%	6.41%	6.41%	6.41%
Project-specific risk adjustment value specific to the project	-0.62%	-0.62%	-0.62%	-0.62%	-0.62%	-0.62%
CAPM	7.4127%	7.2719%	7.1313%	6.9794%	6.8146%	6.6041%
Cost of debt	2.89%	2.89%	2.89%	2.89%	2.89%	2.89%
Income tax rate	25.00%	25.00%	25.00%	25.00%	25.00%	25.00%
After-tax cost of debt	2.1675%	2.1675%	2.1675%	2.1675%	2.1675%	2.1675%
Pre-tax WACC	6.5556%	6.5911%	6.6293%	6.6740%	6.7272%	6.8034%
			2052			
Item/Year	2050	2051	Jan-Jun			
Value of concession rights (unit: RMB10,000)	314,592.74	133,545.27	-0.00			
Interest-bearing liabilities (unit: RMB10,000)	79,996.53	—	—			
Net value of operating equity (unit: RMB10,000)	234,596.22	133,545.27	-0.00			
Equity holding (%)	0.7457	1.0000	1.0000			
Interest-bearing liabilities (% of total liabilities)	0.2543	—	—			
Industry-average β_u	0.4244	0.4244	0.4244			
β coefficient of the Company with financial leverage	0.5329	0.4244	0.4244			
Risk-free premium rate ϵ	3.4600%	3.4600%	3.4600%			
Risk premium	6.41%	6.41%	6.41%			
Project-specific risk adjustment value specific to the project	-0.62%	-0.62%	-0.62%			
CAPM	6.2561%	5.5604%	5.5604%			
Cost of debt	2.89%	2.89%	2.89%			
Income tax rate	25.00%	25.00%	25.00%			
After-tax cost of debt	2.1675%	2.1675%	2.1675%			
Pre-tax WACC	6.9552%	7.4138%	7.4138%			

(xiii) Appraisal Value of the Concession and Shareholder's Own Funds

The predicted cash flow generated by each asset group to be appraised is discounted on schedule to calculate the value of the asset group to be appraised. The calculation results are shown in the table below (unit: RMB10,000):

Item	Jul-Dec 2027	2028	2029	2030	2031	2032
I. Operating Income	107,210.19	213,926.21	255,358.42	259,994.70	264,187.54	268,448.60
Less: operating cost	73,283.62	147,567.24	148,567.24	149,279.24	150,005.48	150,556.25
Business tax and surcharges	387.52	773.25	922.50	939.29	954.48	969.93
Financial expenses	—	674.41	55,776.90	51,441.90	47,106.90	42,771.90
II. Operating Profit	33,539.06	64,911.31	50,091.77	58,334.27	66,120.67	74,150.52
III. Total Profit	33,539.06	64,911.31	50,091.77	58,334.27	66,120.67	74,150.52
Less: income tax	8,384.76	16,227.83	12,522.94	14,583.57	16,530.17	18,537.63
IV. Net Profit	25,154.29	48,683.48	37,568.83	43,750.70	49,590.50	55,612.89
Plus: Depreciation and amortization	56,483.62	112,967.24	112,967.24	112,967.24	112,967.24	112,777.24
Less: After-tax expenses on interest-bearing debts	—	505.81	41,832.67	38,581.42	35,330.17	32,078.92
V. Operating Cash Flow	81,637.91	162,156.53	192,368.75	195,299.37	197,887.92	200,469.06
Less: increase in working capital	—	1,059.24	897.68	336.78	315.91	328.80
VI. Free Cash Flow to Firm (FCFF)	81,637.91	161,097.29	191,471.07	194,962.59	197,572.01	200,140.26
EBITDA of operating assets	90,022.68	178,552.96	218,835.91	222,743.41	226,194.81	229,699.67
VII. Pre-Tax Free Cash Flow	90,022.68	177,493.72	217,938.23	222,406.63	225,878.90	229,370.86
VIII. Discount Rate	6.10%	6.19%	6.27%	6.34%	6.42%	6.43%
Remaining years to base date (discounted on schedule)	0.2500	1.0000	2.0000	3.0000	4.0000	5.0000
Discount coefficient	0.9853	0.9421	0.8869	0.8343	0.7843	0.7369
IX. Discounted Value by Year	88,700.60	167,221.85	193,289.81	185,556.34	177,149.59	169,028.22

Item	2033	2034	2035	2036	2037	2038
I. Operating Income	272,779.87	277,183.34	267,656.12	271,980.78	276,376.79	280,846.12
Less: operating cost	151,121.83	151,892.52	152,678.63	153,480.45	154,393.32	155,322.54
Business tax and surcharges	985.62	1,001.59	967.40	983.08	999.03	1,015.24
Financial expenses	41,326.90	39,881.90	38,436.90	36,991.90	35,546.90	34,101.90
II. Operating Profit	79,345.52	84,407.33	75,573.19	80,525.34	85,437.54	90,406.44
III. Total Profit	79,345.52	84,407.33	75,573.19	80,525.34	85,437.54	90,406.44
Less: income tax	19,836.38	21,101.83	18,893.30	20,131.34	21,359.39	22,601.61
IV. Net Profit	59,509.14	63,305.50	56,679.89	60,394.01	64,078.16	67,804.83
Plus: Depreciation and amortization	112,587.24	112,587.24	112,587.24	112,587.24	112,682.24	112,777.24
Less: After-tax expenses on interest-bearing debts	30,995.17	29,911.42	28,827.67	27,743.92	26,660.17	25,576.42
V. Operating Cash Flow	203,091.56	205,804.17	198,094.81	200,725.18	203,420.58	206,158.50
Less: Capital expenditure	—	—	—	—	2,000.00	—
Where: updates on capital expenditure	—	—	—	—	2,000.00	—
Less: increase in working capital	273.31	268.19	-402.28	265.47	264.90	268.99
VI. Free Cash Flow to Firm (FCFF)	202,818.25	205,535.97	198,497.09	200,459.71	201,155.68	205,889.51
EBITDA of operating assets	233,259.66	236,876.47	226,597.34	230,104.49	233,666.69	237,285.59
VII. Pre-Tax Free Cash Flow	232,986.35	236,608.28	226,999.61	229,839.02	231,401.79	237,016.60
VIII. Discount Rate	6.44%	6.44%	6.45%	6.45%	6.46%	6.45%
Remaining years to base date (discounted on schedule)	6.0000	7.0000	8.0000	9.0000	10.0000	11.0000
Discount coefficient	0.6924	0.6505	0.6111	0.5740	0.5392	0.5065
IX. Discounted Value by Year	161,313.78	153,909.35	138,716.88	131,938.90	124,780.67	120,058.57

Item	2039	2040	2041	2042	2043	2044
I. Operating Income	285,388.82	287,125.33	288,480.94	289,844.04	291,215.65	292,594.86
Less: operating cost	156,173.45	195,182.29	196,018.88	158,734.64	159,560.69	160,500.16
Business tax and surcharges	1,031.72	1,038.10	1,043.11	1,048.16	1,053.24	1,058.35
Financial expenses	32,656.90	31,211.90	29,766.90	28,321.90	25,431.90	22,541.90
II. Operating Profit	95,526.76	59,693.04	61,652.04	101,739.34	105,169.82	108,494.45
III. Total Profit	95,526.76	59,693.04	61,652.04	101,739.34	105,169.82	108,494.45
Less: income tax	23,881.69	14,923.26	15,413.01	25,434.83	26,292.46	27,123.61
IV. Net Profit	71,645.07	44,769.78	46,239.03	76,304.50	78,877.37	81,370.84
Plus: Depreciation and amortization	112,777.24	112,777.24	112,777.24	112,682.24	112,587.24	112,587.24
Less: After-tax expenses on interest-bearing debts	24,492.67	23,408.92	22,325.17	21,241.42	19,073.92	16,906.42
V. Operating Cash Flow	208,914.99	180,955.95	181,341.45	210,228.17	210,538.54	210,864.51
Less: Capital expenditure	—	—	—	2,000.00	—	—
Where: updates on capital expenditure	—	—	—	2,000.00	—	—
Less: increase in working capital	277.65	1,449.26	123.65	-1,173.69	161.56	158.00
VI. Free Cash Flow to Firm (FCFF)	208,637.34	179,506.69	181,217.80	209,401.87	210,376.98	210,706.51
EBITDA of operating assets	240,960.90	203,682.19	204,196.19	242,743.48	243,188.97	243,623.60
VII. Pre-Tax Free Cash Flow	240,683.26	202,232.93	204,072.54	241,917.18	243,027.41	243,465.60
VIII. Discount Rate	6.45%	6.45%	6.46%	6.49%	6.52%	6.56%
Remaining years to base date (discounted on schedule)	12.0000	13.0000	14.0000	15.0000	16.0000	17.0000
Discount coefficient	0.4759	0.4470	0.4199	0.3944	0.3703	0.3476
IX. Discounted Value by Year	114,529.57	90,403.17	85,694.62	95,410.88	89,994.32	84,623.32

Item	2045	2046	2047	2048	2049	2050
I. Operating Income	293,981.71	295,376.27	296,779.56	298,191.63	299,610.62	301,039.48
Less: operating cost	161,458.42	162,435.84	163,622.81	164,829.72	165,866.97	166,924.97
Business tax and surcharges	1,063.49	1,068.67	1,073.88	1,079.12	1,084.40	1,089.72
Financial expenses	19,651.90	16,761.90	13,871.90	10,981.90	8,091.90	5,201.90
II. Operating Profit	111,807.91	115,109.87	118,210.97	121,300.89	124,567.34	127,822.89
III. Total Profit	111,807.91	115,109.87	118,210.97	121,300.89	124,567.34	127,822.89
Less: income tax	27,951.98	28,777.47	29,552.74	30,325.22	31,141.84	31,955.72
IV. Net Profit	83,855.93	86,332.40	88,658.23	90,975.67	93,425.51	95,867.17
Plus: Depreciation and amortization	112,587.24	112,587.24	112,777.24	112,967.24	112,967.24	112,967.24
Less: After-tax expenses on interest-bearing debts	14,738.92	12,571.42	10,403.92	8,236.42	6,068.92	3,901.42
V. Operating Cash Flow	211,182.10	211,491.07	211,839.40	212,179.33	212,461.68	212,735.84
Less: Capital expenditure	—	—	2,000.00	—	—	—
Where: updates on capital expenditure	—	—	2,000.00	—	—	—
Less: increase in working capital	159.01	160.04	152.02	153.13	163.26	164.45
VI. Free Cash Flow to Firm (FCFF)	211,023.09	211,331.03	209,687.38	212,026.21	212,298.41	212,571.39
EBITDA of operating assets	244,047.05	244,459.01	244,860.11	245,250.03	245,626.49	245,992.04
VII. Pre-Tax Free Cash Flow	243,888.04	244,298.97	242,708.10	245,096.91	245,463.22	245,827.58
VIII. Discount Rate	6.59%	6.63%	6.67%	6.73%	6.80%	6.96%
Remaining years to base date (discounted on schedule)	18.0000	19.0000	20.0000	21.0000	22.0000	23.0000
Discount coefficient	0.3261	0.3059	0.2868	0.2688	0.2518	0.2356
IX. Discounted Value by Year	79,541.60	74,735.46	69,618.03	65,888.30	61,805.43	57,913.15

Item	2051	2052 Jan-Jun
I. Operating Income	302,475.37	151,960.64
Less: operating cost	215,368.21	85,052.43
Business tax and surcharges	1,095.07	550.23
Financial expenses	2,311.90	—
II. Operating Profit	83,700.19	66,357.98
III. Total Profit	83,700.19	66,357.98
Less: income tax	20,925.05	16,589.49
IV. Net Profit	62,775.15	49,768.48
Plus: Depreciation and amortization	112,967.24	56,983.62
Less: After-tax expenses on interest-bearing debts	1,733.92	—
V. Operating Cash Flow	177,476.31	106,752.11
Less: increase in working capital	1,787.57	-7,064.02
Plus: recovery of assets upon expiration	—	5,548.87
VI. Free Cash Flow to Firm (FCFF)	175,688.74	119,364.99
EBITDA of operating assets	198,979.34	123,341.60
VII. Pre-Tax Free Cash Flow	197,191.77	135,954.49
VIII. Discount Rate	7.41%	7.41%
Remaining years to base date (discounted on schedule)	24.0000	24.7500
Discount coefficient	0.2198	0.2083
IX. Discounted Value by Year	43,341.53	28,321.35
X. Value of operating assets (rounded to the nearest whole figure)		2,853,485.32

Calculation results of the value of concession rights (unit: RMB10,000):

Value of operating assets	2,853,485.32
Less: opening supporting net working capital	5,000.00
Less: opening value of supporting office equipment	4,000.00
Value of concession rights	2,844,485.32

Calculation results of shareholders' own funds (unit: RMB10,000)

Value of concession rights	2,844,485.32
Less: interest-bearing liabilities	2,079,996.53
Value of shareholders' own funds:	764,488.79
Value of 45% of shareholders' own funds:	344,019.96

XII. CONCLUSIONS OF THE APPRAISAL

The appraisal result of the concession rights of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway on the base date June 30, 2027 is RMB28,444,853,200. The value of 45% of the shareholder's own funds corresponding to the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway is appraised at RMB3,440,199,600. See the table below for details. The differences are as follows.

Item	Interest-bearing investment amount (RMB10,000)	Interest-free investment amount discounted to base date (RMB10,000)	Appraisal value (RMB10,000)
Concession rights of the reconstructed/expanded of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway	2,809,931.11	2,760,650.65	2,844,485.32

Total value of shareholders' own funds^{(Note (i))} <i>(RMB10,000)</i>	Value of shareholders' own funds^{(Note (ii))} <i>(RMB10,000)</i>	45% of shareholders' own funds^{(Note (iii))} <i>(RMB10,000)</i>	Value of 45% of shareholders' own funds^{(Note (iv))} <i>(RMB10,000)</i>
729,934.58	764,488.79	328,470.56	344,019.96

Note:

- (i) "Total value of shareholders' own funds" is the portion of the entire project's investment financed by shareholders' own funds, which represents 25% of the entire project's investment;
- (ii) "Value of shareholders' own funds" is the appraisal value of the investment financed by shareholders' own funds, which is the total appraisal value of the entire project minus the investment amount financed by the GSZ Company's external borrowings;
- (iii) 45% of shareholders' own funds" is 45% of the "Total value of shareholders' own funds", which corresponds to the capital contribution amount of the SIH Bay; and
- (iv) "Value of 45% of shareholders' own funds" is 45% of the "Value of shareholders' own funds", which corresponds to the appraisal value of the SIH Bay's capital contribution.

The appraisal conclusion is only valid on the appraisal base date specified in this report.

XIII. SENSITIVITY ANALYSIS

1. Sensitivity Analysis of Income

Assuming that the income increases by 5%, 10%, -5% and -10% respectively on the existing basis, the assessment results and their change ranges are shown in the table below (unit: RMB10,000):

Income	Assumption 1	Assumption 2	Benchmark	Assumption 3	Assumption 4
Growth rate	-10%	-5%	0%	5%	10%
Assessment result	2,603,126.52	2,723,539.54	2,844,485.32	2,966,717.72	3,087,756.92
Change range of assessment results	-8.49%	-4.25%	0.00%	4.30%	8.55%

2. Sensitivity Analysis of Out-of-pocket Operating Cost (Excluding Overhaul)

Assuming that the out-of-pocket operating cost (excluding overhaul) increases by 5%, 10%, -5% and -10% respectively on the existing basis, the assessment results and their variation ranges are shown in the table below (unit: RMB10,000):

Out-of-pocket operating cost (excluding overhaul)	Assumption 1	Assumption 2	Benchmark	Assumption 3	Assumption 4
Growth rate	-10%	-5%	0%	5%	10%
Assessment result	2,889,268.18	2,866,904.42	2,844,485.32	2,822,010.71	2,799,480.45
Change range of assessment results	1.57%	0.79%	0.00%	-0.79%	-1.58%

3. Sensitivity Analysis of Discount Rate

Assuming that the discount rate increases by 5%, 10%, -5% and -10% respectively on the existing basis, the assessment results and their variation ranges are shown in the table below (unit: RMB10,000):

Discount rate	Assumption 1	Assumption 2	Benchmark	Assumption 3	Assumption 4
Growth rate	-10%	-5%	0%	5%	10%
Assessment result	2,989,524.98	2,915,112.82	2,844,485.32	2,775,195.05	2,709,168.43
Change range of assessment results	5.10%	2.48%	0.00%	-2.44%	-4.76%

XIV. NOTES ON SPECIAL MATTERS

The conclusion of this Appraisal Report only reflects the market value of the appraised target assets determined following relevant economic principles under the conditions of the appraisal purpose, value type and appraisal assumptions. In our opinion, the following matters that we found during the appraisal may affect the appraisal conclusion, but we cannot estimate the degree of its influence on the appraisal result for the time being. The users of this Report are hereby requested to pay attention to the impact of these matters on economic behavior.

1. The appraisal base date is set as on June 30, 2027, which is the anticipated date for the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway to open to traffic and begin toll collection. As of the appraisal report date, the concession rights of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao

Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway has not yet been established. Therefore, this report is classified as a consulting appraisal report rather than an attestation appraisal report.

2. Explanation on the base date of the appraisal

According to the special notes supplied by the Company, the reconstruction and expansion of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) are divided into the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway and the Beijing-Hong Kong-Macao Expressway (Shenzhen section). Construction in both sections is planned to commence, with completion and operation scheduled for the end of 2028 and the end of 2029, respectively. Toll collection for the existing expressway is set to expire on June 30, 2027, prior to the completion of the reconstruction and expansion. Based on initial discussions with the project developer, toll collection on the existing expressway will continue after this date. However, this toll period will be included within the 25-year tolling term for the reconstruction and expansion project, which spans from July 1, 2027, to June 30, 2052. Therefore, the client has set the base date for the Appraisal as June 30, 2027. The users of this Report are hereby reminded to pay due attention to related information.

3. Quoted conclusions of reports issued by other institutions

This Appraisal directly references the forecast data for toll revenue from traffic volume and toll revenue forecast analysis of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway — Technical Report, issued by the SUTPC, a professional traffic consulting institution engaged by the client.

For the data quoted herein, we bear the responsibility for improper quotation.

XV. RESTRICTIONS ON THE USE OF THE REPORT

(i) Scope of Use of this Report

1. Restrictions on the range of users of this Report: this Report shall be only used by the client and users as stipulated by laws and administrative regulations; no other organization or individual may become the user of this Appraisal Report.
2. Restrictions on the scope of use or purposes of this Report: this Appraisal Report shall only be used in accordance with the provisions of laws and administrative regulations and the appraisal purpose stated herein — that is, this Appraisal Report can only be used for the economic activities corresponding to the appraisal purpose stated herein in accordance with the provisions of laws and administrative regulations, and shall not be used under any other circumstances.

3. Restrictions on the extraction, citation or disclosure of this Report: without the written consent of the Company, the contents of this Report shall not be extracted, quoted or disclosed to the public media, unless otherwise stipulated by laws, administrative regulations and the asset appraisal entrustment contract.

(ii) Liability for Using this Report Beyond the Scope of Use

The Company shall not be liable for the failure on the part of users of this Report to use it in accordance with the provisions of laws and administrative regulations, and the scope of use stated above.

(iii) Other Restrictions on the Use of this Report

1. Users of this Appraisal Report shall correctly understand and use the appraisal conclusion, which is not the same as appraisal target's realizable price, and should not be considered as a guarantee for appraisal target's realizable price.
2. Users of this Appraisal Report shall pay due attention to the assumptions for the establishment of the appraisal conclusion. If the actual situation when using the appraisal conclusion of this Appraisal Report is no longer consistent with that on the base date or the assumptions for the appraisal consultation contained herein, the appraisal conclusion typically cannot be established.
3. Users of this appraisal report shall pay due attention to the notes on special matters and take measures accordingly in the process of implementing the economic behavior corresponding to the appraisal purpose.

XVI. REPORTING DAY

This Report is mainly based on the information obtained. The date of Appraisal Report is October 14, 2024.

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Shenzhen Pengxin Appraisal Ltd.

Shenzhen, China

October 14, 2024

**Traffic Volume and Toll Revenue
Forecast Analysis of the reconstruction
and expansion project of the Guangzhou
Huocun to Dongguan Chang'an section
of the Beijing-Hong Kong-Macao
Expressway and Guangzhou Huangcun
to Guangzhou Huocun section of the
Guangzhou-Foshan Expressway**

Technical report

SHENZHEN URBAN TRANSPORT PLANNING CENTER CO., LTD

October 2024

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Through analysis, it can be predicted that the daily traffic capacity of a single lane is 12,000–16,500 PCU/d, the traffic service level does not exceed Grade III, and the traffic service level of expressways in the core area of Guangdong-Hong Kong-Macao Greater Bay Area is expected to reach Grade IV or above.

At the same time, in recent years, the urban construction of Guangzhou and Dongguan and the rapid development of the surrounding areas of the project, as well as the unclear freight subsidy policy, in order to more comprehensively understand and grasp the traffic volume of the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway (hereinafter referred to as the Approved Road Section R&E Project) in the coming years, it is urgent to carry out a new round of traffic volume forecasting.

This round of prediction mainly considers the economic development, the optimization of epidemic prevention and control policies and other factors. Based on the traffic volume and toll income prediction in the existing feasibility report, the traffic flow and toll income of the project are predicted to objectively evaluate the investment value of the project and provide the basis for the asset evaluation of the project.

1.2 Analysis of prediction results over the years

Located in the core area of Guangdong-Hong Kong-Macao Greater Bay Area, the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) is the “golden passage” connecting Guangzhou, Dongguan, Shenzhen and Hong Kong. Since its completion and opening to traffic for more than 20 years, the traffic volume of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) has increased rapidly. According to the operation toll data of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) the traffic volume of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) has increased from 66,000 vehicles per day when it was officially opened to traffic in 1997 to 638,000. The average daily traffic volume in 2023 has reached about 700,000 vehicles. It is of great significance to promote the rapid economic development of Guangdong and Hong Kong, change the investment environment in the Mainland and maintain the prosperity and stability of Hong Kong.

1.3 Forecast years

With the full liberalization of epidemic prevention and control in March 2023, the traffic volume of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) began to rise gradually. Selecting 2023 as the forecast base year is the latest year data on the one hand, and on the other hand, it can effectively reduce the interference of external factors on the forecast model and improve the accuracy of the forecast results. Therefore, 2023 is selected as the prediction base year for this prediction, and the project is planned to be completed and open to traffic by the end of 2028, so the characteristic years selected for the prediction of traffic volume are 2025, 2029, 2030, 2035, 2040, 2045 and 2052, and the prediction period is from 2024 to 2052.

1.4 Predictive thinking

Traffic model is a mathematical model to simulate the characteristics of travel, mainly including the simulation and evaluation model of regional travel volume, travel spatial distribution, travel mode division and road traffic conditions. Through the simulation and analysis of travel, we can understand the relationship between travel and road traffic and land use, correctly analyze the future traffic demand, and provide the basis for design.

Considering that the traffic of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) affects a large area and the traffic network and traffic demand are complex, in order to accurately grasp the short-term, medium-term and long-term traffic demand conditions, it is necessary to establish a comprehensive traffic model for Guangzhou and Dongguan to analyze and predict the traffic demand from a larger scope. The overall work flow is shown in Figure 1–3 below. The project adopts four-stage traffic model to predict the traffic volume of the Approved Road Section R&E Project, and calculates the corresponding toll revenue based on the predicted traffic volume and toll standards.

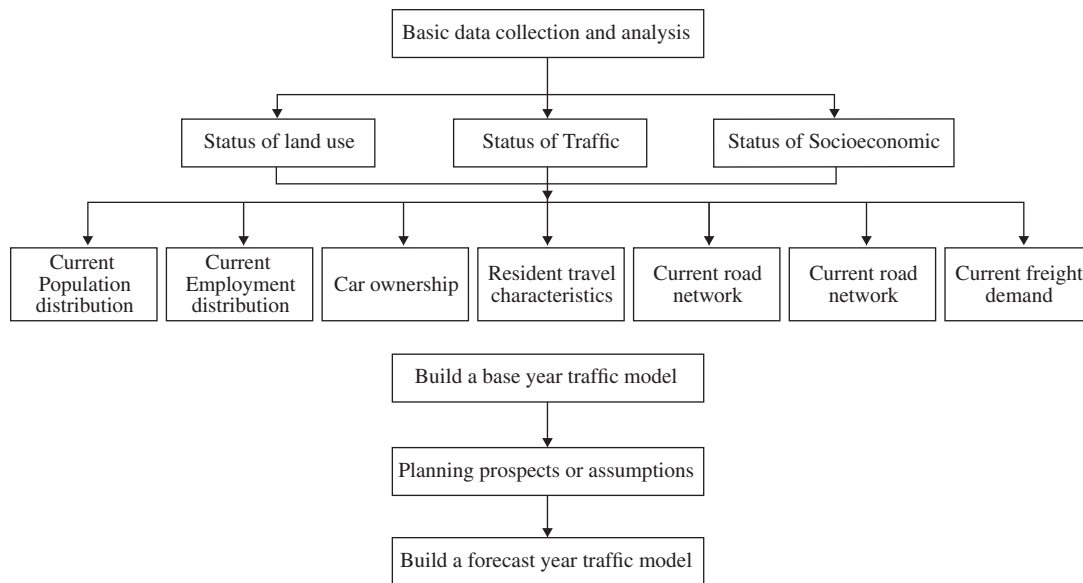


Figure 1–2 Flow chart of prediction method

1.5 Forecast basis

The main basis of this appraisal includes:

- (1) Expressway Network Planning of Guangdong Province (2020–2035)
- (2) Statistical yearbooks of Guangzhou and Dongguan over the years
- (3) Overall planning of land and space of Guangzhou and Dongguan (2020–2035)
- (4) White Paper on Urban Traffic of Guangzhou and Dongguan
- (5) District planning, group planning and statutory plans of districts in Guangzhou and Dongguan
- (6) Public transport planning of Guangzhou and Dongguan
- (7) Rail transit network planning and construction planning of Guangzhou and Dongguan
- (8) Layout planning of national railway in Guangzhou and Dongguan
- (9) Trunk road network planning of Guangzhou and Dongguan
- (10) Investigation on all previous trips of residents in Guangzhou and Dongguan
- (11) Traffic volume of the Approved Road Section over the years
- (12) Notice of Guangdong Provincial Department of Transportation, Guangdong Provincial Development and Reform Commission and Guangdong Provincial Department of Finance (YJF [2019] No.830) on Adjustment of Toll Charging Method for Expressway Vehicles
- (13) Other relevant statistical data, traffic survey data and research reports

2 PLANNING PROSPECT ANALYSIS

2.1 Economic development forecast

The premise of elasticity coefficient method is to determine the future economic growth rate of each traffic zone in the project affected area. Its value is generally determined on the basis of analyzing the historical data of economic development in the affected area and comparing with the economic development planning of each area. The determination of the economic growth rate in this forecast is based on the analysis of the historical data of economic growth in various regions, in combination with the “14th Five-Year Plan” of various regions and the work reports of the municipal governments in the affected regions, and with reference to the economic growth rate adopted in some relatively new preliminary research reports on highway transportation that have passed the expert review and have been approved by experts.

The economic growth rate of each traffic zone in each period in the future is shown in the following table.

Table 2-1 Economic Growth Ratio of Each Region in the Next Year

Name	2023–2025	2026–2030	2031–2040	2041–2052
Guangzhou City	6.0%	5.3%	4.0%	2.5%
Dongguan City	6.0%	5.5%	3.9%	2.5%

2.2 Elastic coefficient analysis of main influence zone

(1) *Historical elastic coefficient*

This report analyzes the elasticity coefficient of passenger and freight cars based on passenger and freight traffic volume as an indicator. It mainly analyzes the passenger and cargo elasticity coefficients of Guangdong Province, Guangzhou City and Dongguan City, as shown in the following table.

Table 2-2 Economic and Traffic Development of Guangdong Province from 1997 to 2020

Year	Growth rate of indicators				Elasticity to GDP		
	GDP	Van	Passenger car	Truck	Van	Passenger car	Truck
1997	11.20%	6.67%	13.06%	1.72%	0.6	1.17	0.15
1999	10.10%	5.86%	11.65%	0.70%	0.58	1.15	0.07
2000	11.50%	20.56%	22.00%	19.15%	1.79	1.91	1.67
2001	10.50%	11.03%	16.07%	5.94%	1.05	1.53	0.57
2005	13.80%	23.54%	24.51%	21.73%	1.71	1.78	1.58
2006	16.96%	15.04%	22.25%	0.03%	0.89	1.31	0.01
2009	9.70%	14.82%	18.11%	8.35%	1.53	1.87	0.86
2010	12.40%	18.67%	20.93%	10.73%	1.51	1.69	0.87

Year	Growth rate of indicators				Elasticity to GDP		
	GDP	Passenger		Truck	Passenger		Truck
		Van	car		Van	car	
2011	10.00%	16.41%	18.44%	8.40%	1.64	1.84	0.84
2012	8.20%	13.86%	15.60%	6.22%	1.69	1.9	0.76
2013	8.50%	13.56%	15.18%	5.32%	1.6	1.79	0.63
2014	8.54%	13.21%	15.29%	1.63%	1.55	1.79	0.19
2015	7.38%	10.52%	12.79%	-3.80%	1.43	1.73	-0.52
2016	7.52%	13.87%	15.12%	4.64%	1.51	1.64	0.5
2017	7.49%	13.14%	13.89%	7.09%	1.75	1.85	0.95
2018	6.81%	11.72%	11.78%	11.18%	1.72	1.73	1.64
2019	6.15%	10.33%	10.03%	9.22%	1.68	1.63	1.50
2020	2.25%	7.48%	7.26%	8.82%	3.32	3.22	3.92
1995-2000	10.90%	10.56%	14.54%	7.15%	0.97	1.33	0.66
2001-2005	13.25%	17.33%	23.73%	9.00%	1.31	1.79	0.68
1995-2005	12.20%	14.27%	19.56%	8.18%	1.17	1.6	0.67
2005-2010	13.11%	15.74%	20.53%	4.42%	1.2	1.57	0.34
2010-2015	8.48%	13.38%	15.36%	4.44%	1.58	1.81	0.52
2015-2020	6.03%	11.28%	11.58%	8.17%	1.87	1.92	1.36

Note: Data are from the Statistical Yearbook of Guangdong Province of each year, in which the GDP index is calculated at comparable prices, the same as the following table.

Table 2-3 Economic and Traffic Development of Guangzhou from 1997 to 2020

Year	Growth rate of indicators				Elasticity to GDP		
	GDP	Passenger		Truck	Passenger		Truck
		Van	car		Van	car	
1997	13.39%	5.01%	13.41%	-3.19%	0.37	1	-0.24
1999	13.18%	14.96%	19.96%	8.91%	1.14	1.52	0.68
2000	13.35%	13.26%	18.98%	5.66%	0.99	1.42	0.42
2001	12.74%	10.78%	16.52%	2.19%	0.85	1.3	0.17
2005	12.92%	11.59%	18.80%	-5.17%	0.9	1.46	-0.4
2006	14.80%	16.87%	20.81%	4.35%	1.14	1.41	0.29
2009	11.70%	14.41%	18.44%	7.14%	1.23	1.58	0.61
2010	13.20%	19.28%	27.84%	14.08%	1.46	2.11	1.07
2011	11.30%	16.19%	19.16%	9.26%	1.43	1.7	0.82
2012	10.50%	9.90%	10.53%	6.09%	0.94	1	0.58
2013	11.60%	5.24%	4.84%	8.08%	0.45	0.42	0.7
2014	8.60%	3.80%	3.43%	6.29%	0.44	0.4	0.73
2015	8.40%	0.49%	1.26%	-4.56%	0.06	0.15	-0.54
2016	7.60%	1.12%	1.15%	-0.46%	0.14	0.14	-0.06
2017	6.70%	4.80%	3.62%	13.17%	0.72	0.54	1.97
2018	6.00%	7.22%	6.39%	12.66%	1.20	1.06	2.11
2019	6.92%	8.94%	7.80%	11.65%	1.29	1.13	1.68

Year	Growth rate of indicators				Elasticity to GDP		
	GDP	Passenger			Passenger		
		Van	car	Truck	Van	car	Truck
2020	2.71%	6.89%	6.49%	8.95%	2.55	2.40	3.31
1995–2000	13.26%	11.22%	16.76%	4.88%	0.85	1.26	0.37
2001–2005	13.82%	15.11%	20.18%	5.24%	1.09	1.46	0.38
1995–2005	13.57%	13.36%	18.65%	5.08%	0.98	1.37	0.37
2005–2010	14.99%	16.49%	18.90%	4.28%	1.1	1.26	0.29
2010–2015	9.99%	4.35%	5.31%	6.66%	0.44	0.53	0.67
2015–2020	5.97%	5.76%	5.06%	9.07%	0.96	0.85	1.52

Table 2-4 Economic and Traffic Development of Dongguan City from 1996 to 2020

Year	Growth rate of indicators				Elasticity to GDP		
	GDP	Passenger			Passenger		
		Van	car	Truck	Van	car	Truck
1996	16.10%	4.90%	16.02%	−0.24%	0.3	1	−0.02
1999	17.90%	11.57%	16.63%	7.82%	0.65	0.93	0.44
2000	17.90%	20.85%	25.03%	17.49%	1.17	1.4	0.98
2001	18.00%	19.63%	28.74%	11.86%	1.09	1.6	0.66
2005	19.40%	27.16%	27.73%	26.07%	1.4	1.43	1.34
2006	20.39%	21.28%	30.62%	1.86%	1.04	1.5	0.09
2009	5.30%	13.39%	17.21%	0.76%	2.53	3.25	0.14
2010	10.30%	15.74%	18.28%	4.13%	1.53	1.77	0.4
2011	8.00%	15.27%	17.31%	4.64%	1.91	2.16	0.58
2012	6.10%	13.72%	15.61%	2.69%	2.25	2.56	0.44
2013	9.80%	15.18%	16.96%	3.02%	1.55	1.73	0.31
2014	6.59%	12.32%	14.70%	−6.12%	1.87	2.23	−0.93
2015	6.69%	18.37%	20.52%	−1.99%	2.74	3.06	−0.3
2016	7.95%	17.27%	18.79%	−1.23%	1.96	2.13	−0.14
2017	8.78%	22.89%	24.41%	4.70%	2.61	2.78	0.53
2018	7.46%	12.16%	12.41%	8.51%	1.63	1.66	1.14
2019	7.36%	9.99%	9.87%	8.34%	1.36	1.34	1.13
2020	1.09%	5.39%	4.98%	11.32%	4.96	4.57	10.41
1995–2000	17.89%	13.49%	22.39%	8.22%	0.75	1.25	0.46
2001–2005	19.00%	20.57%	31.02%	11.02%	1.08	1.63	0.58
1995–2005	18.44%	22.20%	26.63%	9.61%	1.2	1.44	0.52
2005–2010	12.17%	17.76%	23.50%	2.04%	1.46	1.93	0.17
2010–2015	7.36%	15.99%	18.00%	−3.11%	2.19	2.47	−0.46
2015–2020	6.49%	13.38%	13.89%	6.24%	2.06	2.14	0.96

By comparing the above tables, we can see that the elasticity coefficient of passenger cars in Guangdong is greater than that of freight cars. Before the purchase restriction of cars in Guangdong, Dongguan and Guangzhou, the elasticity coefficient of passenger cars is basically around 1.5; Before 2018, the elasticity coefficient of trucks was basically between 0.5 and 0.8. Since 2018, due to the rapid development of Guangdong's port and postal industry, the number of trucks has increased rapidly, and the elasticity coefficient is between 1 and 1.5.

(2) *Prediction of elastic coefficient*

According to the experience of some foreign developed countries, in the high-speed growth stage of economic development, the traffic volume will increase rapidly, its growth rate is higher than economic growth rate, and the elasticity coefficient is greater than 1. With the rapid development of economy, when the economic level reaches a certain height, the growth rate of transportation slows down and almost synchronizes with the economic growth, and the elasticity of transportation is close to 1. After that, the transport growth rate is lower than economic growth rate, and the transport elasticity is less than 1.

In order to realize the orderly growth of the number of cars and alleviate urban traffic congestion, Guangzhou has implemented the incremental control and management of cars. Since July 1, 2012, Guangzhou has implemented the management of incremental quota indicators for small and medium-sized buses, and the incremental quota for small and medium-sized buses in the city is 120,000 vehicles per year. According to the Guangzhou Statistical Yearbook, the number of civilian automobiles in Guangzhou was 2.238 million in 2015 and 2.981 million in 2020, with an average annual growth rate of 5.21% from 2015 to 2020.

Considering the above factors, on the basis of consulting relevant experts, combining with other feasibility reports, and considering the impact of current policy factors such as limited purchase of passenger cars in Guangzhou, the elasticity coefficient of future traffic volume growth of various types of vehicles in the project affected area is proposed as follows.

Table 2-5 Passenger and Cargo Elasticity Coefficient in Future Years

Area	Category	2023– 2025	2026– 2030	2031– 2040	2041– 2052
Dongguan	Passenger car	0.63	0.55	0.48	0.40
	Truck	0.45	0.41	0.35	0.27
Guangzhou	Passenger car	0.58	0.46	0.42	0.38
	Truck	0.4	0.37	0.31	0.25

According to the predicted economic growth rate and elasticity coefficient, the growth rate of highway traffic in large areas is predicted as follows.

Table 2-6 Passenger and freight growth coefficient in the next year

	Average annual growth rate	2023– 2025	2026– 2030	2031– 2040	2041– 2052
Passenger car	Guangzhou	5.05%	3.52%	1.60%	0.48%
	Dongguan	5.49%	4.43%	1.80%	0.51%
Truck	Guangzhou	3.48%	3.25%	1.18%	0.34%
	Dongguan	3.92%	3.25%	1.31%	0.34%

2.3 Population planning of cities along the line

(1) Territorial space planning of Guangzhou

Vision: a beautiful and livable flower city and a dynamic global city.

Nature of the city: The capital of Guangdong Province, a national historical and cultural city, a national central city and a comprehensive gateway city, a core engine for the development of Guangdong-Hong Kong-Macao Greater Bay Area regions, a national commercial and trade center, a comprehensive transportation hub, a science, technology, education and culture center, and an international metropolis.

Size of urban population: In 2035, the planned permanent population is about 20 million, and the planned management population is 25 million.

(2) Population development planning of Dongguan City

According to the population development plan of Dongguan City, Dongguan City will implement an active population control policy to keep the population growth in line with the economic society, resources and environment, and achieve steady growth with quality.

Size of urban population: In 2025, the permanent population will reach 9.6 million; in 2030, the permanent population will reach 10.2 million; and in 2035, the permanent population will reach 10.8 million.

2.4 Transportation development planning

2.4.1 Road traffic planning

2.4.1.1 Guangdong Province

The overall goal of Guangdong Province is to build a safe and reliable expressway network with scientific layout, comprehensive coverage and perfect functions by 2035. The comprehensive three-dimensional transportation network will be more perfect, and the transportation development will be more coordinated with the land space and ecological environment, so as to effectively support the construction of a strong transportation country and the implementation of major provincial strategies.

Planning and layout: With “12 vertical lines, 8 horizontal lines, 2 ring lines and 16 radial lines” as the main framework and 70 densification lines and connecting lines as the supplement, a network of expressways will be formed with the Pearl River Delta as the core, coastal cities, ports, airports and railway hubs as the key points, supporting the deep cooperation and development of Guangdong-Hong Kong-Macao Greater Bay Area, leading the development of the eastern and western wings and the coastal economic belt, and quickly reaching the surrounding provinces and regions. By the end of the planning period (2035), the total mileage of expressways in the province will reach about 15,000 kilometers. The overall layout of the expressway network in Guangdong Province is as follows.



Figure 2-1 Expressway Construction Planning Map of Guangdong Province

2.4.1.2 Guangzhou City

Guangzhou Expressway Network Planning (2018–2035) is partially planned to form an expressway network pattern of “4 rings, 23 radial lines, 3 vertical, 9 horizontal lines and 2 densification lines” under the framework of the existing “four rings and 19 radiations” network, with a total planned mileage of about 1,750 km. Among them, 40 projects have been completed and opened to traffic, 7 projects are under construction, 4 projects are prepared in the near future, and 10 projects are planned in the long term. The expressway network pattern of “4 rings, 23 radial, 3 vertical, 9 horizontal and 2 densification lines” includes:

(1) Four rings

First Ring Road: Guangzhou Inner Ring Road; Second Ring Road: Guangzhou Ring Expressway (North Ring Expressway + Southeast West Ring Expressway); Third Ring Road: Guangzhou Ring Expressway (North Second Ring Expressway + East Second Ring Expressway + Guangzhou-Gaoming Expressway + West Second Ring Expressway); Fourth Ring Road: Pearl River Delta Ring Expressway (Zhaoqing-Huadu Expressway + Airport North Extension Line + North Third Ring Expressway + Zengcheng-Dongguan-Shenzhen Expressway + Foshan-Dongguan Expressway + Humen Second Bridge + South Second Ring Expressway).

(2) Twenty-three radial lines

First radial line: Guangzhou-Foshan Expressway; second radial line: Guangzhou-Qingyuan Expressway; third radial line: Airport Expressway-Airport North Extension Line-Guangle Expressway; fourth radial line: Airport Second Expressway (newly planned)-Guangzhou-Lianyungang Expressway (newly planned); fifth radial line: South China Expressway-Beijing-Hong Kong-Macao Expressway; sixth radial line: Jiebei Expressway-Daguan Expressway; seventh radial line: Conghuang Expressway (newly planned); eighth radial line: Guangzhou-Heyuan Expressway; ninth radial line: Zengcheng-Tianhe Section of Zengfo Expressway (newly planned)-East Extension Line (newly planned); tenth radial line: Fenghuangshan Tunnel — Guangzhou-Huizhou Expressway; eleventh radial line: National Highway G324; twelfth radial line radiations: The Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section); thirteenth radial line: Guangyuan Fast road; fourteenth radial line: National Highway G107; fifteenth radial line: Guangshen Coastal Expressway; sixteenth radial line: Lianhuashan Passage (newly planned) — Zengcheng-Dongguan Expressway (newly planned); seventeenth radial line: Nanda Trunk Line (under construction)-Panyu to Nansha East Line Expressway (newly planned); eighteenth radial line: Xinhua Expressway — Guangzhou-Zhuhai East Expressway; nineteenth radial line: Nansha Port Expressway; Twentieth radial line: Dongsha-Xinlian Expressway; twenty-

first radial line: Guangzhou-Zhuhai West Expressway; twenty-second radial line: Guangzhou-Sanshui Expressway; twenty-third radial line: Guangzhou-Foshan-Zhaoqing Expressway (under construction)

(3) Vertical line

The first vertical line: the west line of Foshan-Qingyuan-Conghua Expressway (under construction); the second vertical line: the north extension line of Foshan-Jiangmen Expressway (newly planned); the third vertical line: Zengcheng-Dongguan Expressway (newly planned).

(4) Horizontal line

The first horizontal line: Huizhou-Qingyuan section of Shantou-Zhanjiang Expressway (under construction); the second horizontal line: north section of Foshan-Qingyuan-Conghua Expressway (under construction); the third horizontal line: west extension line of Huadu-Dongguan Expressway (newly planned) + Huaguan Expressway (under construction) + east extension line of Huaguan Expressway (newly planned); Four horizontal lines: West Extension Line of Foshan-Zengcheng Expressway (newly planned)-Section 2 of Airport No.2 Expressway (newly planned) + Zengcheng-Tianhe Section of Foshan-Zengcheng Expressway (newly planned)-East Extension Line of Foshan-Zengcheng Expressway (newly planned). Five horizontal lines: Guangzhou-Foshan-Zhaoqing Expressway (under construction) + Hua'nan Expressway Phase III + Fenghuangshan Tunnel; six horizontal lines: Panyu-Shunde Express Line; seven horizontal lines: Huanglan Expressway; eight horizontal lines: Guangzhou-Zhongshan-Jiangmen Expressway + Guige Avenue + Nansha-Dongguan Changping Expressway (newly planned); nine horizontal lines: Nansha-Zhongshan Expressway (newly planned)

(5) Densification line

Densified Line 1: Zengcheng-Tianhe Expressway Branch Line (newly planned); Densified Line 2: Zhengguo Branch Line of Foshan-Zengcheng Expressway (newly planned).

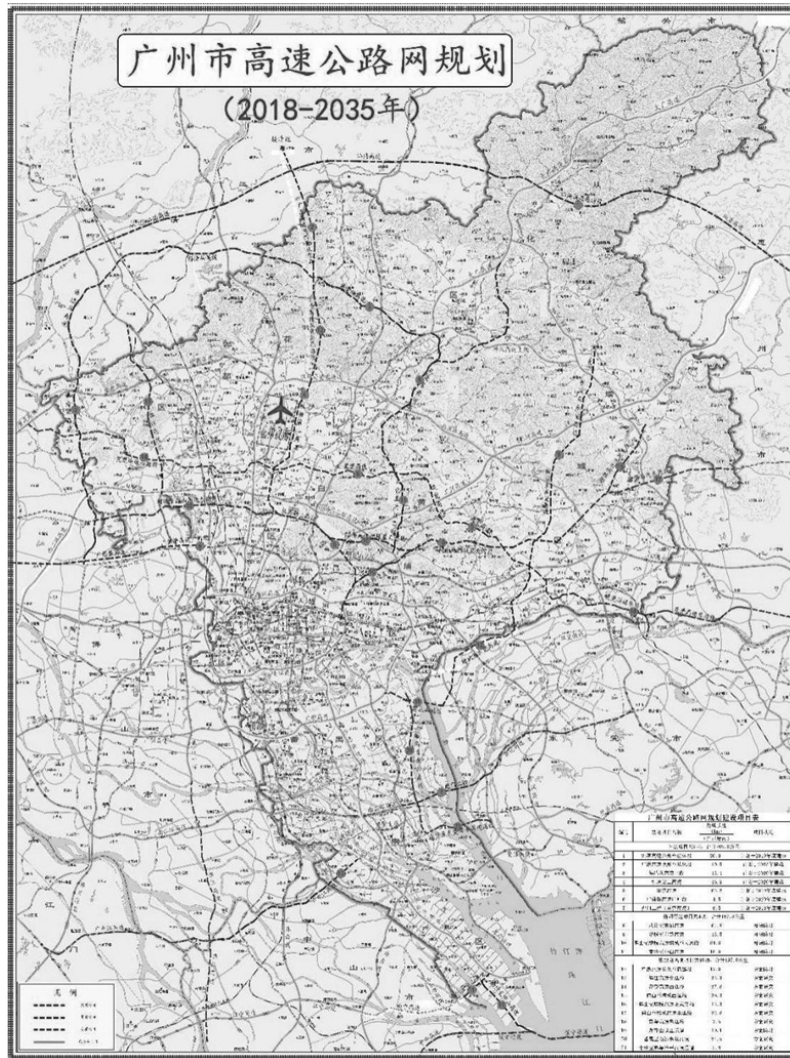


Figure 2-2 Schematic Diagram of Guangzhou Expressway Network Planning

2.4.1.3 Dongguan City

The layout scheme of Dongguan Expressway is “five vertical, four horizontal and six links”, and the total length of the expressway network is 434.3 kilometers. According to the calculation of urban area, the density of expressway network in the urban area is 0.18 km/km^2 , and according to the calculation of urban construction land area, the density of expressway in the urban area is 0.43 km/km^2 . It is planned to form a multi-center radial fast trunk road network centered on each district and group, with the overall layout of “two rings, seven radial, four horizontal, three vertical and two links”. The total length of the express trunk line is 602.7 km, and the density of the express trunk line network reaches 0.25 km/km^2 according to the urban area, and the density of the express trunk line network reaches 0.60 km/km^2 according to the urban construction land area.

(1) Regional and external road network

The layout plan of the regional and external road network is a layout structure of “one ring, six vertical, six horizontal and eight links”, with a total length of 650 kilometers, including 434.3 kilometers of expressways and 215.7 kilometers of express trunk lines.

“One ring” is the ring road;

The “six vertical lines” are the Guangshen Coastal Expressway, The Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section), National Highway 107, Zengcheng-Dongguan-Shenzhen Expressway, Conghua-Dongguan Expressway and Boluo-Shenzhen Expressway;

“Six horizontal lines” are North Ring Road-Guanpai Expressway, Shuixiang Avenue-South Ring Road-Eastern Expressway, Dongguan-Panyu Expressway-Heyuan-Huizhou-Dongguan Expressway, Humen Bridge-Changping-Humen Expressway (including extension line)-Huizhou-Changping Expressway, Longbeiling-Lincun Expressway and Shenzhen Outer Ring Expressway;

“Eight connecting links” is Longhua-Dalingshan Expressway, Changping-Humen Expressway Humen Port Branch Line, Qingshuihe-Pinghu Expressway, Guangyuan Expressway, Lianhuashan Passage, Xinpai Expressway, Humen Bridge and Qiaoli Expressway.

(2) Urban Trunk Road Network

The total length of the planned urban trunk road network is 1,782.3 kilometers, including 434.3 kilometers of expressway network, 602.7 kilometers of urban express road network and 745.3 kilometers of trunk road network.



Figure 2-3 Dongguan Regional Trunk Road Network Planning Scheme

2.4.2 Rail transit planning

2.4.2.1 Guangdong Province

The Guangdong-Hong Kong-Macao Greater Bay Area (Intercity) Railway Construction Plan is planned for the near future to 2022, the long term to 2035, and the future prospect to 2050.

The overall goal is to achieve the integrated development and efficient convergence of high-speed railway, ordinary speed railway, inter-city railway, urban rail transit and other rail networks in Guangdong-Hong Kong-Macao Greater Bay Area, to create a “Greater Bay Area on the track”, and to support the construction of international first-class bay area and world-class urban agglomerations in Guangdong-Hong Kong-Macao Greater Bay Area.

Timeliness target: Build a 1–3 hour access circle inside and outside the Greater Bay Area: 3 hours access from the Greater Bay Area to neighboring provincial capitals;

It takes 1.5 hours to reach the prefecture-level cities in the province from the Greater Bay Area, and the main nodes between the major cities in the Greater Bay Area can be reached within 1 hour.

Coverage target: Use high-speed railway and inter-city rail transit to operate inter-city trains, build a regional inter-city network, cover 100% of the cities above the county level and more than 85% of the cities and towns with a population of 50,000, and promote the coordinated development of the region.

The scale of the planned Guangdong-Hong Kong-Macao Greater Bay Area (intercity) railway network in the Bay Area is about 5,322 kilometers, of which the mileage of the projects under construction is about 855 kilometers and the total mileage of the planned projects is about 2,443 kilometers.

(1) “Four-way expansion” of external railway corridor

There are 6 northward passages: Wuhan-Guangzhou high-speed railway, Ganzhou-Shenzhen high-speed railway, Guangzhou-Heyuan high-speed railway, Guangzhou-Qingyuan (extending to Yongzhou) high-speed railway, Beijing-Guangzhou railway and Beijing-Kowloon railway (passenger and freight ordinary speed railways);

Three eastward passages: Xiamen-Shenzhen high-speed railway, Guangzhou-Shanwei high-speed railway and Shenzhen-Shanwei high-speed railway;

Five westward passages: Nanning-Guangzhou high-speed railway (Nanning-Guangzhou connecting line), Jiangmen-Zhanjiang high-speed railway, Guangzhou-Zhanjiang high-speed railway, Shenzhen-Nanning high-speed railway, Guangzhou-Maoming railway (passenger and freight railway);

There are two northwest channels: Guiyang-Guangzhou high-speed railway (Guangzhou-Nanjing connecting line) and Liuzhou-Guangzhou railway (passenger and freight railway).

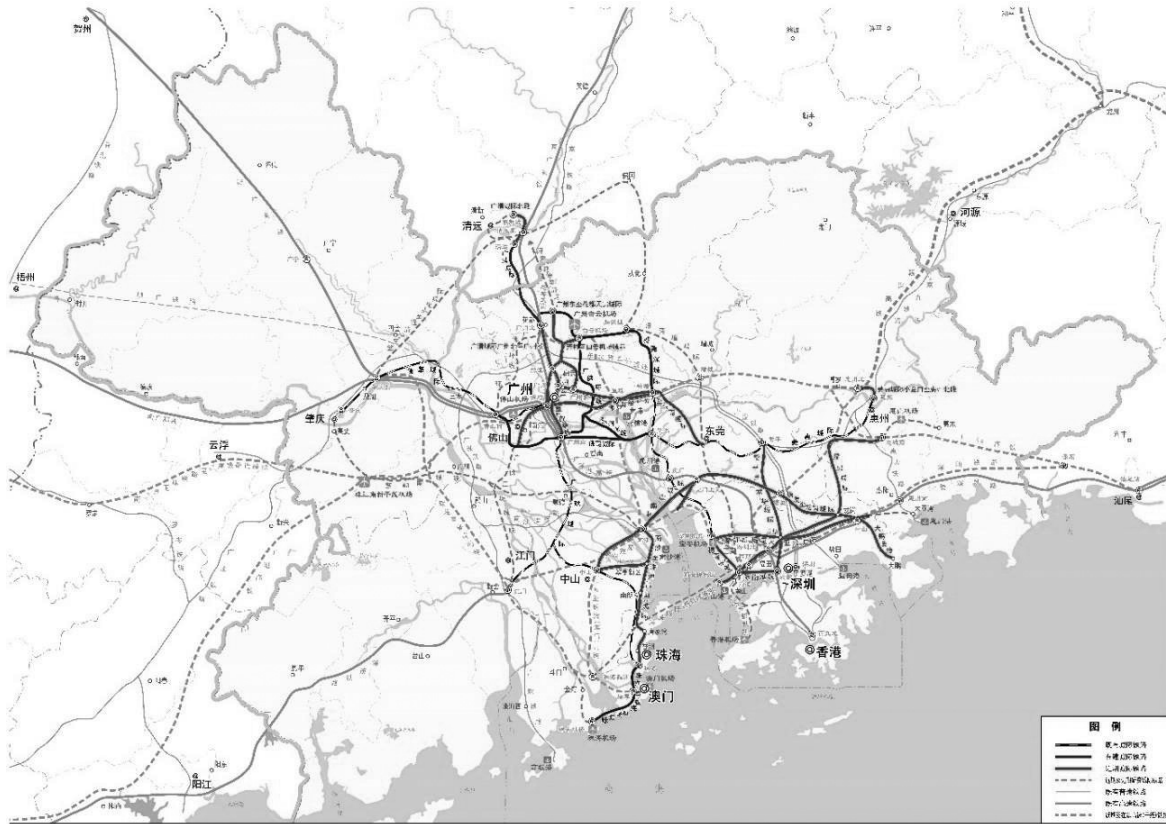


Figure 2-4 Overall Plan of Guangdong-Hong Kong-Macao Greater Bay Area Intercity Railway

(2) Internal intercity railway network of “three levels, three axes and three radiations”

Six Guangzhou-Foshan-Shenzhen-Hong Kong main axes: Guangzhou-Shenzhen-Hong Kong high-speed rail, Guangzhou-Shenzhen Railway, Guangzhou-Dongguan-Shenzhen Intercity Railway, Shenzhen-Hong Kong Western Corridor, Guangzhou-Shenzhen Second high-speed rail, Shenzhen-Dongguan-Zengcheng Intercity Railway;

Four Guangzhou-Foshan-Zhuhai-Macao main axes: Guangzhou-Zhuhai Intercity Railway, Guangzhou-Foshan-Jiangmen-Zhuhai Intercity Railway, Zhuhai-Jiangmen-Zhaoqing High-speed Railway and Guangzhou-Zhongshan-Zhuhai-Macao high-speed rail;

Three main axes across the Pearl River Estuary: Shenjiang Section of Shenzhen-Maoming Railway, Zhongnanhu Intercity Railway (Nansha Branch of Ganzhou-Shenzhen high-speed rail) and Shenzhen-Zhuhai Intercity Railway;

The Guangzhou-Foshan area covers 6 lines: Guangzhou-Foshan-Zhaoqing Intercity Line, Foshan-Dongguan Intercity Line, Guangzhou-Foshan Ring Line, Guangzhou-Qingyuan Intercity Line, Zhaoqing to Qingyuan to Fogang to Conghua Intercity Line;

Shenzhen-Hong Kong region radiates 4 lines: Dongguan-Huizhou Intercity, Shenzhen-Huizhou Intercity, Tangxia-Longgang Intercity, Changping-Longhua Intercity;

The Zhuhai-Macao region radiates one line: the intercity from the urban area of Zhuhai to Zhuhai Airport.

(3) Hong Kong and Macao convergence plan

Connection with Hong Kong: three corridors in the east, middle and west, namely, the Guangzhou-Kowloon Railway, the Guangzhou-Shenzhen-Hong Kong high-speed rail and the Shenzhen-Hong Kong Western Corridor;

Connection scheme with Macao: there are two passages in the south and north, namely Gongbei-Guanzha Passage and Hengqin-Taipa Passage.

(4) Hub scheme

Guangzhou: It is planned to be a large radial hub, forming a “five main and four auxiliary” layout with Guangzhou Station, Guangzhou South Station, Guangzhou East Station, Foshan Station and Guanghuizhou Baiyun Station (Tangxi Station) as the main passenger stations, and Guangzhou North Station, Yuzhu Station (site selection to be further compared), Xintang Station and Nansha Station as the auxiliary passenger stations. Reserve the conditions for Zengcheng South Station, Baiyun Airport Station and Foshan Station to develop into important passenger transport nodes of the hub. The hub freight system is planned to add Guangzhou South EMU Depot and Dalang Station supporting EMU express facilities. A railway network linking eastern, western and northern Guangdong with Changsha, Nanchang, Xiamen, Shenzhen-Hong Kong, Zhuhai-Macao, Haikou, Nanning and Guiyang will be formed.

Dongguan City: It is planned to form a “one main and five auxiliary” passenger station layout with Dongguan West Station as the main passenger station and Humen Station, Humen South Station, Tangxia Station, Dongguan East Station and Songshan Lake Station as the auxiliary passenger stations. A railway network linking the east, west and north of Guangdong, Guangzhou, Shenzhen, Hong Kong, Nanchang and Haikou will be formed.



Figure 2-5 General Layout of Guangdong-Hong Kong-Macao Greater Bay Area Railway Terminal

2.4.2.2 Guangzhou City

(1) International railway hub

Construct the Guangzhou railway hub layout of “five main, four auxiliary and two reserved”, take Guangzhou Station, Guangzhou East Station, Guangzhou South Station, Foshan Station and Baiyun Station as the main passenger stations, take Guangzhou North Station, Nansha Station, Xintang Station and Huangpu Station as the auxiliary stations, reserve Zengcheng Station and Airport Station as the important passenger transport node conditions of the hub, and study the new knowledge city, Conghua and other passenger stations.

An international railway hub that radiates the whole country will be built, connects Southeast Asia and connects Eurasia, enhance the capacity of railway corridors introduced into urban centers, and strengthen the interconnection of hubs. Ten new high-speed railways (including connecting lines) will be added, including Guangzhou-Zhanjiang, Guangzhou-Heyuan, Guangzhou-Yongzhou, Guangzhou-Zhongshan-Zhuhai-Macao and Guangzhou-Shenzhen Second High-speed Railway, etc. Priority will be given to the construction of direct access to the Yangtze River Delta (Shanghai) and Chengdu-Chongqing urban agglomeration, so

as to realize high-speed rail access to the city center, one-hour access to the city center of Guangdong-Hong Kong-Macao Greater Bay Area, and it takes 1.5 hours to reach each other, 3 hours to reach each other with neighboring provincial capitals, and 5–8 hours to reach each other with major cities of national urban agglomerations, so as to realize the normal operation of Guangzhou Railway Hub with the Eurasian Continental Bridge and the Pan-Asian Railway. It is planned that by 2025, the passenger volume will reach 250 million person-times and the freight volume will reach 60 million tons; by 2035, the passenger volume will reach 400 million person-times and the freight volume will reach 77 million tons.

(2) Intercity direct rail

In coordination with the inter-city railway, we will build a cross-city urban high-speed rail. According to the operation mode of “one network, one ticket, one city”, we will realize the inter-city public transport and closely link the important groups of Guangzhou and neighboring cities. The design speed of urban high-speed rail is more than 160 km/H.

The intercity railway network includes the Guangzhou-Zhuhai and Guangzhou-Foshan-Zhaoqing intercities that have been completed and opened to traffic, the Guangzhou-Qingyuan, Guangzhou-Dongguan-Shenzhen, Foshan-Dongguan and Guangzhou-Foshan ring intercities that are under construction, the planned Guangzhou-Foshan-Jiangmen-Zhuhai, Zhaonan and Zhongnanhu intercities, as well as the long-term planned Zhaoqingcong and Shenzhen-Dongguan-Zengcheng intercities, with a total mileage of 428 km in Guangzhou.

The urban high-speed rail network includes Rail Transit Line 17, Line 18, Line 22, Line 28 and Line 37, with a total mileage of 390.2 kilometers in Guangzhou.

(3) Urban rail express line

We will improve the rail express network, support the integrated development of Guangzhou, and achieve a 5-minute commute in the city. The design speed of the urban rail express line is 100–140 km/H.

The urban rail express network planning scheme includes Rail Transit Line 3, Line 7, Line 13, Line 14, Line 16, Line 21, Line 24, Line 25, Line 26, Line 27 and Line 29, with a total mileage of 599 kilometers in Guangzhou.

(4) General line of urban rail

Increase the density of rail transit network, realize the full coverage of important passenger flow corridors, and improve the service level of rail transit. The design speed of the general urban rail line is 80–100 km/H.

The general urban rail network planning scheme includes Line 1, Line 2, Line 4, Line 5, Line 6, Line 8, Line 9, Line 10, Line 11, Line 12, Line 15, Line 19, Line 20, Line 23, Line 30, Line 31, Line 32, Line 33, Line 34, Line 35, Line 36, Guangfo Line, Foshan Line 2, Foshan Line 4, Foshan Line 5, Foshan Line 8, Foshan Line 11, Dongguan Line 4, Dongguan Line 1 and so on, totaling 37, with a total mileage of 1,001 kilometers.

By 2035, a total of about 2,000 kilometers of rail network, including urban high-speed rail, urban express line and urban general line, will be built in Guangzhou.

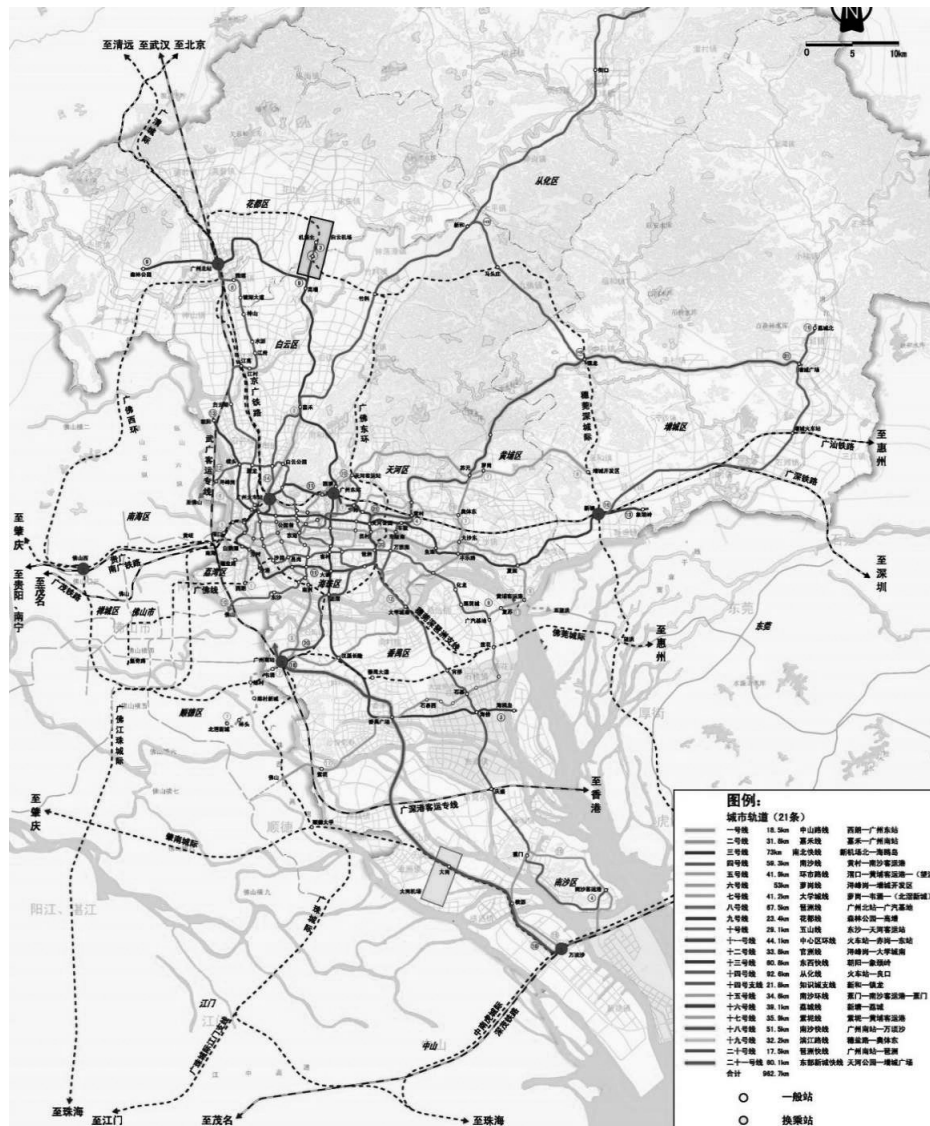


Figure 2-6 Schematic Diagram of Long-term Urban Rail Transit Network Planning of Guangzhou

2.4.2.3 Dongguan City

(1) Railway

There are five railways in Dongguan, including Guangzhou-Shenzhen Railway, Guangzhou-Meizhou-Shantou Railway, Guangzhou-Shenzhen-Hong Kong Passenger Dedicated Line, Shenzhen-Maoming Railway and Xinshanan Operating Area. There are four main railway passenger transport hubs, namely Dongguan Station, Dongguan East Station, Dongguan Changping Station and Dongguan South Station (Humen Railway Station). The general passenger station is Zhangmutou Station. There are five railway freight stations, namely Dongguan Changping Station, Dongguan East Station, Chashan Station, Shilong Station and Zhangmu Station.

(2) Intercity railway

In the Pearl River Delta Intercity Rail Network, five intercity lines pass through Dongguan, namely, Guangzhou-Dongguan-Shenzhen Intercity Line, Dongguan-Huizhou Intercity Line, Foshan-Dongguan Intercity Line, Zhongshan-Humen Intercity Line and HuGang Intercity Line.

Within the scope of Dongguan City, there are 22 intercity stations, including 3 major intercity hubs, namely Wanghong Intercity Station, Chang'an Xiabian Station and Chang'an Jinsha Station.

It is planned to reserve the inter-city rail transit corridor of Guangzhou Eastern New Town-Dongguan City-Dongguan Songshan Lake High-tech Park-Shenzhen Guangming New District-Shenzhen Liuxiandong High-tech Park-Shenzhen Nanshan High-tech Park-Shenzhen Central District (Qianhai), and to implement the specific line location and construction standards of Guangzhou-Dongguan-Shenzhen Passage as soon as possible.

(3) Urban rail transit

It is composed of two levels of city express line and general rail line, with a total of 17 planned lines. By 2035, it is planned to form four urban rail express lines (224 km), eight urban rail commuter lines (242 km), and one section (7 km) of Shenzhen extension line in Dongguan, with a total planned mileage of 473 km.

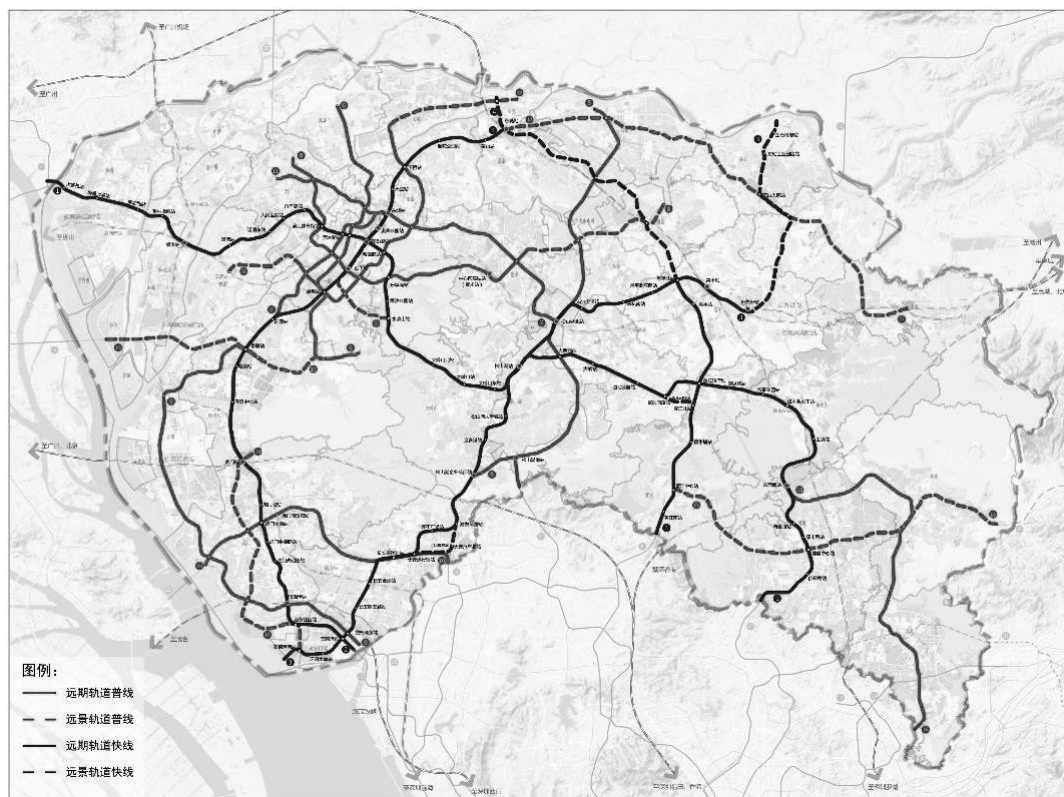


Figure 2-7 Schematic Diagram of Long-term Urban Rail Transit Network Planning of Dongguan

3 TRAFFIC MODEL CONSTRUCTION

3.1 Model ideas and structure

This project is the toll assessment of the Approved Road Section R&E Project, which is to be predicted based on the urban traffic model of Guangzhou and Dongguan. At present, there are many kinds of macroscopic transportation planning models, including “Four Step Model”, “Tour Based Model”, “Activity-based Model” and so on. The model adopts an improved four-stage model, On The basis of establishing the traffic model according to the four steps of “Trip Generation”, “Trip Distribution”, “Modal Split” and “Traffic Assignment” in turn, the traffic flow is divided into four stages: Increase the process of iterative optimization of loop feedback.

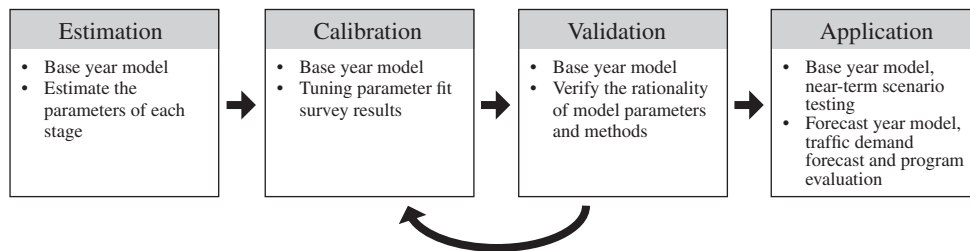


Figure 3-1 Overall construction idea of the model

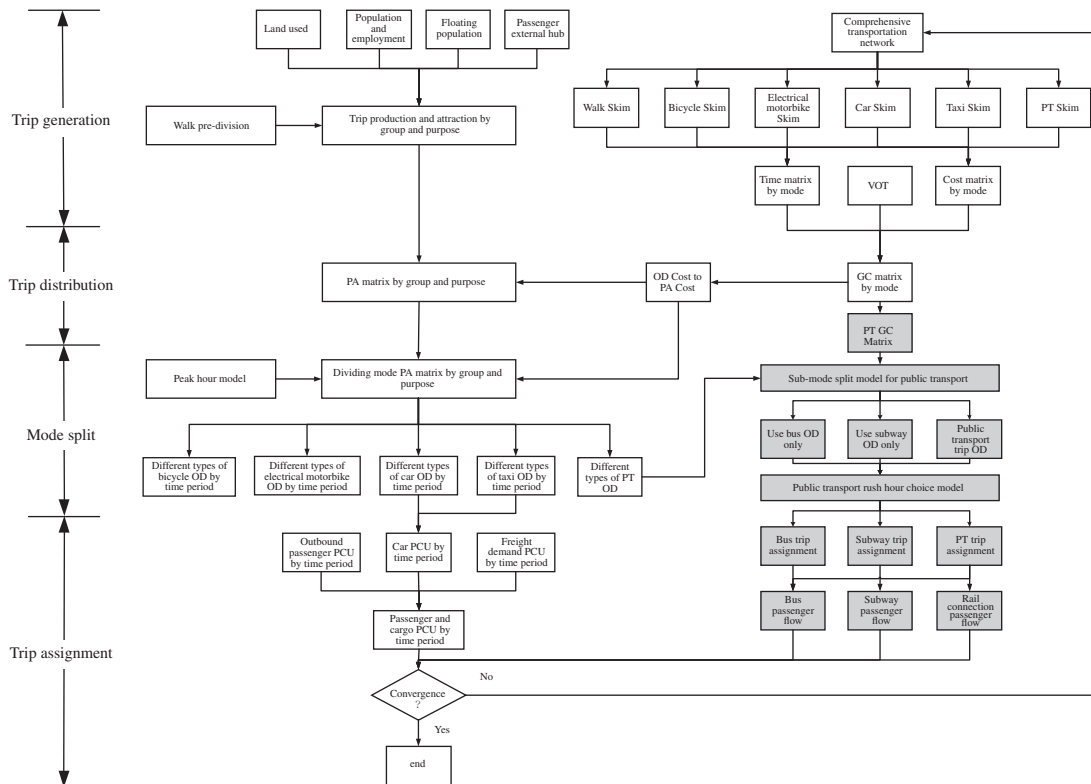


Figure 3-2 Macroscopic Model Construction and Application Technology Process

In combination with the improvement of computing power, the application of traffic big data, the advantages and disadvantages of models at different stages and the change of core demands for future model evaluation and analysis, the model architecture is greatly adjusted and optimized. The optimized and adjusted model construction and application technology process are shown in the figure above.

3.2 Traffic zoning and network

3.2.1 Macro Traffic Model of Guangdong Province

The traffic prediction model of the Approved Road Section R&E Project is built on the basis of the existing traffic model of Guangdong Expressway. The model basis is shown in the following figure:

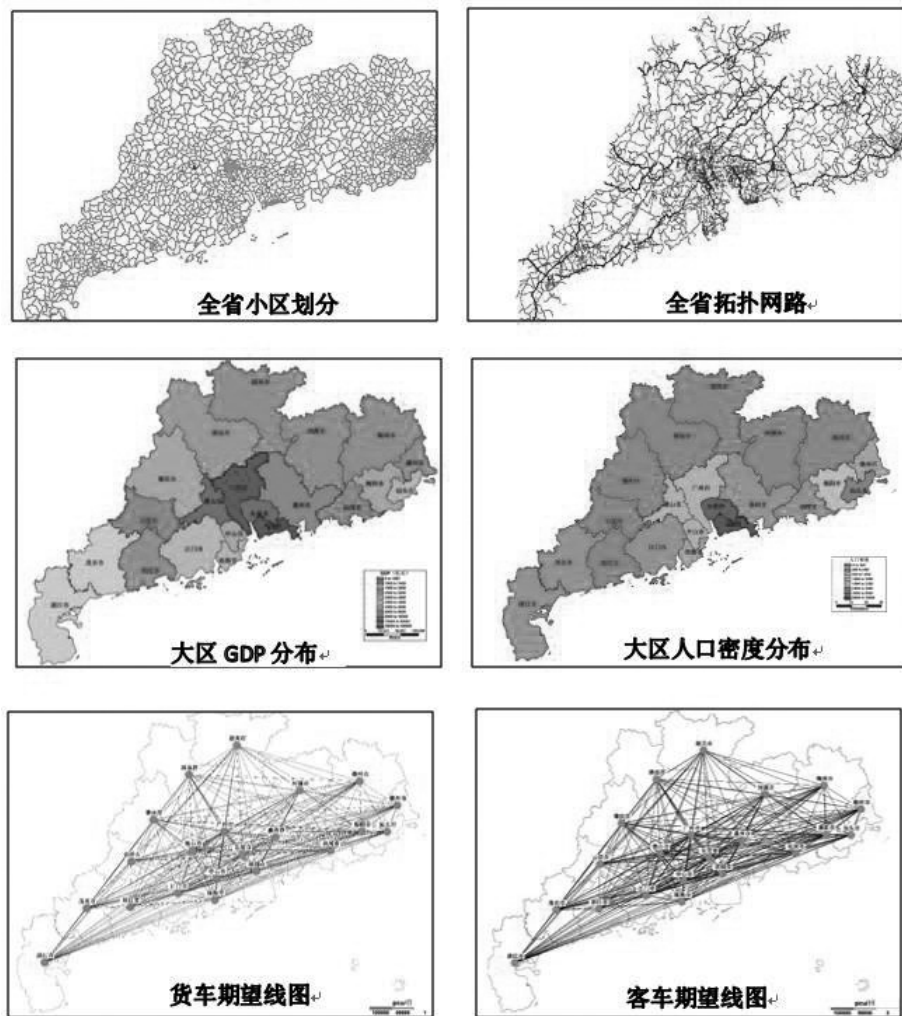


Figure 3-3 Data Base of Guangdong Province

The provincial road network model is based on administrative divisions, combined with the road network structure and the distribution of interchange exits, which divides 1,606 traffic zones. At the same time, considering the developed economy in the core area of Guangdong-Hong Kong-Macao Greater Bay Area, the high density of expressway entrances and exits, and the regional expressway undertaking part of the urban traffic demand function, the provincial road network model is divided into zones to refine the traffic zones in Guangzhou, Dongguan and Shenzhen. There are 101 new districts, with a total of 1,707 districts. The districts of Guangdong Province and the Greater Bay Area are shown in the figure below.

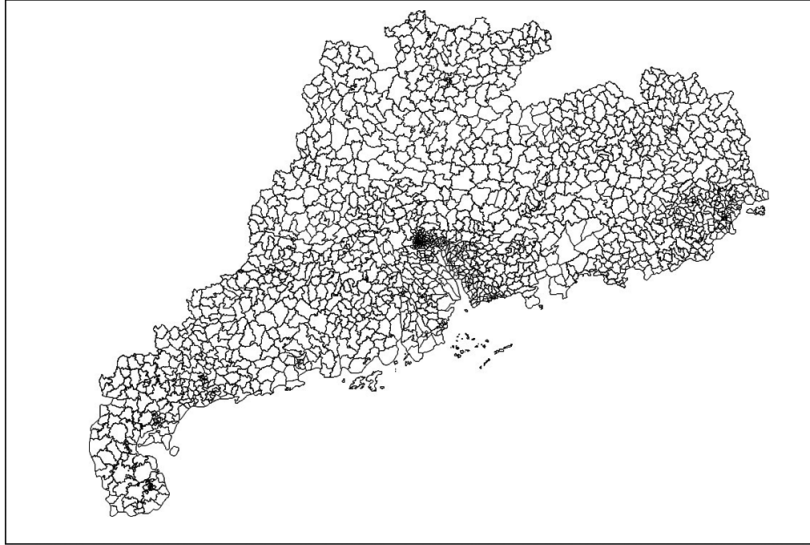


Figure 3-4 Traffic Zone Division of Guangdong Province

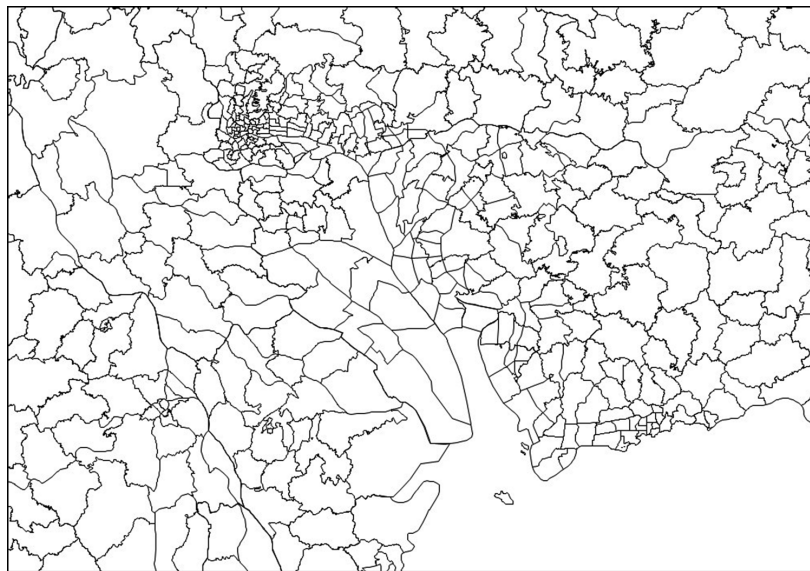


Figure 3-5 Division of traffic zones in the Greater Bay Area

3.2.2 Road Network Model of Guangdong Province

It is an important preparation for traffic volume forecast to draw up the road network of the future characteristic year. The road network in the characteristic year proposed in this report follows the following five principles: (1) the same coverage as the road network in the base year; (2) meeting the specific requirements of the project construction; (3) conforming to the road network planning of Guangdong Province; (4) conforming to the road network planning around the project; (5) conforming to the municipal road construction and development planning of the cities along the line. The road network in the characteristic year is developed on the basis of the road network in the base year, and its basic pattern is stable. Therefore, the standard grade of the proposed project is described in detail by mainly referring to the road network of the base year when drawing up the road network of the characteristic year, and adjusting the changed road conditions according to the relevant traffic planning data. According to the construction schedule of the main projects in the plan, the report draws up the road network of the project in the future characteristic year based on the expressway network planning of Guangdong Province, the general national and provincial highway network planning and the road network planning of Guangzhou, Dongguan and Shenzhen.



Figure 3-6 Schematic Diagram of Topological Road Network of Guangdong Province

3.3 Passenger traffic generation

The objective of passenger traffic generation is to estimate the total number of trips generated by or originating from each zone by trip purpose. Trip generation is to establish the relationship between the number or frequency of trips and the characteristics of travelers, regions, and transportation networks. Based on the comprehensive traffic survey data of the characteristic year, the cross-classification method is used to classify and predict the traffic absorption of households.

Trip generation adopts the generation rate method of middle scale.

$$P_i = \sum R_{ik} * T_{ik}$$

Where:

P_i is the trip generation of traffic zone i ;

R_{ik} is the travel rate of the travel group of type k in the traffic zone i ;

T_{ik} is the total number of travel groups of type k in traffic zone i .

- The travel incidence rate is determined by analogy with cities at home and abroad on the basis of referring to the resident travel surveys in Guangzhou and Dongguan over the years;
- In order to fully reflect the impact of the development of motor vehicles and the change of residents' income on travel, cross-classification is carried out according to these two factors, which is directly reflected in the travel classification;
- According to the characteristics of population composition in Guangzhou and Dongguan, the collective households are calculated separately;
- Take full account of the composition of the family population, and calculate the employed population, students and other population separately;
- Considering the difference of urbanization level in different regions, different parameters are used to calculate separately;
- Given the difficulty of defining walking trips, we have used the incidence of motorized trips instead of the traditional incidence of all-mode trips.

Travel Attractions are forecasted by categories as follows: Home-based Work Travel Attractions are calculated based on the location of the employment area, Home-based Other Travel (HBO) and Non-Home-based Travel (NHB) Attractions are calculated based on the distribution of business and office areas, and Home-based School Travel (HBS) is calculated based on the distribution of degrees. Generally, the proportion of employment attraction rate in the central area is higher than that in other areas. Therefore, in the process of attraction calculation, different weights are used according to the location relationship.

The linear regression method of zonal scale is used for trip attraction.

$$Y_i = A_1X_1 + A_2X_2 + A_3X_3 + \cdots A_nX_n$$

Where:

Y_i is attract traffic for the traffic zone i ;

$A_1, A_2, A_3, \cdots A_n$ is the partial regression coefficient;

$X_1, X_2, X_3, \cdots X_n$ is a factor related to the amount of attraction.

3.4 Freight traffic generation

Four types of freight traffic forecasting models are constructed: internal freight trips, external freight trips, port evacuation freight trips and Hong Kong cross-border freight trips.

The internal freight trip occurrence model is calculated according to the industrial posts and service posts in each district, and the calculation formula is as follows:

$$G = aX + bY$$

Where:

G is the freight volume;

X industrial posts;

Y service posts;

a, b is the weigh.

The elasticity coefficient method is used to forecast the external freight. The elastic coefficient method can directly reflect the influence of economic growth on the traffic, can better grasp the influence of the improvement of regional productivity level and the adjustment of industrial structure on the traffic growth from the total amount, is easy to synthesize qualitative factors and quantify them, and has better practicability and reliability when used in the medium and long-term prediction of traffic volume. Its

principle is to study the elastic relationship between social economy and transportation indicators, and to determine the growth rate of traffic generation and attraction in each traffic zone in the future through the prediction of social and economic development and freight elasticity coefficient of each traffic zone, so as to predict the total traffic generation and attraction in the future. The model is as follows:

$$P_i^f = P_i^0 * (1 + E_i * r_i)^n$$

Where:

P_i^f is the future traffic generation (attraction) of the district i ;

P_i^0 is the current traffic generation (attraction) of the district i ;

E_i is the elasticity coefficient of the freight index of the region to the economic index i ;

r_i is GDP growth rate of the region i (%);

n is the prediction period (determination of the characteristic year).

The port cargo volume is mainly composed of the planned cargo throughput of each port and airport in the next year. As this project is only for road traffic, the proportion of land transportation with the port and airport cargo and the empty container rate are considered. The specific formula is as follows:

$$Y_i = \frac{T_i * r}{(1 - a) * w}$$

Where:

Y_i the number of land freight vehicles in Hong Kong i ;

T_i port throughput i ;

r is the proportion of land transportation for the port i ;

a the empty container rate of the port i ;

w is the freight factor of the port i .

The relationship between Hong Kong's total cross-border freight volume and trade volume is as follows:

$$Y = aX + b$$

Where:

Y is the total volume of cross-border freight;

X is export trade volume;

a, b is the parameter to be calibrated.

The formula for cross-border freight vehicle travel demand is as follows:

$$G = rY$$

Where:

G is cross-boundary freight traffic;

r is the truck load factor.

3.5 Trip distribution model

The trip distribution model is to calculate the trip exchange volume between the traffic zones according to the trip generation volume and attraction volume of each traffic zone, and obtain the PA matrix of the trip.

Basically, trip distribution models can be divided into two broad categories: the growth factor approach and the composite approach. The growth coefficient method is a growth trend model based on the current travel origin and destination. The synthesis rule is a probability model that considers both the travel space impedance factor and the regional characteristics.

Guangzhou and Dongguan are both fast-growing cities, and their urban form and spatial characteristics are changing rapidly. According to this characteristic, the comprehensive distribution model is more suitable for the actual situation of the above cities. According to the definition of generalized travel impedance, the comprehensive distribution model can take into account different planning strategies, various traffic system improvement schemes and travel costs by analyzing the comprehensive relationship between the current travel distribution and the generalized travel impedance.

The most widely used integrated trip distribution model is the gravity model. The model assumes that the amount of travel between two cells is proportional to the amount of occurrence of the starting cell and the amount of attraction of the destination cell, and is inversely proportional to the impedance from the starting cell to the destination cell.

The travel impedance between cells usually refers to the distance or travel time. In this project, we use a generalized trip impedance (integrated trip cost utility) gravity model to calculate the trip distribution.

The integrated cost utility gravity model is formulated as follows:

$$P_{OD} = \frac{FF * GC^a * e^{bGC}}{\sum FF * GC^a * e^{bGC}}$$

Where:

P_{OD} is the proportion of the distribution quantity of a certain OD pair to the total occurrence quantity;

FF is the distance dependent impedance (in minutes);

GC is the combined trip cost utility (minutes, including time and money spent);

a, b is the parameter to be calibrated.

The functional form of the integrated travel cost utility is:

$$GC = G_T + G_C$$

Where:

G_T is the travel time (minutes);

G_C is the travel cost (minute), $G_C = kC/VOT$, where k is the cash payment, VOT is the time value, and C is the scaling factor.

The trip distribution matrix calculated by the gravity model generally needs to be balanced according to the total amount of attraction. The FURNESS method is used in this project to constrain and adjust the trip distribution according to the total amount of occurrence and attraction of each cell (i.e., double constraint model).

3.6 Mode partition model

Modal classification models can be divided into four types according to their different combination positions in the traffic volume prediction simulation program:

- Combined with the trip generation model, that is, the trip generation is counted according to different traffic modes at the beginning:

- Divide the traffic mode between trip generation and trip distribution, that is, assume that there is no relationship between trip generation and traffic mode for the time being, and complete the division before calculating the trip distribution;
- Integration with the trip distribution model, i.e., the modal split is performed simultaneously with the distribution model as part of the trip distribution process;
- Modal split is performed between trip distribution and traffic assignment, that is, modal split is completed before traffic assignment.

Each of the above methods has its own characteristics, and the third division method is adopted in this project. According to the difference of comprehensive travel cost between individual transport mode (car, taxi) and public transport mode (conventional bus, subway), the proportion of the two modes is determined by using the binary logarithm model.

3.6.1 Primary Mode Partition Model

The main mode division model refers to the mode division model between individual transportation and public transportation. The functions used in the model are as follows.

$$P_{PV} = \frac{1}{1 + e^{(GC_{PT} - GC_{PV})^{a+b}}}$$

Where:

P_{PV} is the probability of choosing an individual travel mode for an OD pair;

GC_{PT} is the comprehensive cost (minutes) for a certain D pair to travel by public transport mode;

GC_{PV} is the combined cost (in minutes) of travel by private means of transport selected for a certain OD pair;

a is the curvature parameter;

b is the mode constant, which represents the tendency to choose the mode of travel.

3.6.2 Division of public transport sub-modes

Bus sub-mode division model is the core of rail transit model. On the basis of the previous step, it further divides the bus trip into rail and bus modes (bus sub-mode division). The structure of the model and the form of the formula are similar to the main mode division, and the piecewise function is used to calculate according to the rail distance. The function formula of bus sub-mode division is as follows:

$$P_r = \frac{1}{1 + e^{(GC_b - GC_r)^{a+b}}}$$

Where:

P_r is the possibility of selecting an orbital mode for any OD pair;

GC_b is the comprehensive travel cost from the place of departure to the destination by conventional public transport;

GC_r is the comprehensive travel cost from the departure point to the destination by rail mode;

a is the slope parameter;

b is the mode constant.

In the sub-mode division model of public transport, the current common practice is to consider the impact of transfer by walking weight, waiting weight and so on. However, according to the actual test, for the transfer between different systems (such as the transfer between conventional bus and rail), the simple walking weight, waiting weight and other factors can not reflect the real wishes of travelers. According to the fitting test of the actual rail passenger flow, the transfer within and between the same public transport system is distinguished, that is, in the model, different model parameters are used for the division of public transport sub-modes in the rail influence area and non-influence area, which can better fit the intention of travelers (of course, this difference can also be reflected by defining different transfer walking weights and waiting weights between different public transport systems).

Through continuous tracking of actual rail passenger flow operation data and model fitting results, the bus sub-mode division model of rail transit model in Guangzhou and Dongguan is improved. According to the difference of rail trips between the current rail influence area and non-influence area, different bus sub-mode division model parameters are adopted.

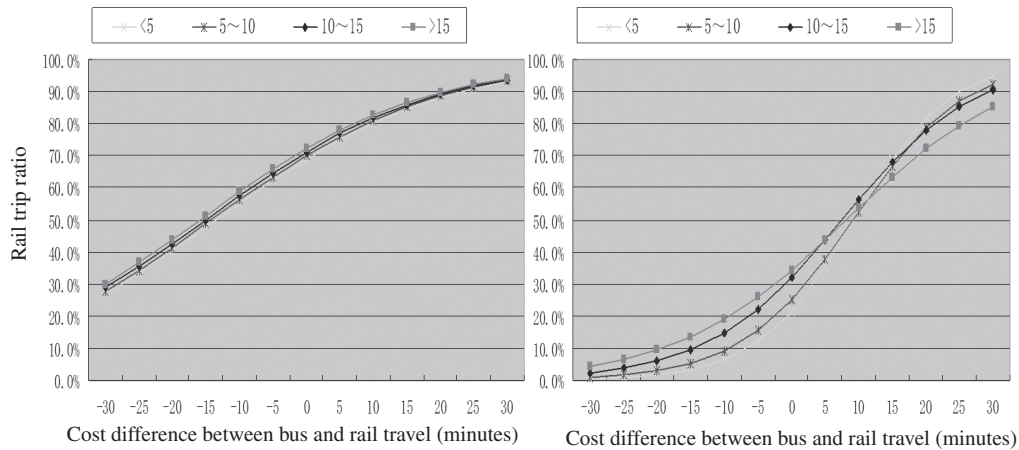


Figure 3-7 Bus Sub-Mode Division Curve Between Track Influence Zones and Between Influence Zones and Non-Influence Zones

3.7 Traffic assignment model

Traffic assignment refers to the assignment of the travel volume between districts to the road network to obtain the simulated traffic volume of the road network. In order to ensure the accuracy of the model prediction, it is necessary to compare and analyze the distribution flow and the observation flow, and to calibrate the model repeatedly. After the traffic model is established and checked, the corresponding parameters are modified according to the change of the future environment, and the flow of the future road section can be predicted.

After calculating the travel matrix of vehicles in peak hours in the next year, the travel of each district can be allocated to the road network according to the network traffic conditions, and finally the vehicle flow of each section can be obtained.

The core problem of traffic assignment is route choice, and different route choice principles lead to different traffic assignment modes. Traffic assignment modes are generally divided into two categories: balanced assignment and unbalanced assignment. At present, the widely used balanced allocation mainly includes two allocation modes, namely, system optimization and user balance. Both modes are derived from the two flow distribution principles proposed by Wardrop. The system optimization principle assumes that drivers cooperate for the benefit of the system to minimize the total travel cost of the system, while the user equilibrium is defined as that a user in a traffic network knows all the States of the network and always chooses the route that minimizes the cost to himself. When the equilibrium state is reached, the cost of each used route between any OD pair is equal and not greater than cost of the unused route.

The project adopts the optimal balanced allocation algorithm of the system, and its objective function is as follows:

$$\begin{aligned} \text{Min}(f(v)) &= \sum_{\alpha \in A} \int_0^{V_\alpha} s_\alpha(v + x_\alpha) dv \\ &+ \sum_{i \in \bar{I}} \sum_{\alpha_i \in A_i^-} \sum_{\alpha_2 \in A_i^+} \int_0^{V_{\alpha_1 \alpha_2}} p_{\alpha_1 \alpha_2}(v + x_{\alpha_1 \alpha_2}) dv \end{aligned}$$

Where:

v distribute traffic to the network;

x_α allocate flow for the addition;

$s_\alpha(v + x_\alpha)$ is an impedance function related to the flow of a certain road section in the network;

$p_{\alpha_1 \alpha_2}(v + x_{\alpha_1 \alpha_2})$ is a function of intersection turning impedances associated with flow from segment to segment in the network $\alpha_1 \alpha_2$.

$\sum_{\alpha \in A} \int_0^{V_\alpha} s_\alpha(v + x_\alpha) dv$ is the sum of the impedances of all road sections in the network;

$\sum_{i \in \bar{I}} \sum_{\alpha_i \in A_i^-} \sum_{\alpha_2 \in A_i^+} \int_0^{V_{\alpha_1 \alpha_2}} p_{\alpha_1 \alpha_2}(v + x_{\alpha_1 \alpha_2}) dv$ is the sum of the turning impedances of all intersections in the network.

Residents' travel costs are mainly composed of two parts: time and money. Money cost is converted into time cost according to the time value of different income and different purpose travel. Travel cost is related to the choice of travel mode and route, network conditions, traffic congestion and so on.

3.7.1 Cost of travel by car

The travel cost of cars mainly consists of pick-up time (waiting time), travel time, road tolls, car wear and tear, parking fees, etc. The vehicle loss is calculated according to the travel distance and is positively correlated with the travel distance.

3.7.2 Travel expenses by taxi

The cost of taxi travel increases the taxi fare on the basis of the cost of car travel, and no longer considers the cost of car wear and tear. The calculation of taxi fare does not take into account the additional cost due to time.

3.7.3 Travel cost by public transport

Bus travel costs mainly include: walking time, waiting time, boarding time, bus travel time, bus ticket fees, and time and money (ticket fees) incurred by transfer.

The travel time in the vehicle (excluding the clearance penalty) in the travel cost is calculated by the following model formula:

$$d = l * [a + b * (\frac{V}{C})]^n, V \leq C$$

$$d = l * [a + b * (\frac{V}{C})]^n + 30 * \frac{V-C}{C}, V > C$$

Where:

d is the travel time (minutes);

l is the length of the road (km);

V is the traffic flow rate on the road (pcu/hour);

C is the road capacity (pcu/hour);

a, b, n is an undetermined parameter and is related to the road type;

For the case of $V \leq C$, there is a trip: $speed = \frac{l}{d} = \frac{1}{a + b * (\frac{V}{C})^n}$

4 TRAFFIC VOLUME FORECAST

4.1 Forecast the future

The Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) is the first expressway jointly built by Guangdong and Hong Kong in China. It was put into trial operation on July 18, 1994 and officially opened to traffic on July 1, 1997, with a total length of 122.8 kilometers; Among them, the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway has a total length of 71.126 kilometers, which has been constructed at the end of 2023 and will open to traffic at the end of 2028, with a construction period of 5 years and an operation period of 25 years. According to the stipulations of the Compilation Methods for Feasibility Study Report of Highway Construction Projects and the Technical Standards for Highway Engineering issued by the Ministry of Transport, the prediction period of the prospective traffic volume of the expressway is 20 years after the opening to traffic. In addition, considering the needs of the financial analysis of the project, the prediction period of the traffic volume this time is 2052.

In combination with the relevant transportation development planning of Guangzhou, Dongguan and Shenzhen, consider the completion of important channels closely related to the project in the project affected area within the forecast period, among which the relatively clear ones are mainly the Shenzhen-Zhongshan Link. Multiple scenarios are set for the influencing factors with uncertain completion time: the Lianhuashan Passage is set to open in 2035 and 2040, the Shiziyang Passage is set to open in 2027, 2028 and 2035, and the Lingdingyang Passage is set to open in 2035, 2040 and 2045. The reconstruction and expansion project of Dongguan-Shenzhen Expressway has three scenarios of opening

in 2025, 2030 and 2035, and the long-term rail line has two scenarios of opening in 2035 and 2040. At the same time, considering that the speed of social and economic development is affected by many complex factors, three prediction scenarios of high, medium and low are set.

Table 4-1 Forecast Scenario Prospect

Programme	Socio-economic Development	The Lianhuashan Passage is open to traffic	The Shiziyang Passage is open to traffic	The Lingdingyang Passage is open to traffic	Dongguan-Shenzhen Expressway Reconstruction and expansion completed	Remark
Scheme I	High	2040	2035	2045	2035	High traffic volume
Scheme II	Medium	2035	2028	2040	2030	Medium traffic volume
Scheme III	Low	2035	2027	2035	2025	Low traffic volume

4.2 Base year traffic

During the period from 2010 to 2017, the traffic volume of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) showed an overall growth trend, and then the traffic volume of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) declined to a certain extent due to the opening of relevant roads and changes in relevant traffic policies. At the end of 2013, the Guangshen Coastal Expressway was opened to traffic, resulting in a 6.17% decrease in the traffic volume of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) in 2014. The Guangzhou section remained basically stable (the north of the Guangshen Coastal Expressway was opened to traffic in 2012), and the Dongguan section decreased by 7.00%.

From 2016 to 2017, the traffic volume of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) increased steadily; in 2018, the traffic volume of Guangzhou and Dongguan sections decreased to a certain extent due to the impact of the opening of Fenghuangshan Tunnel in Guangzhou and the second phase of Dongguan Ring Expressway;

In 2019, due to the impact of Nansha Bridge and the first phase of Dongguan-Panyu Expressway, the traffic volume also declined to a certain extent, with an average daily decline of 3.20%, of which the Guangzhou section declined the most, 9.85%, and the Dongguan section 1.08%.

The traffic volume of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) in 2020 decreased by 2.27% compared with that in 2019, which was mainly due to the normal social production activities affected by the COVID-19 epidemic. Meanwhile, the first phase of Guangzhou-Dongguan-Shenzhen Intercity Railway was opened to traffic at the end of 2019, which had a certain diversion impact on passenger transport.

The traffic volume of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) in 2021 decreased by 11.12% compared with that in 2020, mainly due to the impact of the COVID-19 epidemic in Guangzhou, Dongguan and Shenzhen from the end of April to June 2021, during which the average traffic volume of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) decreased by 33%; at the same time, the opening of Shenzhen Outer Ring Expressway had a certain diversion impact on the Beijing-Hong Kong-Macao Expressway (Shenzhen section). Therefore, in 2021, the average daily traffic volume of the whole line decreased by 11.29% in Dongguan and 10.19% in Guangzhou.

In 2022, the traffic volume of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) decreased by 20% compared with 2021 due to the strict control measures of the national epidemic situation.

In March 2023, after the full liberalization of epidemic prevention and control, the traffic volume of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) rose steadily, and the traffic volume in 2023 recovered to more than 90% of that in 2019.

Table 4-2 Traffic Volume of the Approved Road Section by Vehicle Type from 2016 to 2024

Year	Passenger car (vehicle/day)					Truck (including operation vehicle) (vehicle/day)					Natural vehicle (unit/day)		Standard car (PCU/day)	
	Class 1	Class 2	Class 3	Class 4	Class 5	Class 1	Class 2	Class 3	Class 4	Class 5	Passenger car	Truck	Passenger car	Truck
	vehicles	vehicles	vehicles	vehicles	vehicles	vehicles	vehicles	vehicles	vehicles	vehicles	amount	amount	amount	amount
2016	85,691	706	1,430	4,683	—	6,176	1,120	5,409	1,218	3,927	92,510	17,850	95,566	40,131
2017	93,904	862	1,266	4,501	—	6,983	1,348	5,985	1,169	4,078	100,533	19,564	103,417	43,204
2018	92,934	891	1,025	3,696	—	7,415	1,338	5,664	952	3,590	98,546	18,959	100,906	40,322
2019	89,616	806	799	2,793	—	7,561	1,226	5,622	805	3,478	94,014	18,692	95,810	39,378
														135,188
Year	Passenger car (vehicle/day)					Truck (including operation vehicle) (vehicle/day)					Natural vehicle (unit/day)		Standard car (PCU/day)	
	Class 1	Class 2	Class 3	Class 4	Class 5	Class 1	Class 2	Class 3	Class 4	Class 5	Passenger car	Truck	Passenger car	Truck
	vehicles	vehicles	vehicles	vehicles	vehicles	vehicles	vehicles	vehicles	vehicles	vehicles	amount	amount	amount	amount
2020	81,679	357	315	1,890	13,227	5,329	2,751	866	312	1,965	84,242	24,450	85,344	39,372
2021	84,090	275	281	1,500	13,677	5,116	3,287	685	123	743	86,146	23,631	87,037	34,744
2022	62,436	125	138	816	10,616	3,715	1,199	560	298	1,665	63,515	18,054	63,992	28,438
2023	91,840	184	277	1,058	10,962	3,651	921	568	405	1,880	93,359	18,388	94,027	29,303
2024 January-June	90,240	186	277	1,102	10,497	3,666	878	575	468	1,728	91,805	17,813	92,495	28,415
														120,910

Note: Before 2020, the toll standard of expressway is divided into “5 passenger cars and 5 trucks”, and after 2020, it will be changed to “4 passenger cars and 6 trucks”.

The unit of the predicted traffic volume is PCU/d, which represents the annual average daily traffic volume of the current road (the Approved Road Section R&E Project), and is the equivalent traffic volume of the whole journey after conversion.

4.3 Traffic demand forecast

Considering the rebound of traffic volume in the base year after the basic lifting of epidemic prevention and control, the completion time and diversion of Shenzhen-Zhongshan Link, Shiziyang Passage, Dongguan-Shenzhen Expressway Reconstruction and Expansion, Lianhua Shan Passage and Lingdingyang Passage, the transfer during the construction of the Approved Road Section R&E Project and the induction after completion, a comprehensive traffic model based on multiple characteristic years with different forecasting prospects is established. The prediction results of the Approved Road Section R&E Project are as follows through traffic model prediction and verification.

4.3.1 Forecast results of traffic volume in Scheme I (high scheme)

Table 4-3 High Scheme Traffic Volume Forecast Results of the Approved Road Section R&E Project

Year	Passenger car					Truck (including operation vehicle)					Subtotal		Natural vehicles (vehicle/day)	Standard car (PCU/d)
	Class 1	Class 2	Class 3	Class 4	Subtotal	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Subtotal		
2023	91,840	184	277	1,058	93,359	10,962	3,651	921	568	405	1,880	18,388	111,747	123,330
2024	96,318	191	282	1,114	97,905	11,573	3,880	999	597	420	2,021	19,489	117,394	128,749
2025	101,623	201	298	1,176	103,298	12,022	4,030	1,037	620	436	2,100	20,245	123,543	135,351
2026	105,889	210	310	1,225	107,634	12,426	4,166	1,072	641	451	2,170	20,926	128,560	140,771
2027	110,337	218	323	1,276	112,155	12,844	4,306	1,108	662	466	2,243	21,629	133,784	146,411
2028	112,673	223	330	1,303	114,530	13,010	4,361	1,122	671	472	2,272	21,908	136,438	149,236
2029	136,194	270	399	1,575	138,439	15,598	5,229	1,346	804	566	2,724	26,268	164,706	180,058
2030	141,921	281	416	1,641	144,260	16,122	5,405	1,391	831	585	2,816	27,150	171,410	187,286
2031	144,294	286	423	1,669	146,671	16,319	5,471	1,408	842	592	2,850	27,482	174,153	190,228
2032	146,706	290	430	1,697	149,123	16,518	5,538	1,425	852	599	2,885	27,817	176,940	193,217
2033	149,158	295	437	1,725	151,616	16,720	5,605	1,442	862	607	2,921	28,157	179,773	196,253
2034	151,651	300	445	1,754	154,150	16,924	5,674	1,460	873	614	2,956	28,501	182,651	199,338
2035	146,570	290	430	1,695	148,985	16,284	5,459	1,404	840	591	2,845	27,424	176,409	192,470
2036	149,021	295	437	1,723	151,476	16,483	5,526	1,421	850	598	2,879	27,759	179,235	195,498
2037	151,512	300	444	1,752	154,009	16,684	5,594	1,439	861	606	2,915	28,098	182,106	198,573

Year	Passenger car					Truck (including operation vehicle)						Subtotal	Natural vehicles (vehicle/ day)	Standard car (PCU/d)
	Class 1	Class 2	Class 3	Class 4	Subtotal	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6			
2038	154,046	305	452	1,781	156,584	16,888	5,662	1,456	871	613	2,950	28,441	185,024	201,698
2039	156,621	310	459	1,811	159,202	17,094	5,731	1,474	882	621	2,986	28,788	187,990	204,873
2040	151,278	300	444	1,749	153,771	16,437	5,511	1,417	848	597	2,872	27,683	181,454	197,694
2041	152,027	301	446	1,758	154,532	16,493	5,530	1,422	851	599	2,881	27,777	182,309	198,605
2042	152,779	303	448	1,767	155,296	16,549	5,548	1,427	854	601	2,891	27,871	183,167	199,521
2043	153,535	304	450	1,775	156,064	16,606	5,567	1,432	857	603	2,901	27,966	184,030	200,442
2044	154,294	306	453	1,784	156,836	16,662	5,586	1,437	860	605	2,911	28,061	184,898	201,366
2045	153,507	304	450	1,775	156,036	16,551	5,549	1,427	854	601	2,892	27,875	183,911	200,272
2046	154,266	305	452	1,784	156,808	16,608	5,568	1,432	857	603	2,901	27,970	184,778	201,196
2047	155,029	307	455	1,793	157,584	16,664	5,587	1,437	860	605	2,911	28,065	185,649	202,125
2048	155,796	308	457	1,802	158,363	16,721	5,606	1,442	863	607	2,921	28,160	186,524	203,057
2049	156,567	310	459	1,811	159,147	16,778	5,625	1,447	866	610	2,931	28,256	187,403	203,994
2050	157,342	312	461	1,819	159,934	16,835	5,644	1,451	869	612	2,941	28,352	188,286	204,936
2051	158,120	313	464	1,828	160,725	16,892	5,663	1,456	872	614	2,951	28,449	189,174	205,882
2052	158,902	315	466	1,837	161,520	16,949	5,683	1,461	875	616	2,961	28,545	190,066	206,832

Remarks: The above is considered according to the completion of Shenzhen-Zhongshan Link in 2024, the completion of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) reconstruction and expansion project in 2029, the completion of Shiziyang Passage in 2035, the completion of Dongguan-Shenzhen Expressway reconstruction and expansion, the opening of Lianhuashan Passage in 2040, and the opening of Lingdingyang Passage in 2045.

Table 4-4 High Scheme Vehicle Type Proportion of the Approved Road Section R&E Project (Natural Vehicles)

Year	Passenger car					Truck (including operation vehicle)						
	Class 1	Class 2	Class 3	Class 4	Subtotal	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Subtotal
2023	82.19%	0.16%	0.25%	0.95%	83.54%	9.81%	3.27%	0.82%	0.51%	0.36%	1.68%	16.46%
2024	82.01%	0.16%	0.24%	0.94%	83.35%	9.89%	3.32%	0.86%	0.50%	0.35%	1.73%	16.65%
2025	82.22%	0.16%	0.24%	0.95%	83.57%	9.76%	3.28%	0.85%	0.49%	0.35%	1.70%	16.43%
2026	82.33%	0.16%	0.24%	0.95%	83.68%	9.70%	3.25%	0.85%	0.49%	0.35%	1.69%	16.32%
2027	82.43%	0.16%	0.24%	0.95%	83.78%	9.63%	3.23%	0.84%	0.49%	0.34%	1.68%	16.22%
2028	82.54%	0.16%	0.24%	0.95%	83.89%	9.57%	3.21%	0.83%	0.48%	0.34%	1.67%	16.11%
2029	84.34%	0.17%	0.28%	0.91%	85.71%	8.53%	2.84%	0.64%	0.49%	0.38%	1.41%	14.29%
2030	84.45%	0.17%	0.28%	0.92%	85.82%	8.46%	2.82%	0.63%	0.49%	0.38%	1.40%	14.18%
2031	84.50%	0.17%	0.28%	0.92%	85.87%	8.44%	2.81%	0.63%	0.49%	0.38%	1.39%	14.13%
2032	84.55%	0.17%	0.28%	0.92%	85.92%	8.41%	2.80%	0.63%	0.49%	0.38%	1.39%	14.08%
2033	84.60%	0.17%	0.28%	0.92%	85.96%	8.38%	2.79%	0.63%	0.48%	0.38%	1.38%	14.04%
2034	84.65%	0.17%	0.28%	0.92%	86.01%	8.35%	2.78%	0.63%	0.48%	0.37%	1.38%	13.99%
2035	84.69%	0.17%	0.28%	0.92%	86.06%	8.32%	2.77%	0.62%	0.48%	0.37%	1.37%	13.94%
2036	84.74%	0.18%	0.28%	0.92%	86.11%	8.29%	2.76%	0.62%	0.48%	0.37%	1.37%	13.89%
2037	84.79%	0.18%	0.28%	0.92%	86.16%	8.26%	2.75%	0.62%	0.48%	0.37%	1.36%	13.84%
2038	84.84%	0.18%	0.28%	0.92%	86.21%	8.23%	2.74%	0.62%	0.48%	0.37%	1.36%	13.79%
2039	84.88%	0.18%	0.28%	0.92%	86.26%	8.20%	2.73%	0.61%	0.47%	0.37%	1.35%	13.74%
2040	84.93%	0.18%	0.28%	0.92%	86.31%	8.17%	2.72%	0.61%	0.47%	0.37%	1.35%	13.69%
2041	84.95%	0.18%	0.28%	0.92%	86.32%	8.16%	2.72%	0.61%	0.47%	0.37%	1.35%	13.68%
2042	84.97%	0.18%	0.28%	0.92%	86.34%	8.15%	2.71%	0.61%	0.47%	0.37%	1.35%	13.66%
2043	84.98%	0.18%	0.28%	0.92%	86.36%	8.14%	2.71%	0.61%	0.47%	0.37%	1.34%	13.64%
2044	85.00%	0.18%	0.28%	0.92%	86.38%	8.13%	2.71%	0.61%	0.47%	0.36%	1.34%	13.62%
2045	85.02%	0.18%	0.28%	0.92%	86.39%	8.12%	2.70%	0.61%	0.47%	0.36%	1.34%	13.61%
2046	85.04%	0.18%	0.28%	0.92%	86.41%	8.11%	2.70%	0.61%	0.47%	0.36%	1.34%	13.59%
2047	85.05%	0.18%	0.28%	0.92%	86.43%	8.10%	2.70%	0.61%	0.47%	0.36%	1.34%	13.57%
2048	85.07%	0.18%	0.28%	0.92%	86.45%	8.09%	2.69%	0.61%	0.47%	0.36%	1.34%	13.55%
2049	85.09%	0.18%	0.28%	0.92%	86.46%	8.08%	2.69%	0.60%	0.47%	0.36%	1.33%	13.54%
2050	85.10%	0.18%	0.28%	0.92%	86.48%	8.07%	2.69%	0.60%	0.47%	0.36%	1.33%	13.52%
2051	85.12%	0.18%	0.28%	0.92%	86.50%	8.06%	2.68%	0.60%	0.47%	0.36%	1.33%	13.50%
2052	85.14%	0.18%	0.28%	0.92%	86.51%	8.05%	2.68%	0.60%	0.47%	0.36%	1.33%	13.49%

4.3.2 Forecast results of traffic volume in Scheme II (medium scheme)

Table 4-5 Medium Scheme Traffic Volume Forecast Results of the Approved Road Section R&E Project

Year	Passenger car					Truck (including operation vehicle)					Subtotal	Natural vehicles (vehicle/day)	Standard car (PCU/d)
	Class 1	Class 2	Class 3	Class 4	Subtotal	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6		
2023	91,840	184	277	1,058	93,359	10,962	3,651	921	568	405	1,880	111,747	123,330
2024	95,502	189	280	1,104	97,075	11,481	3,849	990	592	416	2,005	116,409	128,663
2025	97,672	193	286	1,130	99,282	11,565	3,877	998	596	420	2,020	118,757	131,115
2026	99,615	197	292	1,153	101,257	11,698	3,922	1,009	603	424	2,044	120,956	133,460
2027	109,772	217	322	1,270	111,580	12,784	4,286	1,103	659	464	2,233	133,108	145,677
2028	109,759	217	322	1,270	111,567	12,676	4,250	1,094	654	460	2,214	132,914	145,384
2029	131,414	260	385	1,520	133,579	15,051	5,046	1,298	776	546	2,629	158,926	173,739
2030	134,085	265	393	1,551	136,294	15,229	5,105	1,314	785	552	2,660	161,940	176,937
2031	136,399	270	400	1,578	138,647	15,421	5,170	1,330	795	559	2,694	164,616	179,807
2032	138,754	275	407	1,605	141,040	15,615	5,235	1,347	805	567	2,728	167,337	182,724
2033	141,149	279	414	1,632	143,475	15,812	5,301	1,364	816	574	2,762	170,103	185,690
2034	143,586	284	421	1,661	145,951	16,011	5,368	1,381	826	581	2,797	172,916	188,704
2035	138,761	275	407	1,605	141,048	15,403	5,164	1,328	795	559	2,691	166,987	182,180
2036	141,157	279	414	1,632	143,483	15,597	5,229	1,345	805	566	2,725	169,749	185,139
2037	143,594	284	421	1,661	145,960	15,793	5,295	1,362	815	573	2,759	172,558	188,147
2038	146,074	289	428	1,689	148,480	15,992	5,362	1,379	825	581	2,794	175,413	191,204
2039	148,596	294	436	1,718	151,044	16,194	5,429	1,396	836	588	2,829	178,317	194,312
2040	149,650	296	439	1,731	152,116	16,234	5,443	1,400	838	590	2,836	179,456	195,497
2041	150,391	298	441	1,739	152,869	16,289	5,461	1,404	841	592	2,846	180,302	196,399
2042	151,135	299	443	1,748	153,625	16,345	5,480	1,409	844	594	2,856	181,151	197,305
2043	151,882	301	445	1,756	154,385	16,400	5,498	1,414	847	596	2,865	182,005	198,215
2044	152,634	302	448	1,765	155,149	16,456	5,517	1,419	849	598	2,875	182,863	199,129
2045	153,389	304	450	1,774	155,916	16,512	5,536	1,424	852	600	2,885	183,724	200,048
2046	154,148	305	452	1,783	156,687	16,568	5,555	1,428	855	602	2,895	184,590	200,971
2,047	154,910	307	454	1,791	157,463	16,624	5,574	1,433	858	604	2,904	185,460	201,899
2048	155,676	308	457	1,800	158,242	16,681	5,593	1,438	861	606	2,914	186,334	202,831
2049	156,447	310	459	1,809	159,024	16,738	5,612	1,443	864	608	2,924	187,213	203,767

Remarks: The above is considered based on the completion of Shenzhen-Zhongshan Link in 2024, the completion of Shiziyang Passage in 2028, the completion of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) reconstruction and expansion project in 2029, the completion of Dongguan-Shenzhen Expressway reconstruction and expansion in 2030, the opening of Lianhuashan Passage in 2035, and the opening of Lingdingyang Passage in 2040.

Table 4-6 Medium Scheme Vehicle Type Proportion of the Approved Road Section R&E Project (Natural Vehicles)

Year	Passenger car					Truck (including operation vehicle)						
	Class 1	Class 2	Class 3	Class 4	Subtotal	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Subtotal
2023	82.19%	0.16%	0.25%	0.95%	83.54%	9.81%	3.27%	0.82%	0.51%	0.36%	1.68%	16.46%
2024	82.04%	0.16%	0.24%	0.95%	83.39%	9.86%	3.31%	0.85%	0.51%	0.36%	1.72%	16.61%
2025	82.25%	0.16%	0.24%	0.95%	83.60%	9.74%	3.26%	0.84%	0.50%	0.35%	1.70%	16.40%
2026	82.36%	0.16%	0.24%	0.95%	83.71%	9.67%	3.24%	0.83%	0.50%	0.35%	1.69%	16.29%
2027	82.43%	0.16%	0.24%	0.95%	83.78%	9.64%	3.23%	0.84%	0.49%	0.34%	1.68%	16.22%
2028	82.53%	0.16%	0.24%	0.95%	83.89%	9.57%	3.21%	0.83%	0.48%	0.34%	1.67%	16.11%
2029	84.34%	0.17%	0.28%	0.91%	85.71%	8.53%	2.84%	0.64%	0.49%	0.38%	1.41%	14.29%
2030	84.45%	0.17%	0.28%	0.92%	85.82%	8.46%	2.82%	0.63%	0.49%	0.38%	1.40%	14.18%
2031	84.51%	0.17%	0.28%	0.92%	85.87%	8.43%	2.81%	0.63%	0.49%	0.38%	1.39%	14.13%
2032	84.56%	0.17%	0.28%	0.92%	85.92%	8.40%	2.80%	0.63%	0.49%	0.38%	1.39%	14.08%
2033	84.61%	0.17%	0.28%	0.92%	85.97%	8.37%	2.79%	0.63%	0.48%	0.38%	1.38%	14.03%
2034	84.66%	0.17%	0.28%	0.92%	86.02%	8.34%	2.78%	0.62%	0.48%	0.37%	1.38%	13.98%
2035	84.71%	0.17%	0.28%	0.92%	86.08%	8.31%	2.77%	0.62%	0.48%	0.37%	1.37%	13.92%
2036	84.76%	0.18%	0.28%	0.92%	86.13%	8.28%	2.76%	0.62%	0.48%	0.37%	1.37%	13.87%
2037	84.81%	0.18%	0.28%	0.92%	86.18%	8.25%	2.75%	0.62%	0.48%	0.37%	1.36%	13.82%
2038	84.85%	0.18%	0.28%	0.92%	86.23%	8.22%	2.74%	0.62%	0.48%	0.37%	1.36%	13.77%
2039	84.90%	0.18%	0.28%	0.92%	86.28%	8.19%	2.73%	0.61%	0.47%	0.37%	1.35%	13.72%
2040	84.95%	0.18%	0.28%	0.92%	86.33%	8.16%	2.72%	0.61%	0.47%	0.37%	1.35%	13.67%
2041	84.97%	0.18%	0.28%	0.92%	86.34%	8.15%	2.71%	0.61%	0.47%	0.37%	1.35%	13.66%
2042	84.99%	0.18%	0.28%	0.92%	86.36%	8.14%	2.71%	0.61%	0.47%	0.36%	1.34%	13.64%
2043	85.00%	0.18%	0.28%	0.92%	86.38%	8.13%	2.71%	0.61%	0.47%	0.36%	1.34%	13.62%
2044	85.02%	0.18%	0.28%	0.92%	86.40%	8.12%	2.70%	0.61%	0.47%	0.36%	1.34%	13.60%
2045	85.04%	0.18%	0.28%	0.92%	86.41%	8.11%	2.70%	0.61%	0.47%	0.36%	1.34%	13.59%
2046	85.06%	0.18%	0.28%	0.92%	86.43%	8.10%	2.70%	0.61%	0.47%	0.36%	1.34%	13.57%
2047	85.07%	0.18%	0.28%	0.92%	86.45%	8.09%	2.69%	0.61%	0.47%	0.36%	1.33%	13.55%
2048	85.09%	0.18%	0.28%	0.92%	86.47%	8.08%	2.69%	0.60%	0.47%	0.36%	1.33%	13.53%
2049	85.11%	0.18%	0.28%	0.92%	86.48%	8.07%	2.68%	0.60%	0.47%	0.36%	1.33%	13.52%
2050	85.12%	0.18%	0.28%	0.92%	86.50%	8.06%	2.68%	0.60%	0.47%	0.36%	1.33%	13.50%
2051	85.14%	0.18%	0.28%	0.92%	86.52%	8.05%	2.68%	0.60%	0.47%	0.36%	1.33%	13.48%
2052	85.16%	0.18%	0.28%	0.92%	86.54%	8.04%	2.67%	0.60%	0.46%	0.36%	1.33%	13.46%

4.3.3 Traffic volume forecast results of Scheme III (low scheme)

Table 4-7 Low Scheme Traffic Volume Forecast Results of the Approved Road Section R&E Project

Year	Passenger car					Truck (including operation vehicle)					Subtotal	Natural vehicles (vehicle/day)	Standard car (PCU/d)
	Class 1	Class 2	Class 3	Class 4	Subtotal	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6		
2023	91,840	184	277	1,058	93,359	10,962	3,651	921	568	405	1,880	111,747	123,330
2024	94,705	187	277	1,096	96,266	11,455	3,840	988	590	415	2,001	115,555	126,789
2025	96,301	191	282	1,114	97,888	11,543	3,869	996	595	418	2,016	117,325	128,652
2026	99,089	196	290	1,146	100,722	11,808	3,958	1,019	609	428	2,062	120,606	132,197
2027	99,919	198	293	1,156	101,565	11,838	3,968	1,021	610	429	2,068	121,500	133,125
2028	100,756	199	295	1,166	102,417	11,868	3,978	1,024	612	430	2,073	122,402	134,061
2029	119,227	236	349	1,379	121,191	13,962	4,680	1,205	720	506	2,439	144,703	158,424
2030	122,682	243	360	1,419	124,703	14,283	4,788	1,232	736	518	2,495	148,756	162,798
2031	124,975	247	366	1,446	127,034	14,478	4,854	1,249	746	525	2,529	151,415	165,654
2032	127,311	252	373	1,473	129,408	14,676	4,920	1,266	757	532	2,564	154,123	168,561
2033	129,690	257	380	1,500	131,827	14,877	4,987	1,283	767	540	2,599	156,880	171,521
2034	132,115	262	387	1,528	134,292	15,080	5,055	1,301	778	547	2,634	159,687	174,533
2035	126,577	251	371	1,464	128,663	14,377	4,820	1,240	741	522	2,511	152,873	167,032
2036	128,943	255	378	1,491	131,068	14,573	4,885	1,257	752	529	2,546	155,610	169,967
2037	131,354	260	385	1,519	133,519	14,772	4,952	1,274	762	536	2,581	158,396	172,954
2038	133,810	265	392	1,548	136,015	14,974	5,020	1,291	773	544	2,616	161,233	175,996
2039	136,312	270	400	1,577	138,559	15,179	5,089	1,309	783	551	2,652	164,121	179,091
2040	138,862	275	407	1,606	141,150	15,386	5,158	1,327	794	559	2,688	167,061	182,242
2041	140,235	278	411	1,622	142,546	15,495	5,195	1,336	800	563	2,707	168,642	183,933
2042	141,622	280	415	1,638	143,956	15,605	5,232	1,346	805	567	2,726	170,237	185,639
2043	143,023	283	419	1,654	145,380	15,716	5,269	1,355	811	571	2,746	171,848	187,362
2044	144,438	286	424	1,671	146,818	15,828	5,306	1,365	817	575	2,765	173,474	189,101
2045	145,867	289	428	1,687	148,270	15,940	5,344	1,374	823	579	2,785	175,115	190,857
2046	147,310	292	432	1,704	149,737	16,053	5,382	1,384	828	583	2,805	176,773	192,629
2047	148,767	295	436	1,721	151,218	16,167	5,420	1,394	834	587	2,824	178,446	194,417
2048	150,239	297	441	1,738	152,714	16,282	5,459	1,404	840	591	2,845	180,135	196,223
2049	151,725	300	445	1,755	154,225	16,398	5,497	1,414	846	595	2,865	181,840	198,046

Year	Passenger car					Truck (including operation vehicle)					Natural vehicles/Standard car (vehicle/day) (PCU/d)	
	Class 1	Class 2	Class 3	Class 4	Subtotal	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Subtotal
2050	153,226	303	449	1,772	155,751	16,514	5,536	1,424	852	600	2,885	27,811
2051	154,742	306	454	1,790	157,291	16,631	5,576	1,434	858	604	2,906	28,009
2052	156,272	309	458	1,807	158,847	16,749	5,615	1,444	864	608	2,926	28,208
												187,055
												199,886
												201,743
												203,618

Remarks: The above is considered based on the completion of Shenzhen-Zhongshan Link in 2024, the completion of reconstruction and expansion of Dongguan Shenzhen Expressway in 2025, the completion of Shiziyang Passage in 2027, the completion of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) reconstruction and expansion project in 2029, and the opening of Lianhuashan Passage and Lingdingyang Passage in 2035.

Table 4-8 Low Scheme Vehicle Type Proportion of the Approved Road Section R&E Project (Natural Vehicles)

Year	Passenger car					Truck (including operation vehicle)						
	Class 1	Class 2	Class 3	Class 4	Subtotal	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Subtotal
2023	82.19%	0.16%	0.25%	0.95%	83.54%	9.81%	3.27%	0.82%	0.51%	0.36%	1.68%	16.46%
2024	81.92%	0.16%	0.24%	0.94%	83.26%	9.94%	3.34%	0.87%	0.50%	0.36%	1.73%	16.74%
2025	82.04%	0.16%	0.24%	0.94%	83.39%	9.87%	3.31%	0.86%	0.50%	0.35%	1.72%	16.61%
2026	82.12%	0.16%	0.24%	0.95%	83.47%	9.82%	3.30%	0.86%	0.50%	0.35%	1.71%	16.53%
2027	82.20%	0.16%	0.24%	0.95%	83.55%	9.77%	3.28%	0.85%	0.49%	0.35%	1.71%	16.45%
2028	82.27%	0.16%	0.24%	0.95%	83.62%	9.73%	3.26%	0.85%	0.49%	0.35%	1.70%	16.38%
2029	84.07%	0.17%	0.27%	0.91%	85.43%	8.69%	2.89%	0.65%	0.50%	0.39%	1.44%	14.57%
2030	84.15%	0.17%	0.28%	0.91%	85.51%	8.65%	2.88%	0.65%	0.50%	0.39%	1.43%	14.49%
2031	84.21%	0.17%	0.28%	0.91%	85.57%	8.61%	2.87%	0.65%	0.50%	0.39%	1.42%	14.43%
2032	84.26%	0.17%	0.28%	0.91%	85.62%	8.58%	2.86%	0.64%	0.50%	0.38%	1.42%	14.38%
2033	84.32%	0.17%	0.28%	0.91%	85.68%	8.55%	2.84%	0.64%	0.49%	0.38%	1.41%	14.32%
2034	84.37%	0.17%	0.28%	0.91%	85.74%	8.51%	2.83%	0.64%	0.49%	0.38%	1.41%	14.26%
2035	84.43%	0.17%	0.28%	0.91%	85.79%	8.48%	2.82%	0.64%	0.49%	0.38%	1.40%	14.21%
2036	84.48%	0.17%	0.28%	0.92%	85.85%	8.45%	2.81%	0.63%	0.49%	0.38%	1.40%	14.15%
2037	84.54%	0.17%	0.28%	0.92%	85.90%	8.41%	2.80%	0.63%	0.49%	0.38%	1.39%	14.10%
2038	84.59%	0.17%	0.28%	0.92%	85.96%	8.38%	2.79%	0.63%	0.48%	0.38%	1.38%	14.04%
2039	84.65%	0.17%	0.28%	0.92%	86.02%	8.35%	2.78%	0.63%	0.48%	0.37%	1.38%	13.98%
2040	84.70%	0.17%	0.28%	0.92%	86.07%	8.31%	2.77%	0.62%	0.48%	0.37%	1.37%	13.93%
2041	84.73%	0.17%	0.28%	0.92%	86.10%	8.29%	2.76%	0.62%	0.48%	0.37%	1.37%	13.90%
2042	84.76%	0.18%	0.28%	0.92%	86.14%	8.27%	2.75%	0.62%	0.48%	0.37%	1.37%	13.86%
2043	84.80%	0.18%	0.28%	0.92%	86.17%	8.26%	2.75%	0.62%	0.48%	0.37%	1.36%	13.83%
2044	84.83%	0.18%	0.28%	0.92%	86.20%	8.24%	2.74%	0.62%	0.48%	0.37%	1.36%	13.80%
2045	84.86%	0.18%	0.28%	0.92%	86.23%	8.22%	2.73%	0.62%	0.48%	0.37%	1.36%	13.77%
2046	84.89%	0.18%	0.28%	0.92%	86.27%	8.20%	2.73%	0.61%	0.47%	0.37%	1.35%	13.73%
2047	84.92%	0.18%	0.28%	0.92%	86.30%	8.18%	2.72%	0.61%	0.47%	0.37%	1.35%	13.70%
2048	84.96%	0.18%	0.28%	0.92%	86.33%	8.16%	2.72%	0.61%	0.47%	0.37%	1.35%	13.67%
2049	84.99%	0.18%	0.28%	0.92%	86.36%	8.14%	2.71%	0.61%	0.47%	0.36%	1.34%	13.64%
2050	85.02%	0.18%	0.28%	0.92%	86.39%	8.12%	2.70%	0.61%	0.47%	0.36%	1.34%	13.61%
2051	85.05%	0.18%	0.28%	0.92%	86.43%	8.10%	2.70%	0.61%	0.47%	0.36%	1.34%	13.57%
2052	85.08%	0.18%	0.28%	0.92%	86.46%	8.08%	2.69%	0.61%	0.47%	0.36%	1.33%	13.54%

4.4 Analysis of influencing factors

4.4.1 Impact of road traffic

Highway traffic impact mainly considers two types of channels, one is river-crossing channel. The opening of Shenzhen-Zhongshan Link, Shiziyang Passage, Lianhuashan Passage and Lingdingyang Passage in the future will reduce the bypass between the east and west sides of the Pearl River Estuary and weaken the east-west traffic function of the Approved Road Section R&E Project; The other is the parallel channel, which mainly refers to the improvement of the transport capacity of the reconstruction and expansion of Dongguan-Shenzhen Expressway, which will divert part of the traffic of the Approved Road Section R&E Project.

(1) Shenzhen-Zhongshan Link

The Shenzhen-Zhongshan Link is 38 kilometers away from the Hong Kong-Zhuhai-Macao Bridge. The route starts from the airport interchange of Guangshen Coastal Expressway, connects with the Shenzhen side connecting line, crosses the Pearl River Estuary westward, lands at Ma'an Island, Cuiheng New District, Zhongshan City, and ends at Hengmen Interchange, with a total length of about 24 kilometers and a two-way eight-lane construction standard.

After the opening of Shenzhen-Zhongshan Link on June 30, 2024, from the actual situation after the opening, Shenzhen-Zhongshan Link effectively reduced the traffic volume of Humen Bridge and Nansha Bridge bypassing the direction of Pearl River to Shenzhen, and then diverted the traffic flow of Humen Bridge-Hezhou Interchange of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section). According to the traffic volume forecast results, the construction of Shenzhen-Zhongshan Link mainly diverts the traffic of Shenzhen section, which has a certain diversion impact on the vehicles entering and leaving Humen Bridge and Nansha Bridge through the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section). For the Approved Road Section R&E Project, the diversion effect is relatively small, about 1–2%.

At the same time, as an important transportation link for convenient and direct connection of the Pearl River Delta urban agglomeration, the opening of the Shenzhen-Zhongshan Link has a significant impact on the river-crossing traffic. In Zhongshan, Jiangmen, Zhuhai, Shenzhen on the east coast and the south of Huizhou, the river-crossing distance will be shortened by about 45 km, and the river-crossing time will be shortened to less than one hour (about half an hour). Promote the efficient flow of innovative elements such as passenger flow, logistics, capital flow and technology flow.

(2) *Shiziyang Passage and Changhu West Line*

Shiziyang Passage connects with Guangzhongjiang Expressway to the west, passing through Tanzhou Town, Dagang Town, Lingshan Town, Huangge Town of Nansha New District, Humen Town of Dongguan City, and finally Xinlian Interchange. The total length of the route is about 34 kilometers. The river-crossing section of the project adopts a double-deck eight-lane expressway with a design speed of 100 km/h.

The opening of Shiziyang Passage will divert the traffic flow of the Approved Road Section R&E Project (Xinlian-Guangdan), with a diversion ratio of about 3%. At the same time, Shiziyang Passage and Changhu West Extension Line will also divert the traffic flow of the Approved Road Section R&E Project (Humen Bridge-Wudianmei), which will eventually reduce the average traffic volume of the Approved Road Section R&E Project by about 2%–3%.

(3) *Lianhuashan Passage*

The Lianhuashan Passage starts at the side of Panyu and connects with Guangming Expressway, and ends at Wangniudun Interchange of the Approved Road Section R&E Project. The total length of the route is about 28 kilometers. The river-crossing section of the project adopts the dual twelve-lane Expressway with a design speed of 100 km/H. The opening of Lianhuashan Passage will form a new passageway for Dongguan City and the north to enter Guangzhou City and Foshan.

According to the traffic volume forecast results, the opening of Lianhuashan Passage will divert the traffic volume from Dongguan to Guangzhou urban area, resulting in a 3–5% decrease in the traffic volume of the Approved Road Section R&E Project.

(4) *Lingdingyang Passage*

Lingdingyang Passage is mainly responsible for the traffic volume from Zhuhai and the south of Zhongshan to Shenzhen, mainly diverting the traffic volume of Shenzhen-Zhongshan Link. According to the traffic volume forecast results, the opening of Lingdingyang Passage will divert about 6% of the traffic volume of the Approved Road Section R&E Project (Hezhou-Nantou), and will also have a certain diversion impact on other northern sections, which has little effect on the traffic diversion of the Approved Road Section R&E Project. The proportion of diversion is about 1%.

(5) *Reconstruction and expansion of Dongguan-Shenzhen Expressway*

The reconstruction and expansion project of Dongguan-Shenzhen Expressway starts from the junction of Shenzhen and Dongguan in the south and ends at Guanlong Interchange in Dongcheng Street of Dongguan City in the north, with a total length of about 56 kilometers. It will be expanded from the existing two-way 6 lanes to two-way 10 lanes, and the local sections with large traffic volume will be expanded to 12 lanes. After the opening of the reconstruction and expansion project of Dongguan-Shenzhen Expressway, the improvement of its traffic capacity and efficiency will divert the traffic between Shenzhen and Dongguan sections of the Beijing-Hong Kong-Macao Expressway to a certain extent, with a diversion ratio of about 2%–3%.

4.4.2 Impact of rail transit

The current high-speed railway is not obvious to the highway travel diversion, mainly because the time of entering and leaving the railway station is too long, which reduces the competitiveness of the railway; According to the rail network planning, in the future, the main plans on the Guangzhou-Shenzhen axis are Guangzhou-Dongguan-Shenzhen Intercity Railway, Guangzhou-Shenzhen Second high-speed rail, Shenzhen-Dongguan-Zhengcheng Intercity Railway and Urban Metro. Although the high-speed rail into the city, the integration of rail network and the improvement of waiting mode will effectively enhance the share rate of the railway, they will be flexible, convenient, timely and comfortable. The overall effect of track on expressway diversion is very limited, and its diversion effect is comprehensively considered in the growth rate of traffic volume in the later period.

(1) *Guangzhou-Dongguan-Shenzhen Intercity Railway*

The opening of Guangzhou-Dongguan-Shenzhen Intercity Railway will mainly divert the Guangzhou-Shenzhen-Hong Kong high-speed rail and the Guangzhou-Shenzhen Intercity Railway passenger flow; at the same time, it will also divert a small amount of car travel on the Approved Road Section R&E Project, mainly diverting the scale of medium and large operating passenger cars on the Approved Road Section R&E Project. In the future, the Guangzhou-Dongguan-Shenzhen Intercity Railway will extend southward to Qianhai and Futian areas in Shenzhen, with negligible impact on the Approved Road Section R&E Project.

(2) *Guangzhou-Shenzhen Second high-speed rail.*

The future Guangzhou-Shenzhen Second high-speed rail is currently a long-term research project, with a design speed of 600km/H. Through the branch line, it can directly connect Guangzhou East Station and Shenzhen Baoan Airport, and can undertake high-end business trips. The impact on the Approved Road Section R&E Project can be ignored.

(3) *Shenzhen-Dongguan-Zengcheng Intercity Railway*

Shenzhen-Dongguan-Zengcheng Intercity Railway is currently a long-term research project, which has a certain distance from the Approved Road Section R&E Project and connects Zengcheng direction, so the impact on Guangzhou-Shenzhen Expressway can be ignored.

(4) *Urban Metro*

The construction of urban Metro will effectively divert the traffic volume of local roads, thereby improving the traffic conditions of local roads and indirectly transferring the traffic volume of the Approved Road Section R&E Project to local roads. Considering the requirements of cross-city travelers for timeliness, this part of the impact can be ignored.

4.4.3 Impact of the project itself

(1) *Construction period*

Considering that the traffic relief during the construction of the Approved Road Section R&E Project will reduce the traffic capacity of the corridor, some traffic will be replaced by parallel corridors, and the traffic volume will be reduced by about 2%.

(2) *After completion*

After completion, the corridor will be widened from two-way 6 lanes to two-way 10 lanes, and the traffic capacity will be increased by more than 1.5 times. The improvement of traffic conditions and efficiency of the corridor will induce more traffic, and the overall traffic volume of the corridor will be increased by 12–16%.

4.5 Analysis of prediction results

In the medium scheme, the economic development level, the completion and opening time of relevant parallel or river-crossing channels and various indexes of induced diversion effect are between the high scheme and the low scheme, and the predicted traffic demand growth and toll revenue are also most likely to occur. Therefore, the analysis of traffic volume prediction results in this section focuses on the medium scheme.

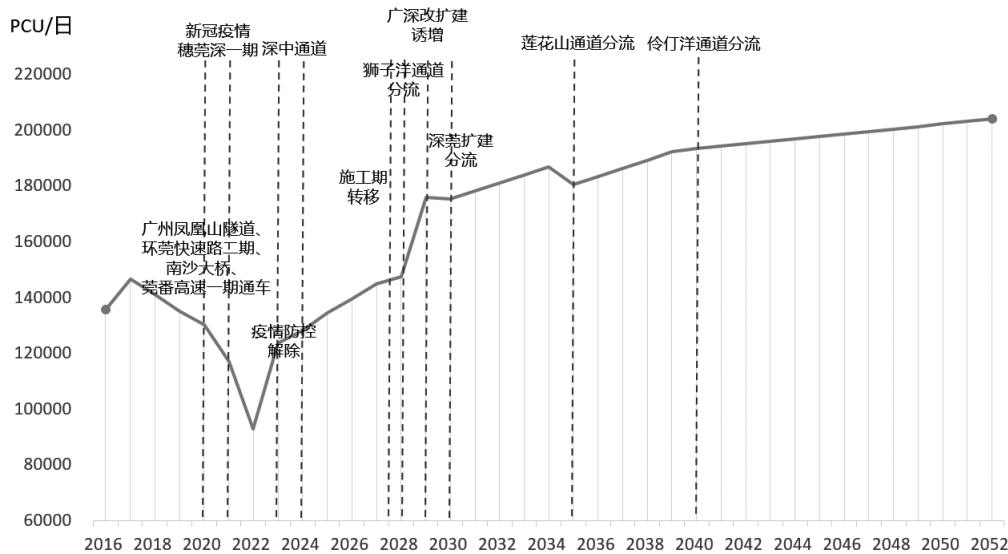


Figure 4-1 Medium Scheme Traffic Volume Growth Trend of the Approved Road Section R&E Project

After the full liberalization of epidemic prevention and control in 2023, the traffic volume of the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section) rebounded, with a growth rate of about 27% and an average annual traffic volume of about 123,000 pcu/day, recovering to more than 90% before the epidemic.

In 2024, the traffic volume of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway decreased slightly, mainly due to the diversion of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway caused by the opening of Shenzhen-Zhongshan Link, with a diversion of about 1%.

In the second half of 2026, some sections of the reconstruction and expansion of the Approved Road Section R&E Project will be completed. Considering the gradual opening of the sections, the improvement of the whole market economy environment and the partial increase of the traffic volume induced by the reconstruction and expansion of the Approved Road Section R&E Project will increase the passenger and freight traffic volume to a certain extent, among which the freight traffic volume will increase greatly, so the overall freight traffic volume will increase in 2027. Income has also increased synchronously.

In 2028, the Shiziyang Passage will be completed and open to traffic, which will cause diversion to the passage, resulting in a slight decrease in traffic volume, with a comprehensive diversion ratio of about 2%.

By the end of 2028, the reconstruction and expansion of the Approved Road Section R&E Project will be completed, and the whole line will be opened to traffic in 2029, which will greatly increase the traffic volume. At the same time, the psychological impact of the reconstruction and expansion on the public, combined with the impact of its annual growth rate, will lead to a large jump in traffic volume.

In 2030, the reconstruction and expansion of Dongguan-Shenzhen Expressway will be completed, which will divert the passage, resulting in a slight decrease in traffic volume, with a comprehensive diversion ratio of about 2%.

In 2035, the Lianhuashan Passage was opened to traffic, mainly diverting the traffic volume from Dongguan to Guangzhou, with a diversion ratio of about 5%.

In 2040, the Lingdingyang Passage will be opened to traffic. As the passage is mainly positioned as a river-crossing passage between Shenzhen and Zhuhai, the diversion effect on the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway of the passage is very small, with a diversion ratio of about 1%.

To sum up, considering the diversion of parallel or cross-river channels and the comprehensive impact after the construction and completion of the project, by the end of the forecast year, the annual average daily traffic volume of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway is about 204,000 pcu/day.

Table 4-9 Analysis of Factors Affecting Traffic Volume Changes in Various Years

Year	Influencing factors	Type	Proportion
2023	Let go of the epidemic	Induced increase	27%
2024	The Shenzhen-Zhongshan Link was opened	Diversion	1%
2028	The Shiziyang Passage was opened	Diversion	2%
2029	Completion of the Approved Road Section R&E Project	Induced increase	16%
2030	Reconstruction and expansion of Dongguan-Shenzhen Expressway completed	Diversion	2%
2035	The Lianhuashan Passage was opened	Diversion	5%
2040	The Lingdingyang Passage was opened to traffic	Diversion	1%

4.6 Scheme comparison

By comparing the traffic volume prediction results of the high, medium and low schemes, the total traffic volume of the Approved Road Section R&E Project from 2023 to 2052 is 2.57% higher in the high scheme than in the medium scheme, and 5.48% lower in the low scheme than in the medium scheme. The annual traffic volume results are shown in the following table.

Table 4-10 Comparison of Traffic Volume of the Approved Road Section R&E Project in Each Scheme (Unit: pcu/d)

Year	High scheme			Medium scheme			Low scheme		
	Passenger car	Truck	Total amount	Passenger car	Truck	Total amount	Passenger car	Truck	Total amount
2023	94,027	29,303	123,330	94,027	29,303	123,330	94,027	29,303	123,330
2024	98,603	30,146	128,749	97,768	30,895	128,663	96,953	29,836	126,789
2025	104,035	31,317	135,351	99,990	31,125	131,115	98,586	30,066	128,652
2026	108,402	32,369	140,771	101,979	31,481	133,460	101,440	30,757	132,197
2027	112,955	33,457	146,411	112,376	33,301	145,677	102,290	30,835	133,125
2028	115,346	33,889	149,236	112,363	33,021	145,384	103,147	30,914	134,061
2029	139,426	40,632	180,058	134,532	39,207	173,739	122,056	36,368	158,424
2030	145,289	41,997	187,286	137,266	39,671	176,937	125,593	37,205	162,798
2031	147,717	42,511	190,228	139,635	40,172	179,807	127,940	37,714	165,654
2032	150,186	43,030	193,217	142,046	40,679	182,724	130,331	38,230	168,561
2033	152,697	43,556	196,253	144,498	41,192	185,690	132,768	38,753	171,521
2034	155,250	44,089	199,338	146,992	41,712	188,704	135,250	39,283	174,533
2035	150,047	42,423	192,470	142,053	40,126	182,180	129,580	37,452	167,032
2036	152,556	42,941	195,498	144,506	40,633	185,139	132,003	37,964	169,967
2037	155,107	43,466	198,573	147,001	41,146	188,147	134,471	38,484	172,954
2038	157,700	43,998	201,698	149,539	41,665	191,204	136,985	39,010	175,996
2039	160,337	44,536	204,873	152,121	42,191	194,312	139,547	39,544	179,091
2040	154,868	42,826	197,694	153,201	42,296	195,497	142,156	40,085	182,242
2041	155,634	42,972	198,605	153,959	42,440	196,399	143,563	40,370	183,933
2042	156,404	43,118	199,521	154,720	42,585	197,305	144,983	40,657	185,639
2043	157,177	43,264	200,442	155,486	42,729	198,215	146,417	40,945	187,362
2044	157,955	43,411	201,366	156,255	42,875	199,129	147,865	41,236	189,101
2045	157,149	43,123	200,272	157,028	43,020	200,048	149,328	41,529	190,857
2046	157,926	43,270	201,196	157,805	43,167	200,971	150,805	41,824	192,629
2047	158,707	43,417	202,125	158,585	43,313	201,899	152,297	42,121	194,417
2048	159,493	43,565	203,057	159,370	43,461	202,831	153,803	42,420	196,223
2049	160,282	43,713	203,994	160,158	43,608	203,767	155,325	42,721	198,046
2050	161,074	43,862	204,936	160,951	43,757	204,707	156,861	43,024	199,886
2051	161,871	44,011	205,882	161,747	43,905	205,652	158,413	43,330	201,743
2052	162,672	44,160	206,832	162,547	44,055	206,602	159,980	43,637	203,618

4.7 Road service level

It is necessary to calculate and analyze the traffic capacity and service level of road traffic facilities when determining the width of road surface or the number of lanes and evaluating the operation quality and service level of roads after they are built in the stage of road planning and design, whether they are newly built or expanded.

Therefore, when evaluating and analyzing the level of service of different road traffic facilities, we must adopt the measurement index that can reflect the characteristics of their traffic flow.

Table 4-11 Service Level of Freeway Section

Types of road traffic facilities	Service Level Evaluation Index of Road Traffic Facilities	
The highway	Basic road section	V/C (actual traffic volume/actual capacity), traffic density (pcu/h/In), vehicle speed (km/h)
	Interlacing section	V/C (actual traffic/actual capacity), traffic density (pcu/h/In)
	Ramp	V/C (Actual Volume/Actual Capacity), Traffic Flow Rate (pcu/h)
Multi-lane highways such as first-class highways	V/C (actual traffic volume/actual capacity), traffic density (pcu/h/In), vehicle speed (km/h)	
Two-lane highway	V/C (actual traffic volume/actual capacity), time delay percentage (%), speed (km/h)	
Road toll station	Average delay time (s/pcu)	
Unsignalized intersection	Average delay time (s/pcu)	
Signalized intersection	Average parking delay time per vehicle (s/pcu)	
The city's main road	Travel speed (km/h)	
Public transport	Load factor (passenger/seat, person/h, pcu/h)	
Pedestrian traffic	Space (m ² /person)	

According to “Technical Standard of Highway Engineering” (JTGB01–2–14), the value of V/C is used to measure the degree of congestion as the main index to evaluate the level of service, and the difference between the actual speed and the free flow speed of passenger cars is used as the secondary evaluation index. The level of service is divided into six levels, which represent the driver’s feelings under certain operating conditions. The grading table is as follows:

Table 4-12 Service Level of Freeway Section

Service Level Categories	The value of “v/c”	Design speed		
		120 Maximum traffic volume served [pcu/ (h*In)]	100 Maximum traffic volume served [pcu/ (h*In)]	80 Maximum traffic volume served [pcu/ (h*In)]
Level 1	$v/c \leq 0.35$	750	730	700
Level 2	$0.35 \leq v/c \leq 0.55$	1,200	1,150	1,100
Level 3	$0.55 \leq v/c \leq 0.75$	1,650	1,600	1,500
Level 4	$0.75 \leq v/c \leq 0.90$	1,980	1,850	1,800
Level 5	$0.90 \leq v/c \leq 1.00$	2,200	2,100	2,000
Level 6	$v/c \geq 1.00$	0~2,200	0~2,100	0~2,000

In the Technical Standard for Highway Engineering (JTGB01–2–14), the maximum service traffic volume of a single lane of an expressway with a design speed of 120 km/H is 2,200 standard vehicles per hour (PCU/H). Generally, in order to maintain smooth traffic, the service level of the expressway is required to be four or below, that is, the saturation should not exceed 0.9.

Table 4-13 Service Level of Freeway Section

Year	Equivalent traffic volume of the whole journey (10,000 pcu/d)	Traffic flow in peak hour (pcu/h)	Traffic flow per lane (pcu/h)	V/C value	Level of service
2018	14.1	13,417	2,236	1.02	Level 6
2019	13.5	12,843	2,141	0.97	Level 5
2028	14.5	13,811	1,381	0.62	Level 3
2029	17.3	16,505	1,650	0.75	Level 3
2030	17.6	16,809	1,680	0.76	Level 4
2035	18.2	17,307	1,730	0.78	Level 4
2040	19.5	18,572	1,857	0.84	Level 4
2045	20.0	19,004	1,900	0.86	Level 4
2052	20.6	19,627	1,962	0.88	Level 4

The traffic volume at the end of the forecast year (2052) is 206,000 PCU/day. Based on the peak hour coefficient of 9.5% for the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway, the peak hour traffic volume of a single lane in the corridor is 1,962 PCU/H, and the saturation is 0.89, which belongs to the service level IV and is close to the service level V. At the same time, referring to similar cases such as Jihe Expressway, it is predicted that the daily traffic volume of two-way 10 lanes is above 200,000 PCU, which is at a high level.

Table 4-14 Comparison of the Approved Road Section R&E Project with other similar projects

			Shenzhen Bao'an International Airport Expressway	Guangshen Coastal Expressway
	The Approved Road Section	Shenzhen Outer Ring Expressway		
Forecast the last year	2,052	2,040	2,048	2,038
Forecast the maximum section volume at the end of the year (pcu/d)	206,602	91,880	103,606 (ground floor) 82,265 (solid layer)	159,285
Saturation	0.89	0.77	0.75 (ground floor) 0.65 (solid layer)	0.91
Level of service	Level four	Level four	Level III (ground floor) Level III (solid layer)	Level five

5 FEE INCOME FORECAST

5.1 Charging standard

According to the document of YJF [2019] No.830, the toll rate of expressway with six lanes and above is 0.6 yuan/standard vehicle kilometer, and the toll coefficient of each vehicle type is shown in the following table.

Table 5-1 Discount Charge Coefficient of Each Vehicle Type

Passenger car			Truck		
Category	Models and specifications	Toll coefficient	Category	Models and specifications	Models and specifications
Category 1	<=9 seats	1	Category 1	Two axles (vehicle length less than 6,000mm and maximum allowable total mass less than 4,500kg)	1
Category 2	10–19 seats	1.5	Category 2	Two axles (vehicle length not less than 6,000mm and maximum allowable total mass not less than 4,500kg)	2.1
Category 3	20–39 seats	2	Category 3	Three axles	3.16
Category 4	>=40 seats	3	Category 4	Four axles	3.75
			Category 5	Five axles	3.86
			Category 6	Six axles	4.09

The total length of the Approved Road Section R&E Project is 71.126 km. According to the above rate and the toll coefficient of each vehicle type, the toll results of each vehicle type are calculated as follows.

Table 5-2 Charge for the whole journey converted by each vehicle type (RMB)

Passenger car				Truck (including operation vehicle)					
Category 1	Category 2	Category 3	Category 4	Category 1	Category 2	Category 3	Category 4	Category 5	Category 6
0.6	0.9	1.2	1.8	0.6	1.26	1.896	2.25	2.316	2.454
42.68	64.01	85.35	128.03	42.68	89.62	134.85	160.03	164.73	174.54

Remark:

1. The fourth passenger car (large passenger car with more than 40 seats) is charged as 3 passenger cars;
2. The sixth category of trucks implements a differentiated toll policy of 99% discount.

5.2 Toll result forecast

According to the forecast results of the traffic volume of the Approved Road Section R&E Project converted into the whole journey by year and vehicle type, combined with the toll amount of each vehicle type converted into the whole journey, and the average driving distance of each vehicle type converted into the traffic volume of the Approved Road Section R&E Project, the toll income forecast of each scheme can be obtained. In 2052, the annual income under the high scheme is 3.107 billion yuan, the medium scheme is 3.103 billion yuan, and the low scheme is 3.059 billion yuan.

From 2027 to 2052, the total toll of the Approved Road Section R&E Project is 2.61% higher in the high scheme (76.09 billion yuan) than in the medium scheme (74.16 billion yuan), and 5.89% lower in the low scheme (69.79 billion yuan) than in the medium scheme.

Table5-3 Scheme 1 (High Scheme) Charge Income Forecast Result (RMB10,000)

Year	Passenger car			Truck (including operation vehicle)					Holiday exemption	ETC Discount	Total charges
	Class 1	Class 2	Class 3	Class 4	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	
2023	149,578	444	876	3,461	18,256	12,851	4,979	3,528	2,554	12,909	194,472
2024	150,030	445	879	3,471	18,028	12,691	4,915	3,485	2,523	12,749	194,232
2025	158,294	470	928	3,663	18,726	13,183	5,105	3,621	2,622	13,244	204,074
2026	164,940	490	967	3,816	19,356	13,626	5,276	3,743	2,710	13,689	212,182
2027	171,867	510	1,007	3,976	20,006	14,084	5,454	3,868	2,801	14,149	220,617
2028	175,506	521	1,029	4,060	20,265	14,266	5,524	3,918	2,837	14,332	224,806
2029	212,144	630	1,244	4,907	24,297	17,105	6,623	4,698	3,402	17,184	271,155
2030	221,065	657	1,296	5,113	25,113	17,680	6,846	4,856	3,516	17,761	281,956
2031	224,760	667	1,318	5,199	25,420	17,896	6,929	4,916	3,559	17,978	286,339
2032	228,517	679	1,340	5,286	25,730	18,114	7,013	4,976	3,603	18,198	290,791
2033	232,337	690	1,363	5,374	26,044	18,335	7,099	5,037	3,648	18,421	295,313
2034	236,221	702	1,385	5,464	26,362	18,559	7,185	5,099	3,693	18,646	299,907
2035	228,306	678	1,339	5,281	25,365	17,858	6,913	4,907	3,554	17,941	289,528
2036	232,123	689	1,361	5,369	25,675	18,076	6,997	4,968	3,598	18,161	294,034
2037	236,004	701	1,384	5,459	25,988	18,297	7,082	5,029	3,643	18,383	298,613
2038	239,950	713	1,407	5,550	26,305	18,520	7,168	5,091	3,688	18,608	303,263
2039	243,963	725	1,431	5,642	26,626	18,747	7,255	5,153	3,733	18,835	307,988
2040	235,640	700	1,382	5,450	25,604	18,027	6,976	4,956	3,590	18,112	297,148
2041	236,806	703	1,389	5,477	25,691	18,088	7,000	4,973	3,603	18,174	298,502
2042	237,977	707	1,396	5,504	25,778	18,150	7,023	4,990	3,615	18,236	299,862
2043	239,155	710	1,403	5,531	25,866	18,211	7,047	5,006	3,627	18,298	301,229
2044	240,338	714	1,410	5,558	25,954	18,273	7,071	5,024	3,639	18,360	302,602
2045	239,111	710	1,403	5,530	25,782	18,152	7,024	4,990	3,615	18,238	300,942
2046	240,294	714	1,409	5,557	25,869	18,214	7,048	5,007	3,628	18,300	302,314
2047	241,483	717	1,416	5,585	25,957	18,276	7,072	5,024	3,640	18,362	303,692
2048	242,678	721	1,423	5,613	26,045	18,338	7,096	5,041	3,652	18,425	305,077
2049	243,878	724	1,431	5,640	26,134	18,400	7,120	5,058	3,665	18,487	306,468
2050	245,084	728	1,438	5,668	26,223	18,463	7,145	5,076	3,677	18,550	307,866
2051	246,297	732	1,445	5,696	26,312	18,525	7,169	5,093	3,690	18,613	309,270
2052	247,515	735	1,452	5,724	26,401	18,588	7,193	5,110	3,702	18,677	310,681

Table 5-4 Scheme 2 (Medium Scheme) Charge Income Forecast Result (RMB10,000)

Year	Passenger car			Truck (including operation vehicle)						Holiday exemption	ETC Discount	Total charges	
	Class 1	Class 2	Class 3	Class 4	Class 1	Class 2	Class 3	Class 4	Class 5				Class 6
2023	149,578	444	876	3,461	18,256	12,851	4,979	3,528	2,554	12,909	8,195	6,767	194,472
2024	148,760	442	872	3,443	17,883	12,589	4,876	3,456	2,502	12,647	8,151	6,706	192,612
2025	152,140	451	892	3,520	18,015	12,682	4,911	3,483	2,522	12,740	8,336	6,834	196,186
2026	155,166	461	910	3,590	18,221	12,827	4,968	3,523	2,551	12,887	8,502	6,956	199,645
2027	170,987	508	1,002	3,956	19,913	14,018	5,428	3,850	2,788	14,083	9,369	7,650	219,514
2028	170,967	508	1,002	3,955	19,745	13,901	5,383	3,818	2,764	13,965	9,368	7,635	219,005
2029	204,698	608	1,200	4,735	23,445	16,505	6,391	4,533	3,282	16,581	11,216	9,123	261,640
2030	208,859	620	1,225	4,831	23,722	16,700	6,467	4,587	3,321	16,777	11,444	9,290	266,374
2031	212,464	631	1,246	4,914	24,021	16,911	6,548	4,645	3,364	16,989	11,642	9,441	270,650
2032	216,131	642	1,267	4,999	24,324	17,124	6,630	4,704	3,407	17,204	11,843	9,594	274,995
2033	219,862	653	1,289	5,085	24,630	17,340	6,713	4,764	3,450	17,421	12,047	9,749	279,411
2034	223,657	664	1,312	5,173	24,940	17,559	6,797	4,824	3,494	17,641	12,255	9,907	283,900
2035	216,143	642	1,268	4,999	23,992	16,891	6,539	4,641	3,362	16,970	11,843	9,564	274,039
2036	219,874	653	1,290	5,086	24,294	17,104	6,621	4,700	3,405	17,184	12,048	9,719	278,444
2037	223,671	664	1,312	5,173	24,601	17,320	6,704	4,760	3,448	17,401	12,256	9,877	282,921
2038	227,533	676	1,335	5,262	24,911	17,538	6,788	4,821	3,492	17,621	12,468	10,037	287,472
2039	231,462	687	1,358	5,353	25,225	17,760	6,873	4,882	3,537	17,844	12,683	10,200	292,097
2040	233,104	692	1,367	5,391	25,287	17,804	6,889	4,895	3,546	17,888	12,773	10,262	293,830
2041	234,257	696	1,374	5,418	25,373	17,864	6,913	4,911	3,558	17,949	12,836	10,309	295,169
2042	235,416	699	1,381	5,445	25,459	17,925	6,936	4,928	3,570	18,010	12,900	10,356	296,514
2043	236,581	703	1,388	5,472	25,546	17,986	6,960	4,945	3,582	18,071	12,963	10,404	297,866
2044	237,751	706	1,395	5,499	25,633	18,047	6,984	4,961	3,595	18,133	13,027	10,452	299,224
2045	238,927	710	1,402	5,526	25,720	18,108	7,007	4,978	3,607	18,195	13,092	10,500	300,588
2046	240,109	713	1,408	5,553	25,807	18,170	7,031	4,995	3,619	18,256	13,157	10,548	301,958
2047	241,297	717	1,415	5,581	25,895	18,232	7,055	5,012	3,631	18,318	13,222	10,597	303,335
2048	242,491	720	1,422	5,608	25,983	18,294	7,079	5,029	3,644	18,381	13,287	10,646	304,719
2049	243,691	724	1,429	5,636	26,071	18,356	7,103	5,046	3,656	18,443	13,353	10,695	306,108
2050	244,896	727	1,437	5,664	26,160	18,418	7,127	5,064	3,668	18,506	13,419	10,744	307,505
2051	246,108	731	1,444	5,692	26,249	18,481	7,152	5,081	3,681	18,569	13,485	10,793	308,907
2052	247,325	735	1,451	5,720	26,338	18,544	7,176	5,098	3,693	18,632	13,552	10,843	310,317

Table 5-5 Scheme 3 (Low Scheme) Charge Income Forecast Result (RMB10,000)

Year	Passenger car				Truck (including operation vehicle)				Holiday exemption	ETC Discount	Total charges
	Class 1	Class 2	Class 3	Class 4	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	
2023	149,578	444	876	3,461	18,256	12,851	4,979	3,528	2,554	12,909	194,472
2024	147,519	438	865	3,414	17,843	12,560	4,865	3,448	2,496	12,618	191,322
2025	150,004	445	879	3,471	17,979	12,657	4,902	3,475	2,516	12,715	194,067
2026	154,346	458	905	3,572	18,393	12,948	5,015	3,555	2,574	13,008	199,372
2027	155,639	462	912	3,601	18,440	12,981	5,027	3,564	2,580	13,041	200,728
2028	156,944	466	920	3,631	18,486	13,014	5,040	3,573	2,587	13,074	202,095
2029	185,714	551	1,089	4,297	21,748	15,310	5,930	4,204	3,043	15,381	238,771
2030	191,096	567	1,120	4,421	22,249	15,662	6,066	4,301	3,113	15,735	245,310
2031	194,668	578	1,141	4,504	22,552	15,876	6,148	4,360	3,156	15,950	249,569
2032	198,306	589	1,163	4,588	22,861	16,093	6,232	4,420	3,200	16,168	253,903
2033	202,013	600	1,184	4,674	23,173	16,313	6,317	4,481	3,244	16,390	258,313
2034	205,790	611	1,207	4,761	23,490	16,536	6,403	4,542	3,289	16,614	262,802
2035	197,163	585	1,156	4,561	22,394	15,765	6,104	4,331	3,136	15,839	251,462
2036	200,850	596	1,178	4,646	22,700	15,981	6,187	4,391	3,180	16,056	255,835
2037	204,605	608	1,200	4,733	23,010	16,199	6,271	4,451	3,224	16,276	260,285
2038	208,431	619	1,222	4,822	23,324	16,421	6,356	4,512	3,268	16,499	264,814
2039	212,328	631	1,245	4,912	23,643	16,645	6,443	4,575	3,314	16,725	269,423
2040	216,299	642	1,269	5,004	23,966	16,873	6,530	4,638	3,360	16,954	274,115
2041	218,439	649	1,281	5,053	24,136	16,993	6,577	4,671	3,383	17,074	276,630
2042	220,599	655	1,294	5,103	24,308	17,114	6,623	4,704	3,407	17,195	279,169
2043	222,781	662	1,307	5,153	24,480	17,235	6,670	4,737	3,432	17,317	281,732
2044	224,985	668	1,320	5,204	24,654	17,357	6,718	4,771	3,456	17,440	284,319
2045	227,211	675	1,333	5,256	24,829	17,481	6,765	4,805	3,480	17,564	286,930
2046	229,458	681	1,346	5,308	25,005	17,605	6,814	4,839	3,505	17,689	289,565
2047	231,728	688	1,359	5,360	25,183	17,730	6,862	4,873	3,530	17,814	292,226
2048	234,021	695	1,373	5,413	25,362	17,856	6,911	4,908	3,555	17,941	294,911
2049	236,336	702	1,386	5,467	25,542	17,982	6,960	4,943	3,580	18,068	297,621

Year	Passenger car				Truck (including operation vehicle)				Holiday exemption	ETC Discount	Total charges		
	Class 1	Class 2	Class 3	Class 4	Class 1	Class 2	Class 3	Class 4				Class 5	Class 6
2050	238,674	709	1,400	5,521	25,723	18,110	7,009	4,978	3,606	18,197	13,078	10,492	300,356
2051	241,035	716	1,414	5,575	25,906	18,239	7,059	5,013	3,631	18,326	13,207	10,589	303,117
2052	243,419	723	1,428	5,631	26,090	18,368	7,109	5,049	3,657	18,456	13,338	10,687	305,904

Remarks:

1. Impact of holiday reduction and exemption: tolls for small passenger cars are exempted on major holidays, which are calculated according to 20 days per year for passenger vehicles with less than 7 seats (including 7 seats);
2. Preferential effect of ETC (Yuetong Card): Starting from July 1, 2019, the toll of national expressways paid by Yuetong Card will be 95% off. Therefore, the preferential coefficient of Yuetong Card in this project is 5%. Considering the current ETC installation of passenger cars (70%) and freight cars (60%), the weighted average toll concession coefficient is 0.965 for passenger cars and 0.97 for freight cars.

5.3 Analysis on the difference between the prediction result and the feasibility report

5.3.1 Traffic volume analysis

The traffic volume forecast is based on the expressway toll data of the base year, i.e., the traffic volume of the forecast base year, taking into account the social development prospects, the level of economic development, the rebound of traffic volume after the optimization of epidemic prevention and control policies, the reduction or induced increase caused by the construction and completion of the corridor itself, as well as the timing and impact of the completion of the relevant river-crossing or parallel corridors. The predicted results are affected by various indexes, including the traffic growth rate brought about by social and economic development, the size of diversion or induced increase in corridor construction, and the time of occurrence. Therefore, even if the traffic volume in the forecast base year is basically the same, the results of traffic volume forecast will still be different under the superposition of various influencing factors.

5.3.2 Analysis of toll revenue

Toll revenue is based on the daily traffic volume, the length of toll sections and the toll standards per kilometer for different types of vehicles, multiplied by the total annual toll revenue of 365 days per year, and then deducted from the ETC concessions, holiday exemptions and other fees.

After comparison, the logic of this round of toll revenue forecast is consistent with that of Engineering feasibility report. In the case of similar number of standard vehicles, there is still a difference in toll revenue. The main reason is that there is a difference in the proportion of vehicle types (passenger and freight). The Engineering feasibility report of the project predicts the toll revenue for the entire section, including the Beijing-Hong Kong-Macao Expressway (Shenzhen section) reconstruction and expansion project, the proportion of passenger cars will be higher; while this round of forecast is mainly for the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Guangzhou Huocun section of the Guangzhou-Foshan Expressway (i.e. the Approved Road Section R&E Project), the overall proportion of freight cars will be higher. Converted into standard vehicles, it is actually composed of different categories of trucks (six categories) The unit charge income of the standard car (PCU) converted is slightly lower than that of the standard car (PCU) converted from different passenger cars (four categories). Therefore, under the condition that the number of standard vehicles is similar, the toll revenue of this round of forecast will be slightly lower than that of Engineering feasibility report.

Toll revenue is based on the daily traffic volume, the length of toll sections and the toll standards per kilometer for different types of vehicles, multiplied by the total annual toll revenue of 365 days per year, and then deducted from the ETC concessions, holiday exemptions and other fees.

5.3.3 Rationality analysis

With the goal of “striving to build a 100-kilometer golden inner bay around the Pearl River Estuary, driving the coordinated development of Guangzhou, Shenzhen and the West Bank of the Pearl River Estuary” put forward in the report of the 13th Party Congress of Guangdong Province, the Beijing-Hong Kong-Macao Expressway (Guangzhou to Shenzhen section), as the main corridor of the West Bank of the Pearl River Estuary, will usher in greater travel demand in the future. This forecast is carried out under the background of the optimization of epidemic prevention and control policy, the sustained economic development of post-epidemic era, the rebound growth of traffic volume and the introduction of several measures to promote automobile consumption by the state. Fully considering the policy planning, the integrated development of Guangdong-Hong Kong-Macao Greater Bay Area, the interconnection of infrastructure, the strong interaction between high-grade corridors such as expressways, and the impact of the completion and opening of relevant major corridors on the traffic volume along the Approved Road Section R&E Project, and other factors, as well as the service level of the existing industrial and commercial corridors, on the basis of the Engineering feasibility report, we have reorganized and demarcated them. Traffic volume and toll revenue prediction results are obtained. The overall forecast results are objective, reasonable and in line with the actual situation.

The following is the text of a report received from the reporting accountants of Shenzhen Investment Holdings Bay Area Development Company Limited, KPMG, Certified Public Accountants, Hong Kong, for inclusion in the joint announcement dated 24 January 2025.



**REPORT ON THE DISCOUNTED FUTURE CASH FLOWS IN CONNECTION WITH
THE VALUATION OF THE CONCESSION OPERATION RIGHT FOR THE
APPROVED ROAD SECTION R&E PROJECT**

**TO THE BOARD OF DIRECTORS OF SHENZHEN INVESTMENT HOLDINGS BAY
AREA DEVELOPMENT COMPANY LIMITED**

We refer to the discounted future cash flows on which the valuation (“**the Valuation**”) dated 14 October 2024 prepared by Shenzhen Pengxin Appraisal Limited in respect of the appraisal of the fair value of concession operation right for the reconstruction and expansion project of the approved road section (“**the Project**”) as at 30 June 2027 is based. The Valuation is prepared based on the discounted future cash flows and is regarded as a profit forecast under paragraph 14.61 of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited (the “**Listing Rules**”).

Directors’ Responsibilities

The directors of Shenzhen Investment Holdings Bay Area Development Company Limited (the “**Directors**”) are responsible for the preparation of the discounted future cash flows in accordance with the bases and assumptions determined by the Directors and as set out in the Valuation. This responsibility includes carrying out appropriate procedures relevant to the preparation of the discounted future cash flows for the Valuation and applying an appropriate basis of preparation; and making estimates that are reasonable in the circumstances.

Our Independence and Quality Management

We have complied with the independence and other ethical requirements of the Code of Ethics for Professional Accountants issued by the Hong Kong Institute of Certified Public Accountants (“**HKICPA**”), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

Our firm applies Hong Kong Standard on Quality Management (HKSQM) 1 “Quality Management for Firms that Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements” which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Reporting Accountants' Responsibilities

Our responsibility is to report, as required by paragraph 14.60A(2) of the Listing Rules, on the calculations of the discounted future cash flows used in the Valuation. The discounted future cash flows do not involve the adoption of accounting policies.

Basis of Opinion

We conducted our engagement in accordance with the Hong Kong Standard on Assurance Engagements 3000 (Revised) "Assurance Engagements Other Than Audits or Reviews of Historical Financial Information" issued by the HKICPA. This standard requires that we plan and perform our work to obtain reasonable assurance as to whether, so far as the calculations are concerned, the Directors have properly compiled the discounted future cash flows in accordance with the bases and assumptions adopted by the Directors as set out in the Valuation. We performed procedures on the arithmetical calculations and the compilations of the discounted future cash flows in accordance with the bases and assumptions adopted by the Directors. Our work is substantially less in scope than an audit conducted in accordance with Hong Kong Standards on Auditing issued by the HKICPA. Accordingly, we do not express an audit opinion.

Opinion

In our opinion, so far as the calculations are concerned, the discounted future cash flows have been properly compiled in all material respects in accordance with the bases and assumptions adopted by the Directors as set out in the Valuation.

Other matters

Without qualifying our opinion, we draw to your attention that we are not reporting on the appropriateness and validity of the bases and assumptions on which the discounted future cash flows are based and our work does not constitute any valuation of the Project or an expression of an audit or review opinion on the Valuation.

The discounted future cash flows depend on future events and on a number of assumptions which cannot be confirmed and verified in the same way as past results and not all of which may remain valid throughout the period. Further, since the discounted future cash flows relates to the future, actual results are likely to be different from the discounted future cash flows because events and circumstances frequently do not occur as expected, and the differences may be material. Our work has been undertaken for the purpose of reporting solely to you under paragraph 14.60A(2) of the Listing Rules and for no other purpose. We accept no responsibility to any other person in respect of, arising out of or in connection with our work.

KPMG*Certified Public Accountants*

Hong Kong

24 January 2025

The following is the text of the letter issued by the Board pursuant to Rule 14.60A(3) of the Listing Rules.

24 January 2025

Listing Division
The Stock Exchange of Hong Kong Limited
12/F, Two Exchange Square
8 Connaught Place
Central, Hong Kong

Dear Sirs,

Rule 14.60A(3) of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited

Reference is made to the valuation (the “**Valuation**”) carried out by Shenzhen Pengxin Appraisal Limited (深圳市鵬信資產評估土地房地產估價有限公司) (“**Pengxin Appraisal**”) on the value (including the shareholders’ own capital value) of the concession operation right for the Approved Road Section R&E Project as at 30 June 2027, as mentioned in the joint announcement (the “**Announcement**”) of Shenzhen International Holdings Limited, Shenzhen Expressway Corporation Limited and Shenzhen Investment Holdings Bay Area Development Company Limited (the “**Company**”) dated 24 January 2025.

As the Valuation is prepared using the discounted future cash flows pursuant to Rule 14.61 of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited (the “**Listing Rules**”), the Valuation therefore constitutes a profit forecast under the Listing Rules.

We have reviewed the Valuation for which Pengxin Appraisal is responsible, and considered the letter from our reporting accountant, KPMG, dated 24 January 2025 addressed to the Company regarding whether the discounted future cash flows on which the Valuation is based, so far as the calculations are concerned, have been properly compiled in all material respects in accordance with the bases and assumptions set out in the Valuation.

On the basis of the foregoing, we are of the opinion that the profit forecast mentioned in the Announcement has been stated after due and careful enquiry.

Yours faithfully,
On behalf of the Board
Shenzhen Investment Holdings Bay Area Development Company Limited
Xiangwen LIAO*
Chairman of the Board

* For identification purpose only

1. RESPONSIBILITY STATEMENT

This circular, for which the Directors collectively and individually accept full responsibility, includes particulars given in compliance with the Listing Rules for the purpose of giving information with regard to the Company. The Directors, having made all reasonable enquiries, confirm that to the best of their knowledge and belief the information contained in this circular is accurate and complete in all material respects and not misleading or deceptive, and there are no other matters the omission of which would make any statement herein or this circular misleading.

2. DISCLOSURE OF INTERESTS

As at the Latest Practicable Date, the interests and short positions of the Directors and chief executives of the Company in the shares, underlying shares and debentures of the Company or any of its associated corporations (within the meaning of Part XV of the SFO) which were required to be notified to the Company and the Stock Exchange pursuant to Divisions 7 and 8 of Part XV of the SFO (including interests or short positions which they were taken or deemed to have under such provisions of the SFO), or which were required, pursuant to section 352 of the SFO, to be entered in the register referred to therein or, which were required, pursuant to the Model Code to be notified to the Company and the Stock Exchange were as follows:

(a) Interests and short positions of Directors and chief executive of the Company in the Shares, underlying Shares and debentures of the Company

Name of Director	Capacity	Number of Shares held (long position)	Number of underlying Shares held	Number of Shares held (short position)	Approximate
					% of shareholding in the total issued Shares
Siyan CHEN*	Beneficial owner/ Interests of spouse	92,000 (Note (i))	Nil	Nil	0.00299

Note:

- (i) Ms. Siyan CHEN* is interested in 92,000 Shares, out of which 5,500 Shares are owned by her as personal interests and 86,500 Shares held by her spouse as family interests.

(b) Interests and short positions of Directors and chief executive of the Company in the shares, underlying shares and debentures in associated corporation

Name of Director	Name of associated corporation	Capacity	Approximate % of shareholding in the total issued shares	Number of shares and underlying shares held (long position)	Number of shares held (short position)
Xiangwen LIAO*	Shenzhen International	Interests of spouse	0.035	851,520 (Note (i))	Nil

Note:

- (i) 21,520 shares are owned by spouse of Mr. Xiangwen LIAO* and the share options for 830,000 shares under share option scheme of Shenzhen International were granted to spouse of Mr. Xiangwen LIAO* on 1 November 2023 and 40% of the share options granted shall be vested on 1 November 2025 and become exercisable from 1 November 2025 to 31 October 2028; 30% of the share options granted shall be vested on 1 November 2026 and become exercisable from 1 November 2026 to 31 October 2028 and 30% of the share options granted shall be vested on 1 November 2027 and become exercisable from 1 November 2027 to 31 October 2028.

Save as disclosed above, as at the Latest Practicable Date, none of the Directors or chief executives of the Company had any interests or short positions in the shares, underlying shares or debentures of the Company or any of its associated corporations (within the meaning of Part XV of the SFO) which were required to be notified to the Company and the Stock Exchange pursuant to Divisions 7 and 8 of Part XV of the SFO (including interests and short positions which they were taken or deemed to have under such provisions of the SFO) or which were required, pursuant to section 352 of the SFO, to be entered in the register referred to therein, or which were required, pursuant to the Model Code, to be notified to the Company and the Stock Exchange.

(c) Interests and short positions of the Shareholders in the Shares and underlying Shares of the Company

As at the Latest Practicable Date, so far as is known to the Directors or chief executives of the Company, the interests and short positions of Shareholders (other than the Directors and the chief executives of the Company) who had interests or short positions in the Shares and underlying Shares of the Company which would fall to be disclosed to the Company under the provisions of Divisions 2 and 3 of Part XV of the SFO, or which were entered in the register required to be kept by the Company pursuant to Section 336 of the SFO, were as follows:

Name	Capacity	Number of Shares	Approximate % of shareholding in the total issued Shares
SIIC (<i>Note (i)</i>)	Beneficial owner	2,213,449,666 (L)	71.83
Shenzhen Expressway (<i>Note (i)</i>)	Interests of controlled corporation	2,213,449,666 (L)	71.83
Shenzhen International (<i>Note (i)</i>)	Interests of controlled corporation	2,213,449,666 (L)	71.83
Shenzhen Investment Holdings Co., Ltd ("SIHC") (深圳市投資控 股有限公司) (<i>Note (i)</i>)	Interests of controlled corporation	2,213,449,666 (L)	71.83
Golden Baycrest (BVI) Limited (<i>Note (ii)</i>)	Beneficial owner	305,087,338 (L)	9.90
China Vanke Co., Limited (萬科企業股份有限公司) (<i>Note (ii)</i>)	Interests of controlled corporation	305,087,338 (L)	9.90
CMF Global Quantitative Multi-Asset SPC — CMF Global Quantitative Stable SP (<i>Note (iii)</i>)	Trustee	291,207,411 (L)	9.45
China Taiping Life Insurance (Hong Kong) Company Limited (<i>Note (iii)</i>)	Beneficiary of a trust (other than a discretionary interest)	291,207,411 (L)	9.45
China Taiping Insurance Holdings Company Limited (<i>Note (iii)</i>)	Interests of controlled corporation	291,207,411 (L)	9.45

L: Long Position

Notes:

- (i) The 2,213,449,666 Shares were held by SIIC, an indirect wholly-owned subsidiary of Shenzhen Expressway which in turn was a subsidiary of Shenzhen International. Shenzhen International was indirectly owned as to 44.24% by SIHC. The interests of SIIC, Shenzhen Expressway, Shenzhen International and SIHC in the 2,213,449,666 Shares represented the same block of Shares and were deemed under the SFO to have same interests with each other.

- (ii) The 305,087,338 Shares were held by Golden Baycrest (BVI) Limited, an indirect wholly-owned subsidiary of China Vanke Co., Limited. The interests of Golden Baycrest (BVI) Limited and China Vanke Co., Limited in the 305,087,338 Shares represented the same block of Shares and were deemed under the SFO to have same interests with each other.
- (iii) China Taiping Life Insurance (Hong Kong) Company Limited is a direct wholly-owned subsidiary of China Taiping Insurance Holdings Company Limited which in turn is directly owned as to 53.23% by China Taiping Insurance Group (HK) Company Limited, 1.50% by Taiping Golden Win Investment Limited, 4.68% by Easiwell Limited and 1.84% by Manhold Limited. Taiping Golden Win Investment Limited, Easiwell Limited and Manhold Limited are wholly-owned by China Taiping Insurance Group (HK) Company Limited which in turn is a direct wholly-owned subsidiary of China Taiping Insurance Group Ltd. The interests of China Taiping Life Insurance (Hong Kong) Company Limited, China Taiping Insurance Holdings Company Limited and CMF Global Quantitative Multi-Asset SPC in the 291,207,411 Shares represented the same block of Shares.

Saved as disclosed above, as at the Latest Practicable Date, the Company had not been notified by any person (other than Directors and chief executives of the Company) who had interests or short positions in the Shares and underlying Shares under the provisions of Divisions 2 and 3 of Part XV of the SFO, or which were entered in the register required to be kept under Section 336 of the SFO.

As at the Latest Practicable Date, Mr. Xiangwen LIAO*, who is also the executive director and president of Shenzhen Expressway, being the intermediate controlling shareholder of the Company and Mr. Xuan WANG*, who is also the regional partner and investment and strategy research general manager of the southern region headquarters of China Vanke Co. Ltd., the holding company of Golden Baycrest (BVI) Limited which holds approximately 9.90% of the total issued Shares. Save for Mr. Xiangwen LIAO* and Mr. Xuan WANG*, no other Director or proposed Director is a director or employee of a company which has an interest or short position in the Shares and underlying Shares which would fall to be disclosed to the Company under the provisions of Divisions 2 and 3 of Part XV of the SFO.

3. DIRECTORS' INTERESTS IN ASSETS/CONTRACTS AND OTHER INTERESTS

As at the Latest Practicable Date,

- (a) none of the Directors were materially interested in any contract or arrangement subsisting and which was significant in relation to the business of the Group; and
- (b) none of the Directors had any interest, direct or indirect, in any assets which had been acquired or disposed of by or leased to any member of the Group or were proposed to be acquired or disposed of by or leased to any member of the Group since 31 December 2023, being the date to which the latest published audited consolidated financial statements of the Company were made up.

4. COMPETING INTERESTS

As at the Latest Practicable Date, none of the Directors nor their respective close associates had any interest in any business which competes or is likely to compete, either directly or indirectly, with the business of the Group.

5. LITIGATION

As at the Latest Practicable Date, no member of the Group was engaged in any litigation, arbitration or claims of material importance and, so far as the Directors were aware, no litigation or claim of material importance was pending or threatened by or against any member of the Group.

6. SERVICE CONTRACTS

As at the Latest Practicable Date, none of the Directors had any existing or proposed service contracts with any member of the Group which does not expire or is not determinable by any member of the Group within one year without payment of compensation (other than statutory compensation).

7. MATERIAL CONTRACTS

The following contracts, not being contracts entered into in the ordinary course of business of the Group have been entered into by the members of the Group within two years immediately preceding the Latest Practicable Date and which are, or may be, material:

- (a) the Capital Increase Agreement;
- (b) the 2025 Coastal Expressway (Shenzhen Section) maintenance services agreement dated 23 January 2025 entered into between the Coastal Company and Shenzhen Expressway Engineering Development Limited* (深圳高速工程發展有限公司)(“**Engineering Development Company**”), a company incorporated in the PRC and an indirect non-wholly owned subsidiary of Shenzhen Expressway, pursuant to which Engineering Development Company shall provide maintenance services to the Coastal Company for a term of six months commencing from 1 January 2025;
- (c) the structural steel fabrication agreement (G1 bid section) under the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Huocun section of the Guangzhou-Foshan Expressway* (《京港澳高速公路廣州火村至東莞長安段及廣佛高速公路廣州黃村至火村段改擴建項目鋼結構製造合同(第G1標段)》) dated 17 January 2025 and entered into between GSZ Company and Jiangsu Huning Steel Structure & Machinery Co., Ltd.* (江蘇滬寧鋼機股份有限公司);

- (d) the structural steel fabrication agreement (G2 bid section) under the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Huocun section of the Guangzhou-Foshan Expressway* (《京港澳高速公路廣州火村至東莞長安段及廣佛高速公路廣州黃村至火村段改擴建項目鋼結構製造合同(第G2標段)》) dated 17 January 2025 and entered into between GSZ Company and China Railway Shanhaiguan Bridge Group Co., Ltd.* (中鐵山橋集團有限公司);
- (e) the civil engineering construction works agreement (LM bid section) under the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Huocun section of the Guangzhou-Foshan Expressway* (《京港澳高速公路廣州火村至東莞長安段及廣佛高速公路廣州黃村至火村段改擴建項目土建工程施工合同(第LM標段)》) dated 8 October 2024 and entered into between GSZ Company and Poly Changda Engineering Company Limited* (保利長大工程有限公司) (“**Poly Changda**”);
- (f) the civil engineering construction works agreement (TJ6 bid section) under the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Huocun section of the Guangzhou-Foshan Expressway* (《京港澳高速公路廣州火村至東莞長安段及廣佛高速公路廣州黃村至火村段改擴建項目土建工程施工合同(第TJ6標段)》) dated 8 October 2024 and entered into between GSZ Company and China Railway 11th Bureau Group Co., Ltd.* (中鐵十一局集團有限公司);
- (g) the civil engineering construction works agreement (TJ7 bid section) under the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Huocun section of the Guangzhou-Foshan Expressway* (《京港澳高速公路廣州火村至東莞長安段及廣佛高速公路廣州黃村至火村段改擴建項目土建工程施工合同(第TJ7標段)》) dated 8 October 2024 and entered into between GSZ Company and China Railway No. 4 Engineering Group Co., Ltd.* (中鐵四局集團有限公司);
- (h) the civil engineering construction works agreement (TJ8 bid section) under the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Huocun section of the Guangzhou-Foshan Expressway* (《京港澳高速公路廣州火村至東莞長安段及廣佛高速公路廣州黃村至火村段改擴建項目土建工程施工合同(第TJ8標段)》) dated 8 October 2024 and entered into between GSZ Company and CCCC Second Harbour Engineering Co., Ltd.* (中交第二航務工程局有限公司);

- (i) the civil engineering construction works agreement (TJ9 bid section) under the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Huocun section of the Guangzhou-Foshan Expressway* (《京港澳高速公路廣州火村至東莞長安段及廣佛高速公路廣州黃村至火村段改擴建項目土建工程施工合同(第TJ9標段)》) dated 8 October 2024 and entered into between GSZ Company and China Railway 14th Bureau Group Co., Ltd.* (中鐵十四局集團有限公司);
- (j) the civil engineering construction works agreement (TJ2 bid section) under the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Huocun section of the Guangzhou-Foshan Expressway* (《京港澳高速公路廣州火村至東莞長安段及廣佛高速公路廣州黃村至火村段改擴建項目土建工程施工合同(第TJ2標段)》) dated 3 April 2024 and entered into between GSZ Company and China Railway 12th Bureau Group Co., Ltd.* (中鐵十二局集團有限公司);
- (k) the civil engineering construction works agreement (TJ3 bid section) under the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Huocun section of the Guangzhou-Foshan Expressway* (《京港澳高速公路廣州火村至東莞長安段及廣佛高速公路廣州黃村至火村段改擴建項目土建工程施工合同(第TJ3標段)》) dated 3 April 2024 and entered into between GSZ Company and CCCC Second Highway Engineering Co., Ltd.* (中交第二公路工程局有限公司);
- (l) the civil engineering construction works agreement (TJ4 bid section) under the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Huocun section of the Guangzhou-Foshan Expressway* (《京港澳高速公路廣州火村至東莞長安段及廣佛高速公路廣州黃村至火村段改擴建項目土建工程施工合同(第TJ4標段)》) dated 3 April 2024 and entered into between GSZ Company and China Railway Major Bridge Engineering Group Co., Ltd.* (中鐵大橋局集團有限公司);
- (m) the civil engineering construction works agreement (TJ5 bid section) under the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Huocun section of the Guangzhou-Foshan Expressway* (《京港澳高速公路廣州火村至東莞長安段及廣佛高速公路廣州黃村至火村段改擴建項目土建工程施工合同(第TJ5標段)》) dated 3 April 2024 and entered into between GSZ Company and CCCC Road and Bridge International Co., Ltd.* (中交路橋建設有限公司);

- (n) the supervision of the construction works agreement (JL2 Bid Section) under the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Huocun section of the Guangzhou-Foshan Expressway* (《京港澳高速公路廣州火村至東莞長安段及廣佛高速公路廣州黃村至火村段改擴建項目土建工程施工監理(JL2標段)》) dated 25 March 2024 entered into between GSZ Company and Guangdong Hualu Transportation Technology Company Limited* (廣東華路交通科技有限公司), a company established in the PRC with limited liability and a wholly owned subsidiary of Guangdong Provincial Communication Group Company Limited* (廣東省交通集團有限公司), pursuant to which Guangdong Hualu Transportation Technology Company Limited* (廣東華路交通科技有限公司) shall undertake certain agreed construction supervisory works in connection with the Approved Road Section R&E Project at a total contract fee of RMB51,736,021;
- (o) the 2024 Coastal Expressway (Shenzhen Section) maintenance services agreement dated 25 January 2024 entered into between the Coastal Company and Engineering Development Company, pursuant to which Engineering Development Company shall provide maintenance services to the Coastal Company for a term of one year commencing from 1 January 2024;
- (p) the Humen Town section land expropriation, demolition and relocation works agreement dated 21 December 2023 entered into between GSZ Company and the People's Government of Humen Town of Dongguan City* (東莞市虎門鎮人民政府), pursuant to which, the People's Government of Humen Town of Dongguan City* (東莞市虎門鎮人民政府) agreed to undertake the land expropriation, demolition and relocation works of Humen Town section in Dongguan City under the Approved Road Section R&E Project and GSZ Company agreed to pay an aggregated compensation fee currently expected to be approximately RMB204.55 million;
- (q) the civil engineering construction works agreement (TJ1 bid section) under the reconstruction and expansion project of the Guangzhou Huocun to Dongguan Chang'an section of the Beijing-Hong Kong-Macao Expressway and Guangzhou Huangcun to Huocun section of the Guangzhou-Foshan Expressway* (《京港澳高速公路廣州火村至東莞長安段及廣佛高速公路廣州黃村至火村段改擴建項目土建工程施工合同(TJ1標段)》) dated 7 December 2023 entered into between GSZ Company and Poly Changda, a company established in the PRC with limited liability and is owned as to approximately 37.60% by Guangdong Provincial Communication Group Company Limited* (廣東省交通集團有限公司), pursuant to which Poly Changda will undertake construction works of TJ1 section in connection with the Approved Road Section R&E Project at a project price of RMB419,825,633;

- (r) the compensation agreement dated 18 September 2023 entered into between GSZ Company and Shenzhen Expressway, pursuant to which, it was agreed that (i) the GSZ Company and Shenzhen Expressway shall jointly operate the new Hezhou toll station; (ii) Shenzhen Expressway shall pay a one-off layout optimisation fee of RMB2,867,900 (inclusive of tax) to GSZ Company; and (iii) Shenzhen Expressway shall pay the operation management fees with an annual cap that shall not exceed RMB30,000,000 to GSZ Company as compensation for the increased operation costs during the term of the compensation agreement; and
- (s) the technological development contract dated 28 February 2023 (as supplemented by a supplemental agreement dated 4 September 2023) entered into between the Coastal Company and the consortium comprising Shenzhen Expressway Digital Technology Co., Ltd.* (深圳高速公路集團數字科技有限公司) (a company incorporated in the PRC with limited liability and a non-wholly owned subsidiary of Shenzhen Expressway) and Yunji Intelligent Engineering Holding Company Limited* (雲基智慧工程股份有限公司), pursuant to which the consortium agreed to conduct expressway BIM and digital management, research and development for phase I and phase II of Coastal Expressway (Shenzhen Section) at a total service fee of RMB22,725,800 (including taxes).

8. MISCELLANEOUS

- (a) The company secretary of the Company is Ms. Ching Fan KOO of Fair Wind Secretarial Services Limited, an external service provider. Ms. KOO is an associate member of both The Hong Kong Chartered Governance Institute (formerly known as The Hong Kong Institute of Chartered Secretaries) and The Chartered Governance Institute (formerly known as The Institute of Chartered Secretaries and Administrators) in the United Kingdom and a fellow member of The Association of Chartered Certified Accountants.
- (b) The registered office of the Company is at P.O. Box 309, Ugland House, Grand Cayman KY1-1104, Cayman Islands. The principal place of business of the Company in Hong Kong is at Rooms 4902–4916, 49th Floor, Sun Hung Kai Centre, 30 Harbour Road, Wanchai, Hong Kong.

9. DOCUMENTS ON DISPLAY

Copies of the following documents will be on display on the Stock Exchange's website and the Company's website for a period of 14 days from the date of this circular:

- (a) the Capital Increase Agreement;

- (b) the accountants' report on GSZ Company from the reporting accountants, KPMG, the text of which are set out in Appendix II to this circular;
- (c) the audited financial statements of GSZ Company for the years ended 31 December 2021, 2022 and 2023 and the eight months ended 31 August 2024;
- (d) the report on the unaudited pro forma financial information of the Group from the reporting accountants, KPMG, the text of which are set out in Appendix III to this circular;
- (e) the Valuation Consultancy Report, the text of which are set out in Appendix V to this circular;
- (f) the Traffic Study Report, the text of which are set out in Appendix VI to this circular;
- (g) the letter in relation to the profit forecast from the reporting accountants, KPMG, the text of which is set out in Appendix VII to this circular; and
- (h) the written consents referred to in the paragraph headed "10. EXPERTS AND CONSENTS" in the letter from the Board.

* *For identification purpose only*