

# *Quarterly Newsletter of GEF China Sustainable Cities Integrated Approach Pilot Project*





## Project Progress (as of March 16, 2020)

### Ministry of Housing and Urban-Rural Development (MoHURD)

The national-level TOD platform: The draft contract and the minutes of negotiations have been finalized following the World Bank's review comments. The contract is expected to be signed by the end of March 2020.

#### Beijing

City-level TOD Strategy (GEBJ-1): The contract has been signed on January 15, 2020, and scoping analysis has been conducted.

Corridor and station level TOD application (GEBJ-2): Affected by the outbreak of COVID-19, the date for bid opening is still to be decided.

District-level TOD application (GEBJ-3): The draft TOR has received feedback from the World Bank on March 2, 2020, and is in the process of further revision.

#### Tianjin

City-level TOD Strategy (GETJ-1): Tianjin PMO has held the expert review meeting for task 3 and task 4 under the contract. Affected by the outbreak of COVID-19, payment, and reimbursement is expected to be completed by the end of March 2020.

For the study on private sector engagement in infrastructure investment around TOD (GETJ-2), Tianjin PMO has issued the Request for Expressions of Interest (REOI). It is still in the process of seeking EOIs from potential consulting firms.

For the research on TOD development strategy on corridor-level (GETJ-3): Tianjin PMO has adjusted the scope of the research to TOD development strategy research alongside Tianjin Rail Transit Line 4 (Phase II) and the draft TOR is under preparation.

#### Shijiazhuang

City-level TOD strategy (GESJ-1): Shijiazhuang PMO received no objection from the World Bank on the draft contract and negotiation minutes on February 18, 2020. The contract is expected to be signed by the end of March 2020.

Corridor-level TOD strategy (GESJ-2): Shijiazhuang PMO has received technical feedback from the World Bank on February 17, 2020. An updated revision is expected to be completed by the end of March 2020.

Station-level TOD strategy (GESJ-3): At present, the TOR is at an early stage of preparation, and the first draft is expected to be completed by the end of March 2020.

#### Nanchang

City-level TOD strategy (GENC-1A): The contract was signed on December 16, 2019, and the inception report has been submitted to the World Bank in February 2020.

Corridor-level TOD strategy (GENC-2A): Integrating the suggestions from project leading group, Nanchang PMO has adjusted the objectives and the scope of this TOD study. As of March 2020, the REOI process has been completed. The negotiation is expected to be conducted in early June 2020.

Station-level TOD strategy (GENC-3A): The preparation of TOR has started, and the draft TOR is expected to be completed by the end of March 2020.

#### Ningbo

The contract on the study on TOD-based improvement of built rail stations (GENB-3) has been under implementation, and the consultant has started data collection, online





surveys, and other analytical works.

City-level TOD strategy (GENB-1): Affected by the outbreak of COVID-19, contract signing by the international consultant is still in progress and is expected to be wrapped up soon. Preparatory work has been carried out by the selected consultant.

## Guiyang

City-level TOD strategy (GEGY-1): The contract has been signed on March 16, 2020, and has been under implementation.

Corridor-level TOD strategy (GEGY-2): The PMO has been working on the preparation of the draft TOR. The first draft is expected to be submitted to the World Bank in May 2020.

Corridor-level TOD strategy (GEGY-3): The PMO has been working on the preparation of the draft TOR. The first draft is expected to be submitted to the World Bank in September 2020.


## Shenzhen




City-level TOD strategy (GESJ-1): As of January 13, 2020, Shenzhen PMO has received four Expression of Interest (EOI)s. The procurement work has been suspended due to the outbreak of COVID-19. The bidding process is expected to restart by the end of March 2020.

District and station level TOD strategy (GESJ-2): The draft TOR is under further revision, and it is expected to be submitted to the World Bank in late March 2020.

## Project Implementation Progress (as of March 16, 2020)

Work Item\PMO	Beijing	Tianjin	Shijiazhuang	Ningbo	Nanchang	Guiyang	Shenzhen
City-level TOD Strategy							
District-level TOD Strategy							
Corridor-level TOD Strategy							
Station-level TOD Strategy							

 Contract signed  
 Start bidding process  
 TORs finalized and ready for bidding

 TORs in the process of review and revision  
 Working in the process, not submitted to the Bank  
 Not applicable



## Latest China TOD Knowledge Events

On November 28, 2019, an expert seminar on the Plan of Qingdao City for Winning the Battle of Achieving High-Quality Development of Rail Transit Industrial Cluster (Draft) organized by Qingdao Rail Transit Industry Demonstration Zone Management Committee was successfully held in Qingdao. Several experts and scholars were invited to participate in the discussion to explore the medium and long-term development goals of Qingdao rail transit industry clusters. ([link](#))

On February 21, 2020, Ningbo PMO launched a TOD online training course to promote project capacity building, cooperated with the TOD Professional Committee of the Chinese Land Economics Association and Ningbo Housing and Urban-Rural Construction Training Center. The notice was jointly released on the official website of the Ningbo Municipal Bureau of Housing and Urban-Rural Development, Ningbo Planning and Design Institute, and industry authorities. The online training course received positive responses. ([link](#))

## China TOD Industry News

### • Standards

#### ◦ National Standard -- Operational Index System of Urban Rail Transit Released

In December 2019, the Operational Index System of Urban Rail Transit (GB/T 38374-2019) was released. This standard specifies the composition, content, index definition, and calculation method of the operation index system. The standard applies to the statistical analysis and benchmarking management of urban rail transit operations. ([link](#))

#### ◦ Industry Standard -- Standard for Design of Metro Express Released

In January 2020, the Ministry of Housing and Urban-Rural Development released the industry standard -- Standard for Design of Metro Express (CJJ/T298-2019), whose implementation started from March 1, 2020. The standard is drafted by China Railway ERYUAN Engineering Group Co., Ltd. and Dongguan Rail Transit. ([link](#))

#### ◦ Notice of General Office of Ministry of Natural Resources on Issuing the Recommended List of Land Saving Modes for Comprehensive Development and Utilization of Aboveground and Underground Space of Rail Transit

In February 2020, the Ministry of Natural Resources compiled a "Recommended Catalogue of Land-saving Modes for Comprehensive Development and Utilization of Above-ground and Underground Space in Rail Transit" to summarize the typical development and utilization of land-saving and intensive land use, as well as land-saving technologies and energy conservation. List of recommended land models to guide localities to improve land-use efficiency. ([link](#))

### • Operational Cooperation

#### ◦ The Operation and Preparation Agreement regarding Hangzhou-Haining Intercity Railway was Signed

On December 31, 2019, Zhejiang Rail Group and Hangzhou Haicheng Railway Co., Ltd. officially signed the "Hangzhou-Haining Intercity Railway Operation and Preparation Agreement" and the "Negotiation Memorandum for Entrusted Operation Agreement to Hangzhou Haicheng Railway Co. Ltd.." Both Parties reached a basic agreement on the scope, responsibility, revenue, cost, and settlement of the entrusted



operation, representing a milestone for incorporating the operation right of the Hangzhou-Haining Intercity Railway Line into the unified operational platform. ([link](#))

- **Innovation in Financing Mechanisms**

- **Reply to the National Development and Reform Commission on the Approval of Issuing Corporate Bonds by Xiamen Rail Transit Group Co., Ltd.**

In November 2019, the National Development and Reform Commission issued a reply on approving Xiamen Rail Transit Group Co., Ltd. to issue the corporate bonds of no more than 16 billion CNY. Among them, 8 billion yuan will be used for the projects, such as Xiamen rail transit construction and its surrounding supporting facilities in line with national industrial policies. In comparison, the other 8 billion yuan is used for supplementing working capital. The term of the bonds shall not exceed 15 years, including 15 years. The specific requirements, such as the scope of the use of the funds which are raised by debt and appropriate underwriting methods, shall be limited. ([link](#))

- **Reply to the National Development and Reform Commission on the Approval of Issuing Green Bonds by Gansu Province Lanzhou City Rail Transit Group Co., Ltd.**

In December 2019, the National Development and Reform Commission issued the reply on approving Gansu Province Lanzhou City Rail Transit Co., Ltd. to issue the green bonds of no more than 1 billion CNY, including 650 million CNY for Phase I of the Lanzhou No. 2 Rail Transit Line Project and 350 million CNY for supplementing working capital. ([link](#))

- **Tianjin Metro Speeds up the Construction of 8 Lines. Public-Private Partnership (PPP) model Scores the First Success**

In December 2019, the total investment of the PPP project of Tianjin Metro Line 7 and Line 11 was 52.5 billion CNY. Also, Metro Line 4 and Line 8 will attract an investment of 29.5 billion after completion of private investment procurement, with a total investment of 47.3 billion yuan. In the next five years, four Metro PPP projects will start in the same period, which is expected to be put into operation from 2024 to 2025. ([link](#))

- **Recent Planning Approval**

- **Beijing Rail Transit Phase II Construction Plan Adjustment was Approved**

On December 19, 2019, learning from the National Development and Reform Commission, the adjustment to the second phase construction plan of Beijing urban rail transit was approved. Please refer to the link for adjustment details. ([link1](#), [link 2](#))

- **Guiyang Tram Line Network Planning has been Released**

According to the Guiyang Tram Line Network Planning issued in January 2020, there are 19 trams in Guiyang and Gui'an New Area, with a total mileage of about 586km. An urban rail transit network in Guiyang will be built. With metro and light rail as the framework, the transit network will use trams to increase density and other tracks as supplementary. The planning period is from 2019 to 2035. According to the integration scheme of its public transport system, 19 tram lines are planned to be integrated into the Guiyang Rail Network, and seamlessly connected to BRT and conventional public



transport. Moreover, a comprehensive rail transit network is actively constructed to achieve the goal of four networks integration: railway line, city (intercity) railway line, urban transit (light rail) line, and tram lines. ([link](#))

## • Project Implementation

### ◦ Integrated Transportation Hub Project of Beijing Sub-Center Railway Station Kicked off

On November 30, 2020, the integrated transportation hub project of Beijing Sub-Center railway station (referred to as "Sub-Center Station") kicked off. The construction period is five years, and it is expected to be open to traffic by the end of 2024. The project occupies an area of approximately 61 hectares. Upholding the TOD Station-City integration planning concept of "station, city, and integration," the project will build a large-scale comprehensive transportation hub with the goal of "four networks integration." This transportation hub will become the vitality center of the sub-center area. Through connecting lines of Beijing-Tangshan, Beijing-Binhai Intercity Railway, and other intercity railways, it can realize one-hour direct access to Xiong'an New Area, 15 minutes direct access to Beijing Capital International Airport, and 35 minutes direct access to Beijing Daxing International Airport. ([link](#))

### ◦ Three Land Parcels near the Juqu Road Rail Yard of Wuxi Metro Line 4 were Transferred

On December 18, 2019, three parcels from the Juqu rail yard of Wuxi Metro Line 4's Ecological Development Project were transferred to the consortium which is composed of Wuxi Metro Group Co., Ltd., Metro Land Corporation Ltd., and China Railway Fourth Bureau Group Co., Ltd. Wuxi Metro leads the consortium. The project covers a total area of 380,000 m<sup>2</sup>, with a



Figure 1: <http://www.beijing.gov.cn/fuwu/bmfw/jtcx/ggts/t1610601.htm>

floor area ratio of 1.7. A total area of 640,000 m<sup>2</sup> is for property development. It is planned to be used for residential, commercial, and business purposes. It is a grand TOD metro aboveground complex integrating residential, commercial, hotel, and metro functions. ([link](#))

### ◦ The Construction of TOD Project at Dongfeng Station on Wuxi Metro Line 3 Commenced

On the morning of January 14, 2020, Wuxi Metro and China Resources Land officially began the construction of the jointly invested and developed aboveground property project, which is under the Dongfeng Station TOD project on Metro Line 3. In June 2019, Wuxi Metro Resources Development Co., Ltd. and China Resources Land won the bid of the project's land parcel with a total price of 262 million CNY. This land parcel is for the residential project, which is designed and constructed along with Metro Line 3 and its surrounding areas. The project will develop a small-scale comprehensive metro aboveground property with the integration of residential, commercial, office, apartment, and P+R (Park and Ride). It is also the first aboveground property of station TOD for the Wuxi Metro system, which is developed mainly through shareholding.





- **2019 China TOD Development in Representative Cities**

- **Chengdu** ([link](#))
- **Guangzhou** ([link](#))

## **Policy Analysis: State-owned Land Equity Investment in TOD project**

At present, China's metro is in a fast development stage of network construction and operation, but it also faces enormous capital pressure from construction and operation. The traditional government-led infrastructure investment is no longer sustainable. All relevant stakeholders seek to solve the issues from the sources of funds, the way of fundraising, project development and operation, and explore how to internalize the positive external effects of the urban transit system. This newsletter aims to explore the potential policies that assist the financing aspect of urban transit development to find the rationality of state-owned land equity investment.

- **Preconditions for the Way of Financing in line with Local Conditions**

According to the Law on Property Rights, "The land use right for construction could be established via land transfer or allocation. Industrial, commercial, tourism, entertainment and commercial residential land, as well as two or more land users who intend to use the same land, should adopt public bidding or auction.

At present, the judgement of the nature of land used for the construction of metros (public interest land/business construction land) is not clear from the legal point of view, which further affects the way of land transfer in practice while the aboveground part has certain commercial attributes. If the land

use right is transferred via public bidding or auction, it is impossible to ensure that urban rail company (or a subsidiary company of the group) could lead the integrated development of the properties to realize the public interest. Therefore, each city ought to figure out appropriate way in line with local conditions.

- **Policy Origin and Evolution at the National Level**

1) Originated from the reform of state-owned enterprises in the 1990s, it was one of the paid-for use methods of state-owned construction land. Systematic regulations were made regarding the disposal of allocated land use rights in the reform of state-owned enterprises, and policies were issued for the asset management at the time of the state-owned enterprise reform.

2) Regulations for the Implementation of the Land Administration Law (revised on January 1, 1999) specifies that the capital contribution by land price is one of the ways of the paid-for use of state-owned land. The contribution or equity participation for state-owned land use right is the same as transferring and leasing. They are seen as the methods to receive the paid-for use of the land use right in the primary market of the land, not limited to the stock transfer of state-owned land assets disposal. However, in reality, due to the lack of specific operation rules, majority of the local governments are still limited to the transfer of land assets in the ownership change of state-owned enterprises approved by the government at or above the provincial level, except Shenzhen, Nanning and a few of cities at the local level who conducted the preliminary study on the topic.

3) According to Expanding the Scope of Paid-for Use of State-owned Land (No. 20 [2016] of the Ministry of Land and Resources), we should support the municipal



and county governments in providing land for non-commercial use of the state-owned construction land, such as energy, environmental protection, and government-subsidized housing, through land equity investment. The local governments should conduct joint investment and construction activities with the capital from private sectors. At the operational level, turn the land use right into equity investment, and shareholding can increase the supply of land in the primary market. It is also a way to dispose of the state-owned allocated land assets. However, for some local governments which are below the provincial level, the actual operation is still delicate due to the lack of clear rules on specific operation guidance, pricing amount, guarantee procedure of the increasing land supply in the primary market. Furthermore, it is hard to know whether the local governments can allocate the land assets, whose ownership has transferred from state-owned enterprises, for equity investment.

### • Implementation Rules for State-owned Land Equity Investment

At present, the state has only issued principles on the supply of land for equity investment. To be more specific, the principles says, "The people's governments at the city or county level shall function as investors to formulate the scheme of investing or buying a share of the land, which shall be implemented after being approved by the people's government of the city or county." No guiding opinions or implementation rules have been formulated on the land price and the procedure of land supply.

### • Policy Pilot at the City Level

Local governments and private investment carry out pilot work on state-owned land equity investment

#### ◦ Nanjing

Reply of Nanjing Municipality on the Pilot Work of Stated-Owned Land Equity Investment (No. 408 [2015] Jiangsu Land Resources)

To show the value of state-owned land assets, upon the consent of the Department of Land and Resources of Jiangsu Province, Nanjing started the pilot project of state-owned land equity investment at the end of 2015, allowing four municipal groups, Nanjing Metro, Nanjing Transportation, Nanjing Urban Construction, and Nanjing Port, as well as their subordinate enterprises, to obtain the allocated land use right to activate existing state-owned land equity investment. The examination and approval process follows the procedures of post-reform provincial state-owned enterprise land assets disposal. After preliminary examination conducted by the Municipal Land Resources Department, the scheme of land equity investment shall be submitted to the Land and Resources Department at the provincial and central government levels for approval and filing before it takes effect.

#### ◦ Shenzhen

In May 2013, Shenzhen promulgated the Interim Measures of Shenzhen Municipality on State-owned Land Equity Investment. Shenzhen Municipal People's Government will choose the land for equity investment. The government will also give the land use right solely to state-owned enterprises, such as Metro Group Co., Ltd., Airport Group Co., Ltd., and Special Zone Construction and Development Group Co., Ltd. for closed operation. After the procedure for capital increase is completed, these companies will develop and operate the lands separately.

At present, Shenzhen has completed land equity investment work for some commercial





land lots, including the land for Shenzhen Metro. The municipal government will give the land use right of the land along with the Metro Phase 2 and Phase 3 and the supporting land for aboveground property to the Metro Group. Through the investment and financing model of “metro + property,” the metro enterprise will carry out the market-oriented operation on the land along the metro line to internalize the external benefits along the metro line. It is to build the metro enterprise profit model and support the construction and implementation of the investment and financing model featuring the market-oriented operation.

#### ◦ Guiyang

In May 2014, after the provincial government approved the Opinions of Equity Investment to Guiyang Rail Transit Company with State-owned Land Use Rights, Guiyang Municipal Government promulgated the Interim Measures of Guiyang City for Urban Rail Transit with State-owned Land Equity Investment.

On October 31, 2017, the Standing Committee of the Municipal People's Congress passed the Regulations of Guiyang on Urban Rail Transit, which was approved by the Standing Committee of the Provincial Party Committee. The Regulations were implemented on June 1, 2018. Article 40, Chapter V of the Regulations, once again provides supports and legal protections for land equity investment.

#### ◦ Lanzhou

Implementation Measures of Lanzhou City for State-owned Land Equity Investment Surrounding the Rail Transit

Lanzhou Municipal Government priced the state-owned land use right for a certain term. The state-owned assets management agency is used as a shareholder to invest in

Lanzhou Rail Transit Co., Ltd. The land assets are counted as the national capital or defined as national equity. Sharing the land use rights has the same cost and value as transferring the land use right.

However, in comparison, the three cities have different scopes of land that is allowed to be sold or invested. Of them, Nanjing focuses on invigorating the stock of state-owned land, reducing the debt ratio of related enterprises, and increasing the financing leverage ratio and enterprise risk; Shenzhen has not made any substantial binding provisions on land equity investment. From the perspective of the implemented projects and constructions, both commercial and non-commercial lands can be priced for equity investment; Guiyang clearly defines that “the scope of land for urban rail transit and its supporting facilities are determined by urban planning”; Lanzhou only has regulations on “land along with rail transit (including underground).”

Meanwhile, Guiyang city faces the following main problems in practices:

1) Municipal level: It takes a long time to dispose of the original stock of allocated land by equity investment. Usually, to be approved by administrative authorities at all levels, it takes a long time with huge capital costs, making it difficult for property and significant businesses to coordinate and purchase the shareholding of the land. As a result, the project development investment cost will increase.

2) District level: The rail transit line crosses different administrative regions, but different administrative regions have their unique procedures. It takes a long time to handle these procedures.



- **Implication:**

- Land investment for special purposes such as rail transit: According to the current relevant regulations, in principle, the land for operating property of special projects such as rail transit should be publicly transferred. However, due to the complexity of construction, it is not applicable to design and use them separately. As a result, the local government would intend to allocate the entire land in the name of non-commercial projects, which might impact project financing, subsequent development, and operation of the rail transit construction unit. It is recommended that both the rail transit station and the land for aboveground property construction should be included in the scope of land that can be used for land equity investment. The project developers with relevant enterprises should cooperate in implementing integrated development from design to construction. However, the scale and location of the land allowed for land equity investment should be strictly limited to ensure the fairness and competitiveness of the land market.

- From the perspective of project financial feasibility, there are two ways to control cost at the stage of land acquisition. 1) Land price investment is used as compensation in the development and construction stage. 2) Future land value discounts are realized through planned land reserves and orderly land push. First, land equity investment could be used for compensation at the construction stage; second, the discount of future land value appreciation should be realized through the planned land reserve and orderly land sales.

- From specific practices of TOD projects, now the relevant land is mainly acquired by equity investment, bid invitation, auctions, or listing for sale with conditions. Land equity investment aims to address the problem of financing at the beginning stage of project development and construction. For the government, it is intended to optimize the ratio of debts, rights, and responsibilities as well as to internalize the external effects of public transport. For developers, it is necessary to obtain a reasonable land consideration. Metro Group, it aims at how to optimize the traffic route and improve the accessibility. The developer and Metro Group could work together to achieve land development and transport connection to optimize public resources.





# Case Study

Design Scheme and Assessment for Urban Rail Transit Complex Project of Qingshuijiang Road Station







# Theme for this Issue: Design Scheme and Assessment for Urban Rail Transit Complex Project of Qingshuijiang Road Station

## Case city: Guiyang City, Guizhou Province

References: Feasibility Study Report on Urban Rail Transit Complex Project of Qingshuijiang Road Station

Special thanks to Luo Xiehui, Director of Guiyang Metro Real Estate Office

### Introduction

In recent years, local governments have realized that government-led infrastructure investment may no longer be sustainable. They have actively explored innovative TOD-related land acquisition, development models, and financing methods. Careful considerations and explorations have been applied to several cities. Lessons learned from peer cities from top-level policy design, the institutional arrangement to project implementation could be inspiring.

As an emerging city driven by industrial innovation with a net inflow of population, Guiyang's TOD projects are elaborately developed considering the interests of local governments, urban rail transit companies, real estate developers, and communities. Under the protection of relevant policies, Guiyang's practice explores a new way of land equity investment to finance the TOD project. It is also an attempt by urban rail company as a land primary and secondary joint development platform, which optimizes comprehensive property development of underground and aboveground land resources along the rail transit line of each station, to appreciate the commercial value of the land lot, which apply the "rail + property" operation model and reduce the risk of government debts. This case aims to provide a reference for TOD site development for the cities in the early stages of urban rail transit networks.

### 1. City development trends

- **Guiyang's urbanization process makes transit-oriented development (TOD) just in time**

Guiyang is now in rapid urbanization. It attracts a large number of resident population from surrounding areas, which brings about the growth in travel. Conventional road systems are no longer sufficient to deal with the mismatch between travel demand and transport infrastructure supply. Guiyang municipality introduces transit-oriented development just in time to reshape the city.

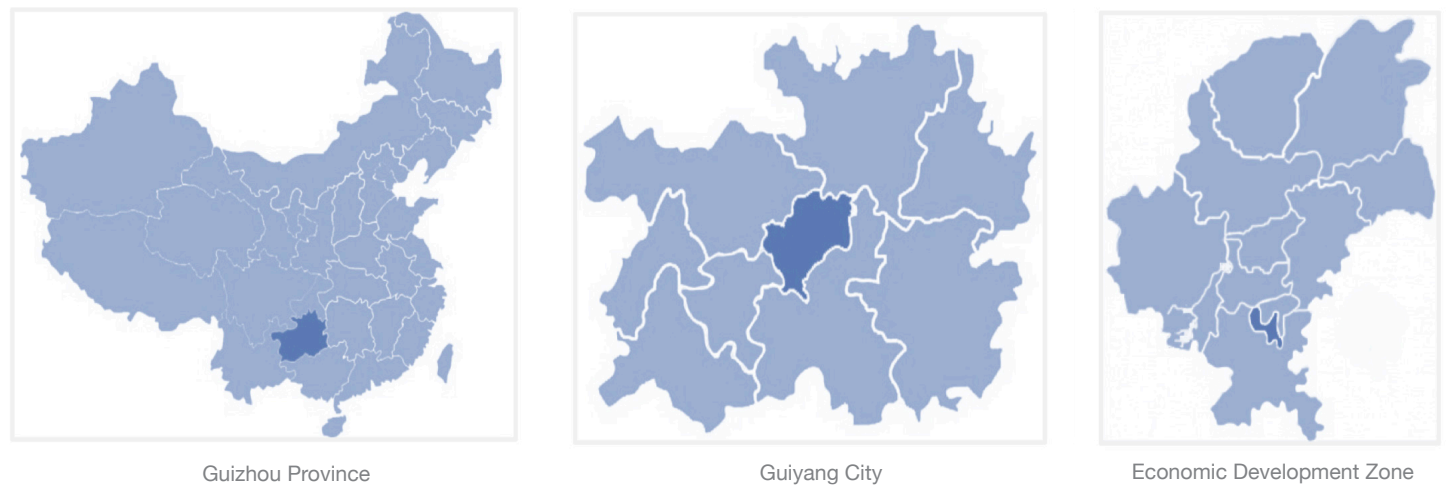
- **The development of underground and aboveground properties along rail transit line in Guiyang create space for mixed-use development and practice the "rail + property" operation model**

According to the transportation plan, Guiyang's urban rail transit line network consists of 4 lines, which is still in the formation stage. According to the approval documents, Phase I of Guiyang Line 1 and Line 2 will be completed in 2020. The development of underground and aboveground properties along the lines will create space for mixed-use development and realize the commercial value enhancement of station-level TOD project. Among them, Qingshuijiang Road Station Urban Rail Transit Complex is a preliminary exploration of the "rail + property" operating model.

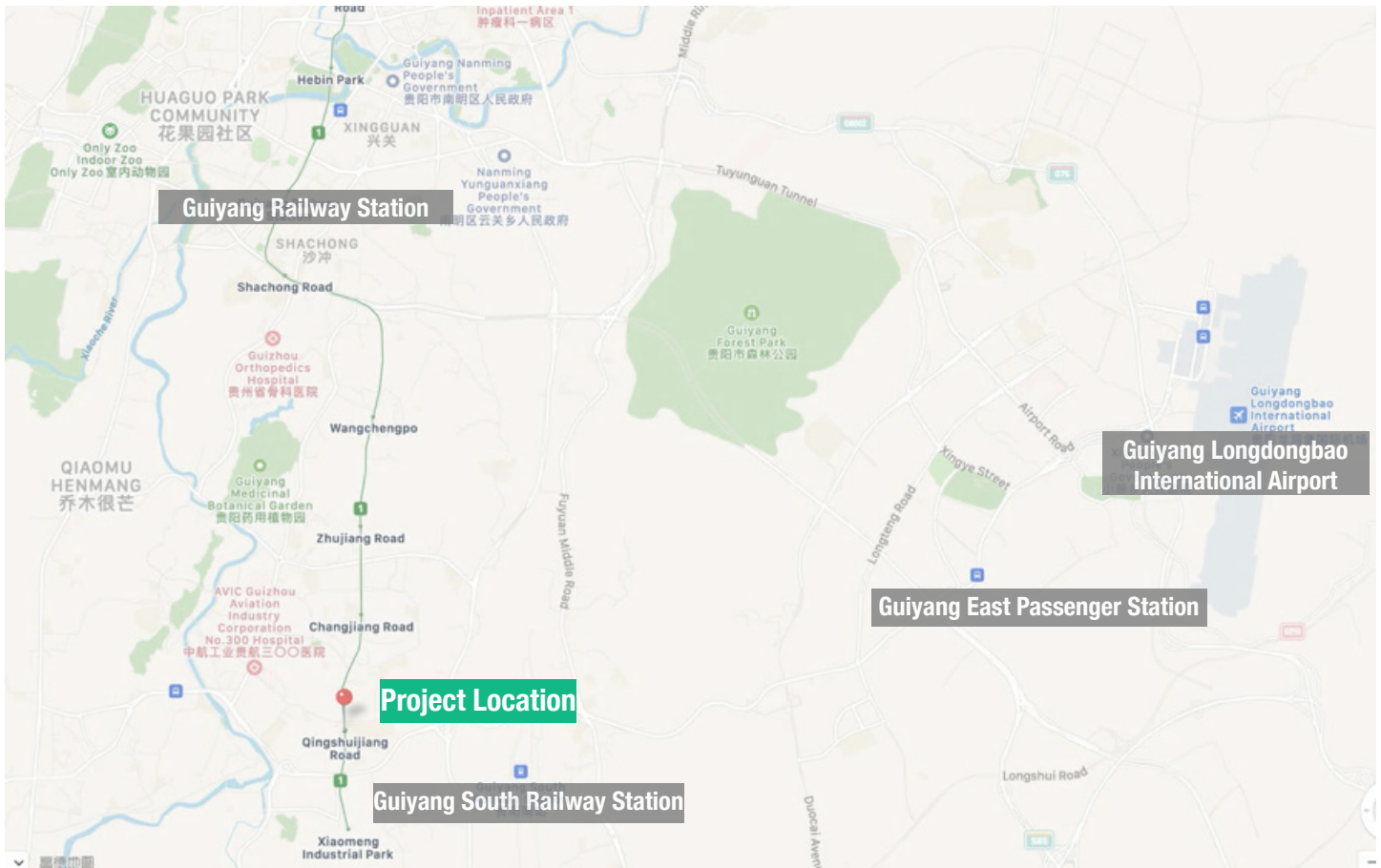


## 2. Project development overview

“Guiyang Metro and Qingshuiwan” project is located in the economic development zone of Guiyang city, Guizhou Province. It is an aboveground complex of Qingshuijiang Station on Metro Line 1 as the first station-level TOD project developed by rail real estate company. The planned land area of the project is about 27,000 square meters; the total construction area is about 110,000 square meters; the building area with capacity is about 80,000 square meters. The project's commercial development includes hotels, LOFT apartments, shopping centers, supermarkets, and restaurants. At present, the central part of the project is basically completed and expected to put into operation in 2020.



Schematic diagram of project location





## Project development measures

### 1. Policy guarantee

The Interim Measures for Guiyang Urban Rail Transit State-owned Land Equity Investment, the Guiyang Urban Rail Transit Regulations and relevant meeting minutes all provide supports and legal protections for the development of land equity investment

- In May 2014, Guiyang Municipal Government promulgated the Interim Measures for Guiyang Urban Rail Transit State-owned Land Equity Investment (Zhu Fu Fa No. 27 [2014])
- In April 2015, the Minutes of the Special Meeting on the Discussion on the Issues Related to State-owned Land Equity Investment further specified the **working principles, procedures, and methods of land equity investment**.

### Working Principles

1. Asset management should be applied to the land prepared for equity investment. When operating activities such as lease, mortgage, transfer, etc., a project management plan should be fully drafted. During implementation, the revenue from relevant operations shall not be lower than the land evaluation price and the market price. In accordance with the relevant provisions of state-owned asset management, a distribution plan should be made to clarify how to allocate the funds (which are withdrawn from after-tax profits) and transfer to the municipal financial fund pool.

### Work Procedure

2. Generally, the land equity investment follows the following procedures: 1) invest the land to the urban rail transit company to increase its net assets and financing capacity; 2) appropriate procedures for investment approval, planning approval, land approval, environmental impact assessment, construction management, etc., the land use right of equity investment should be equal to the land use right of commercial land. All relevant entities and local governments shall work closely to ensure that the project can enter the substantive development and operation stage as soon as possible.

### Land investment method

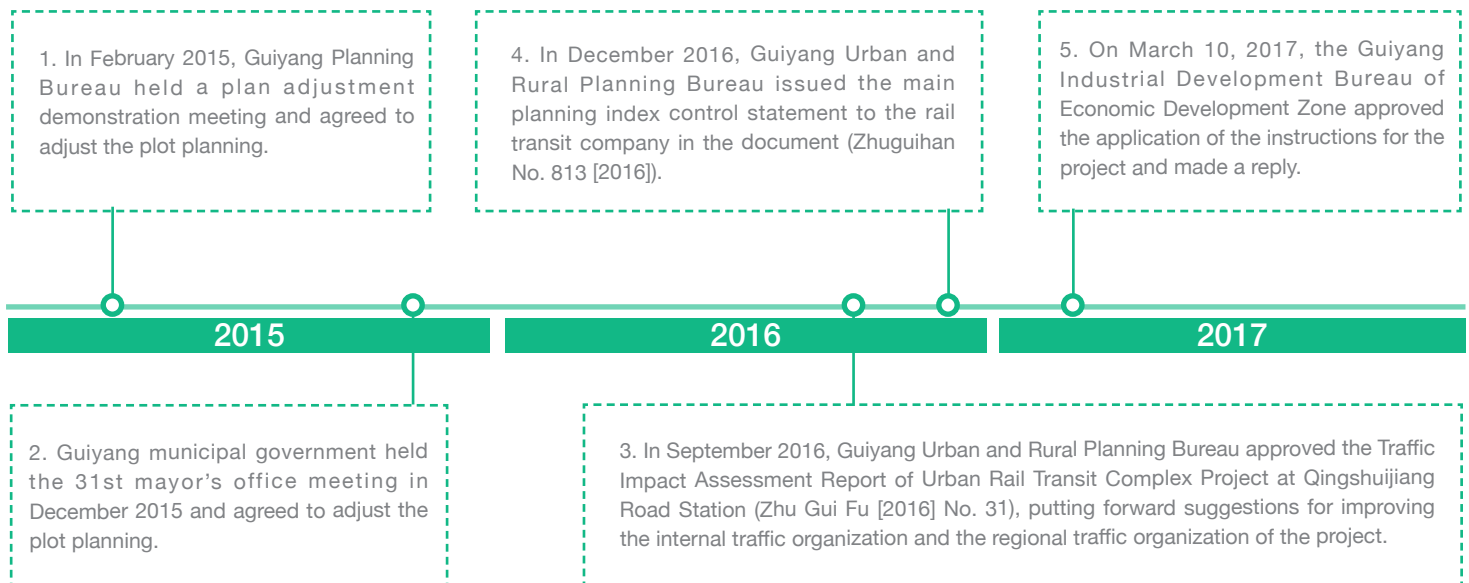
3. Regarding the parcels for land equity investment, it is agreed in principle that the underground part, the ground, and the surrounding part of the land that is difficult to cut from the main structure of the rail transit within the red line. Therefore, land equity shall be invested in the urban rail transit company by means of stratification and pricing. At the meeting, the agreement has been made to inject Qingshuijiang Road station land equity to the Guiyang urban rail transit company). On October 31, 2017, the Standing Committee of the Municipal People's Congress passed the Regulations of Guiyang on Urban Rail Transit, which was approved by the Standing Committee of the Provincial Party Committee and implemented on June 1, 2018. Article 40, Chapter V of the Regulations, once again provides supports and legal protections for land equity investment.





## 2. Planning adjustment to improve project feasibility

### ◦ Planning adjustment process

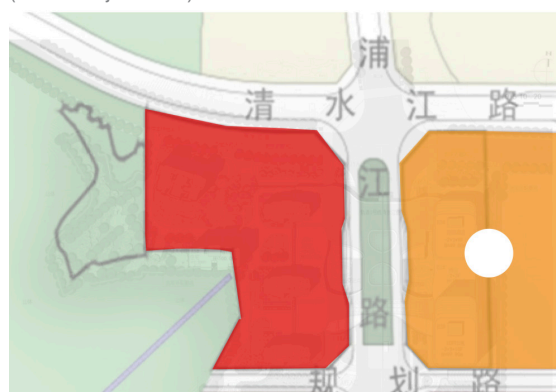


### ◦ Impacts of planning adjustment on project fundraising

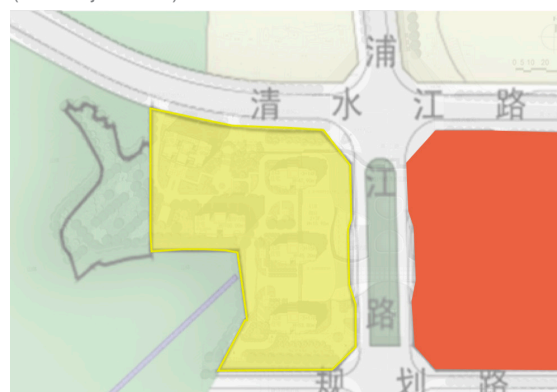
It can be seen from the comparison before and after the adjustment of lot control regulations that the original land lot in the west is for commercial or financial use. After turning the land lot to residential land after the adjustment, it enables the transfer of residential ownership. Meanwhile, improving the accessibility to rail transit gives a bonus to the residential property. Furthermore, the adjustment does not only improve location conditions but also raises the price of the residential property, which can quickly return the project funds and offset rail transit construction.

The original land lot in the east is for medical purposes. After adjusting it to commercial and financial use, this land lot can be used for commercial property sales, leasing, and other purposes. In addition to secondary sales or leasing of commercial and residential space, using the land lot like a commercial complex also provides cash flow to support the subsequent operation of the project, so as to realize the development advantages of the involved properties.

Original regulatory detailed planning diagram of the plot (before adjustment)



Current regulatory detailed planning diagram of the plot (after adjustment)



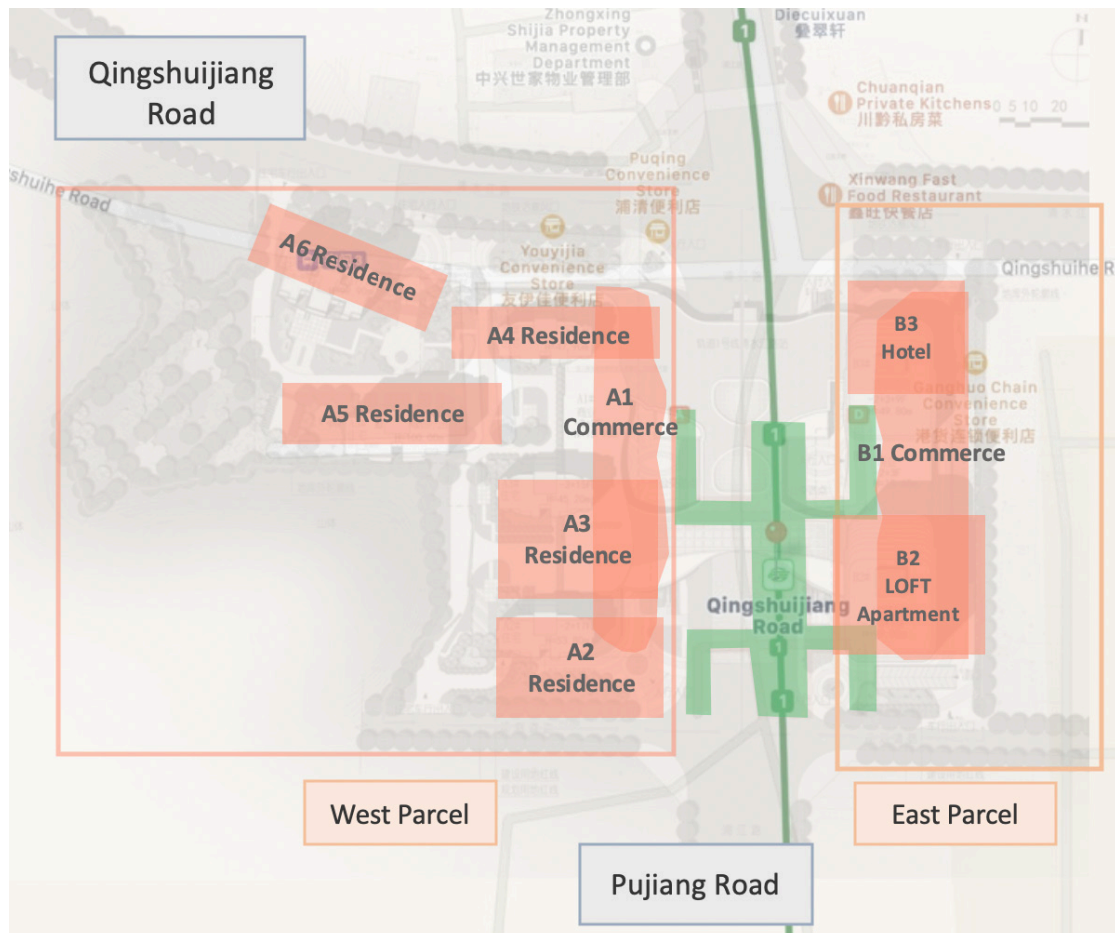
- Residential land
- Commercial and financial land
- Medical and public health land
- Park green land
- Special land



### 3. Program features

1) Integrated aboveground and underground space, efficient land use and reasonable spatial planning and design, which improves the overall accessibility of the project

Project Planning Diagram



Project Planning Diagram





Basic Parameters of the Parcel

Basic Parameters \ Parcel	West Parcel	East Parcel
Nature of parcel	Residential and Commercial	Commercial Service Facilities
Total Land Area	25,766.97 m <sup>2</sup>	13,130.22 m <sup>2</sup>
Total Construction Area	71,570.23 m <sup>2</sup>	42,650.03 m <sup>2</sup>
Commercial Residential Buildings	41,042.22 m <sup>2</sup>	/
Floor Area Ratio	2.49	3.95
Building Density	20.83%	37.83%
Green Space Ratio	32.12%	19.98%
Total Households	412	413
Total Parking Spaces	503	232
Underground Part	Including two floors of the basement (mainly used for motor garage and equipment room)	Including two floors of basement (mainly used for motor garage and equipment room)
Aboveground	<ul style="list-style-type: none"> <li>• Including skirt buildings (mainly for commercial use)</li> <li>• Five high-rise residential buildings</li> </ul>	<ul style="list-style-type: none"> <li>• Including skirt buildings (Floor 1- Floor 3) (mainly for commercial use)</li> <li>• Two towers: It is a north-south layout. The north side is a hotel (12 floors in total), and the south side is an apartment building (18 floors in total).</li> <li>• Public facilities: the public library and community post service station, etc.</li> </ul>





**2) Taking the subway transfer platform as the transportation corridor to effectively integrate the functional areas on the east and west sides of the project, to achieve horizontal accessibility; the escalator inside the station and the elevator from the station to the residence, the vertical parts within the station, as well as the station and the residential property are directly connected, to achieve the internal accessibility of the project.**

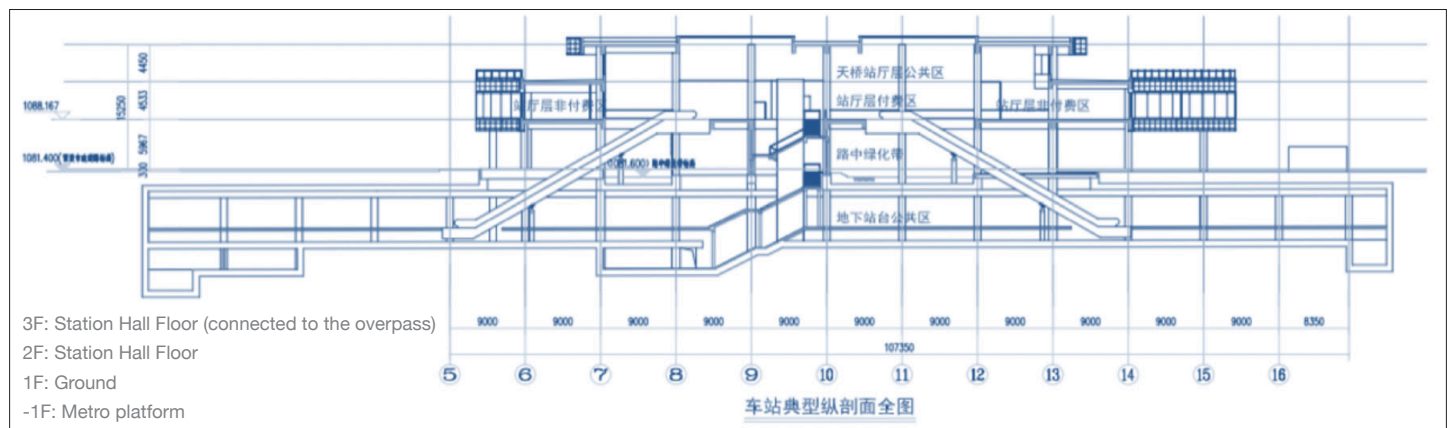
#### ◦ Horizontal accessibility

The project is divided into two land parcels: east and west blocks. Taking advantage of transfer at Qingshuijiang Road Station, the metro transfer platform can be used as the corridor to integrate both blocks.

Meanwhile, the residential function is the primary function in the west lot; the east side focuses on commercial functions while the urban rail station functioned as the transportation hub. Three functional areas are clearly divided. Entrances and exits are set up in each area to meet their own needs, to achieve the accessibility of the internal horizontal direction.

#### ◦ Vertical accessibility

Longitudinal section of the station



#### **All floors are connected by escalators inside the station**

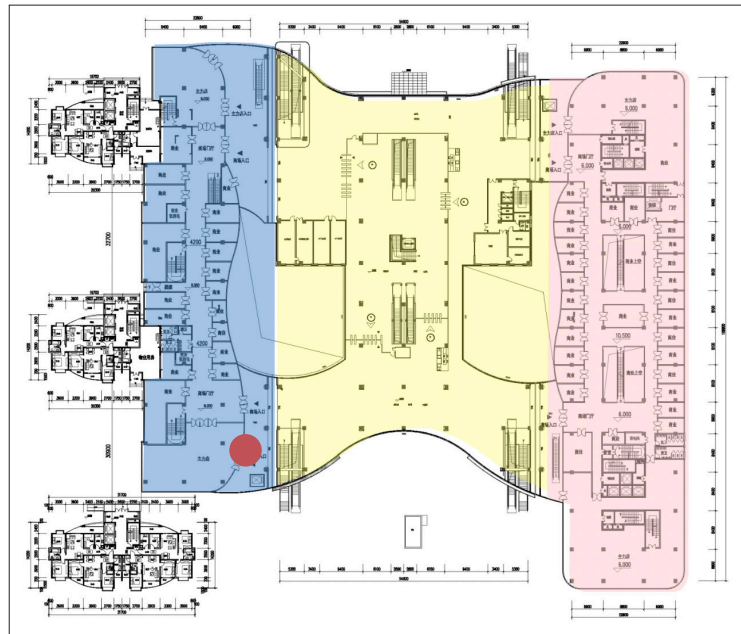
From the general layout of the station, it can be seen that the station is an island-style platform station on the underground level. The station is designed with the east and west sub-station halls and corresponding to the supporting facilities on the ground. The combination of the sub-station halls and the municipal overpass system can effectively attract surrounding passenger flow. Passengers can enter and exit the station through the overpass in the station (from the -1F subway platform to the 2F Station Hall). The overpass in the station crosses Pujiang Road, which enables passengers to exit from the 2F station hall to the ground level.

#### **The interactive interface between the station and the residential property is connected by elevators to achieve vertical accessibility**

Residents in the community where the west lot is located can pass through the commercial corridor on the second floor of the station. The ● entrance and exit shows that people can enter the residence (at the same elevation as the second floor Station Hall ). This design shows that the subway station is at residents' doorsteps.



Longitudinal section of the station



Commerce on West Parcel
  Station Hall of Rail Transit Line 1
  Commerce on East Parcel

**3) Through systematic traffic design within the project site, people and vehicles could be diverted, as well as the residents and ordinary passengers.**

On the east side of the project site, two-way traffic roads are set up from north to south. The northwest and southwest corners are the main pedestrian entrances. On the west side, the pedestrian distribution square is set as the main entrance of the shopping mall. The north and south ends of the site are the main pedestrian squares. Traffic within the plot is diverted.

The project plots all adopt underground parking, with an underground garage area of approximately 34,855 square meters and 735 parking spaces, of which the eastern plot is 1,018 square meters, with 232 parking spaces; the western plot is 23,837 square meters, with 503 parking spaces. The project plots all adopt underground parking. Parking lot ratio

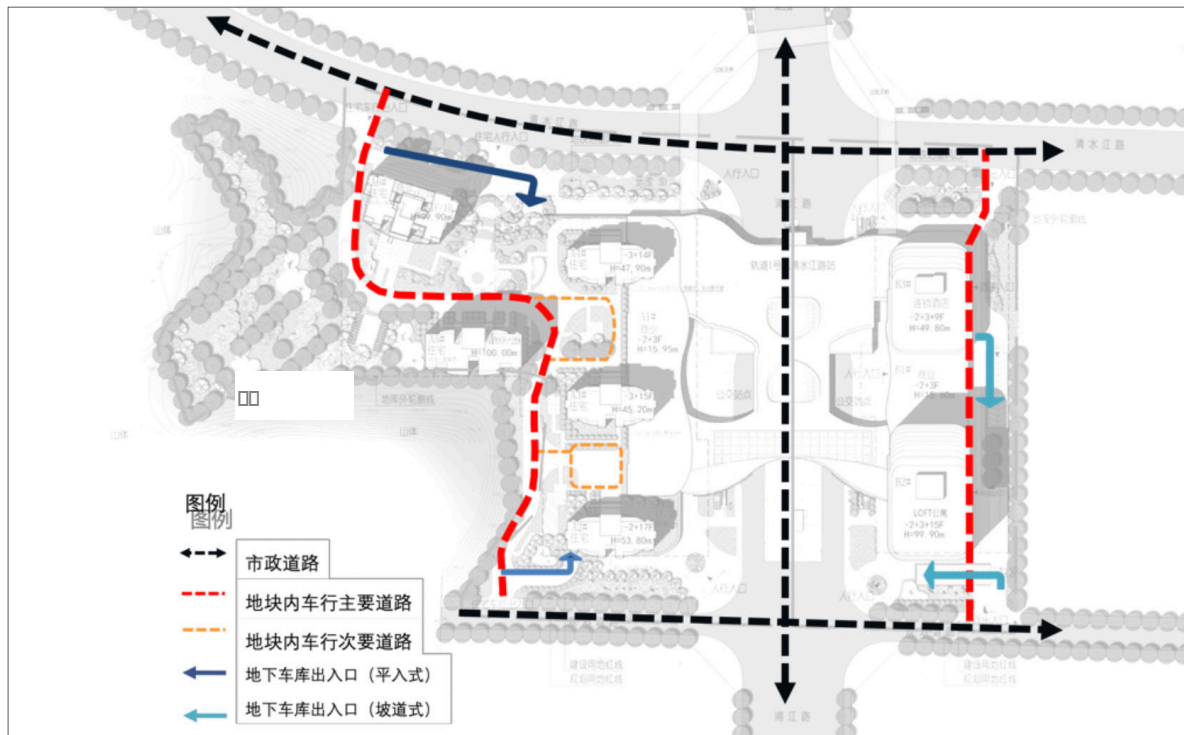
According to the relevant regulations of Guiyang City, the ratio of residential parking

spaces is about 1: 1.1. Commercial parking spaces and residential parking spaces are planned and managed separately.

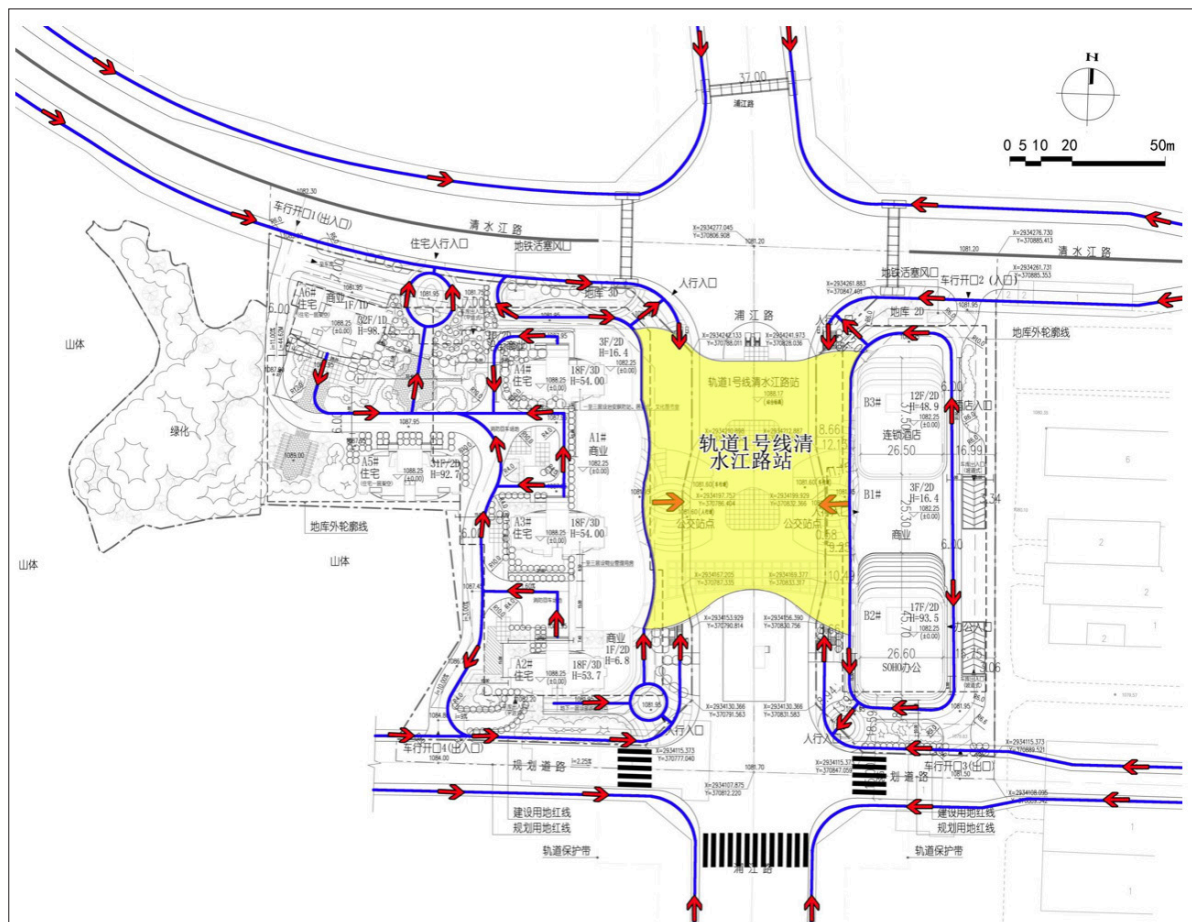
Inside the complex, the station hall area serves as the central area for the flow of people, and on the second-floor station hall, it achieves a horizontal diversion to the west land (residential and some commercial functional areas), and the east land (commercial office functional area); and rapid evacuation of the flow of people through the north-south direction.



Traffic flow analysis of vehicle driving system



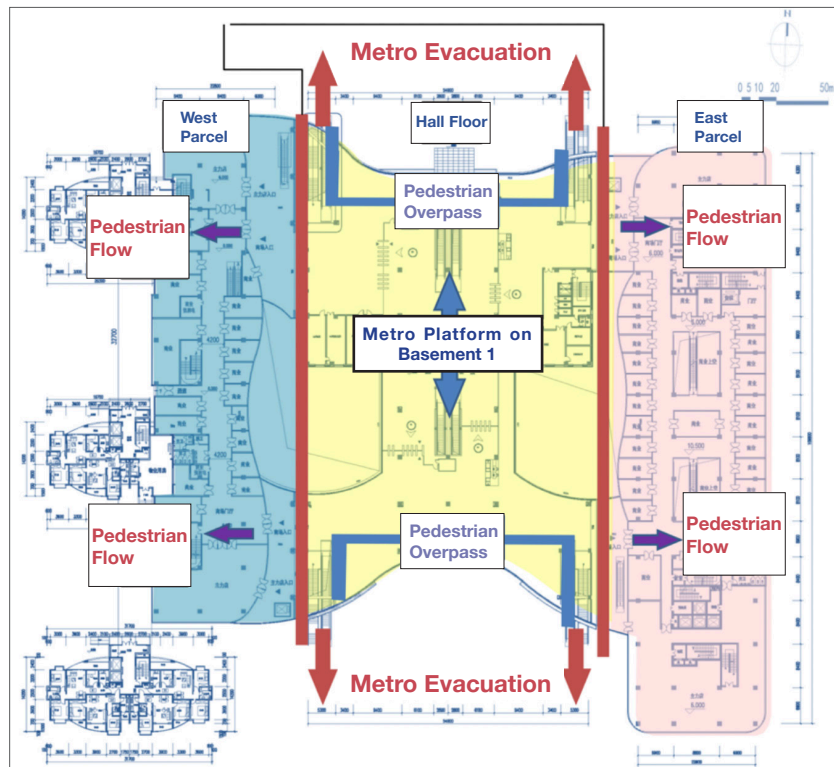
Traffic flow analysis of pedestrian system







Pedestrian flow analysis inside the station

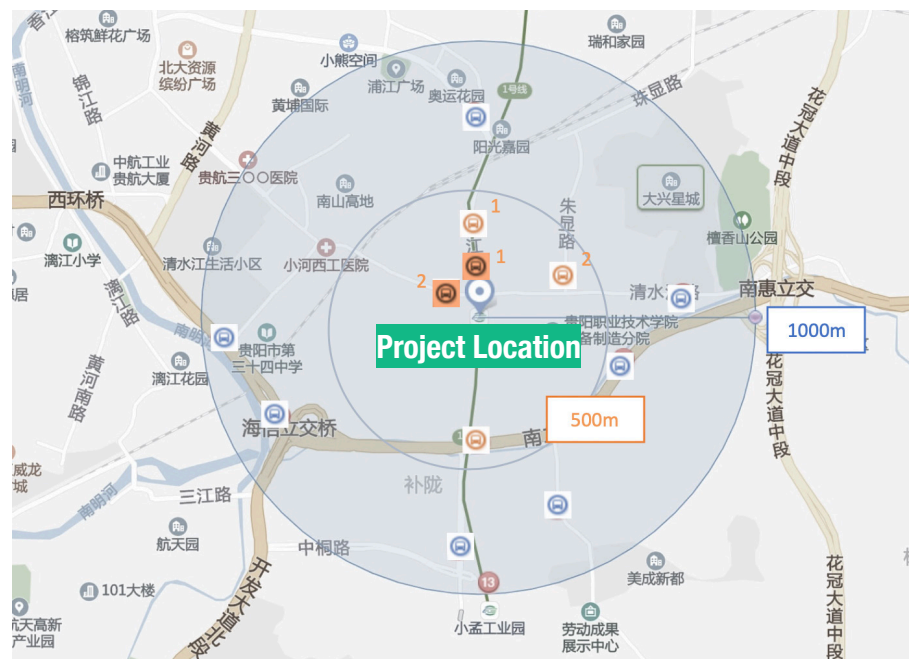


Commerce on West Parcel      Station Hall of Rail Transit Line 1      Commerce on East Parcel

#### 4) The last mile connectivity could be reached by shuttle buses around

According to the project plan, the origin and terminal bus stations and transfer stations (Zhujiang Road Transfer Station, Daxing Xingcheng Bus Terminal Station, and Xiaohe Bus Transfer Station) were planned to be located on the east and the south sides of the project land lot. Daxing Xingcheng Bus Terminal Station in the east and Xiaohe Bus Transfer Station in the south are the nearest stations to the project land lot. Daxing Xingcheng Station is within one kilometer away from the project land lot. At present, there is no plan for setting up loop buses for the surrounding residences, but there are night bus lines.

Distribution of bus stops within 500m and 1,000m around the project

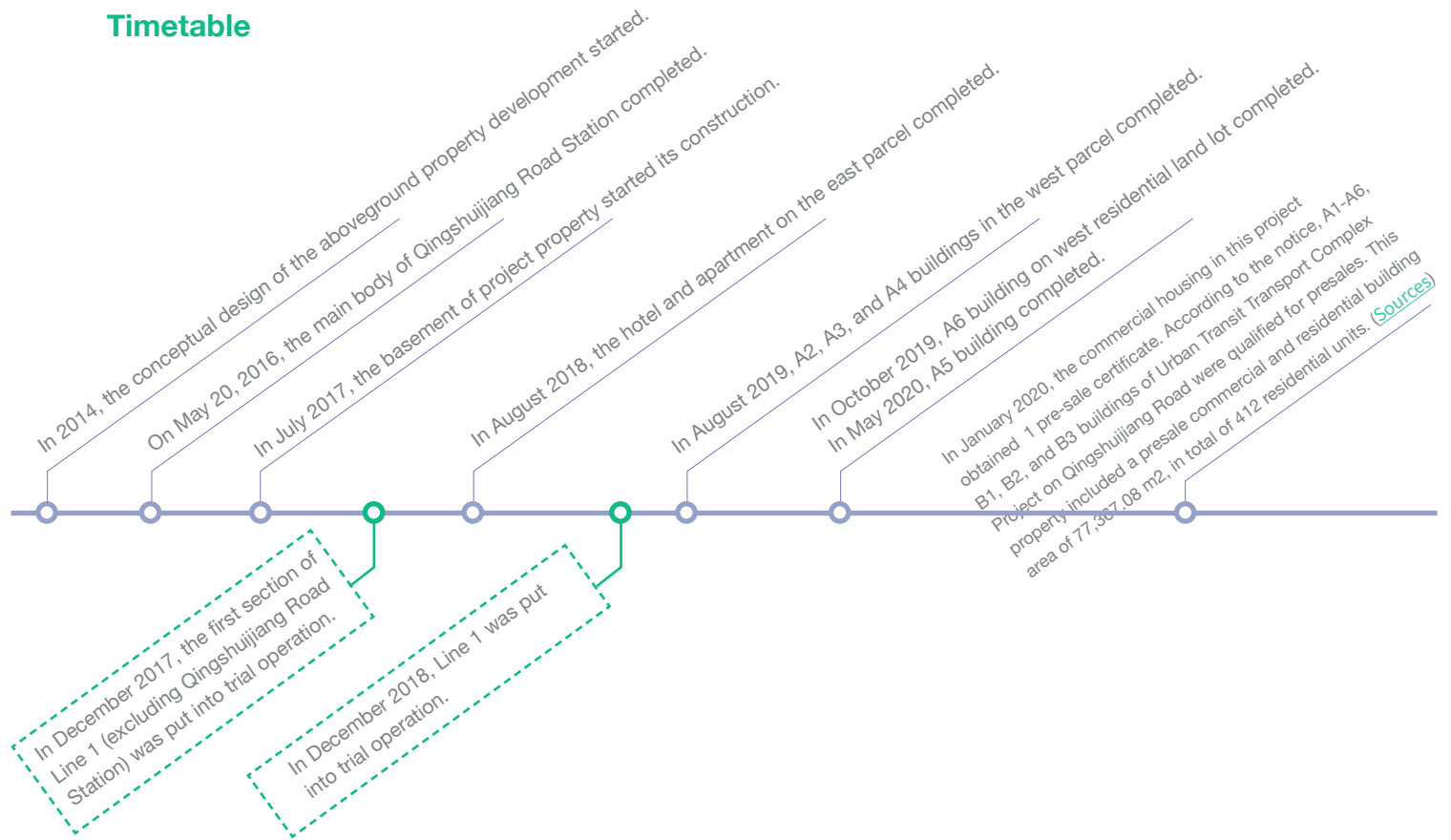


- 1: Departure station of No.13 line
- 2: Station of Night No.3 line
- 1: No. 13 line and No. 42 line stations
- 2: No. 81 line and No. 82 line stations

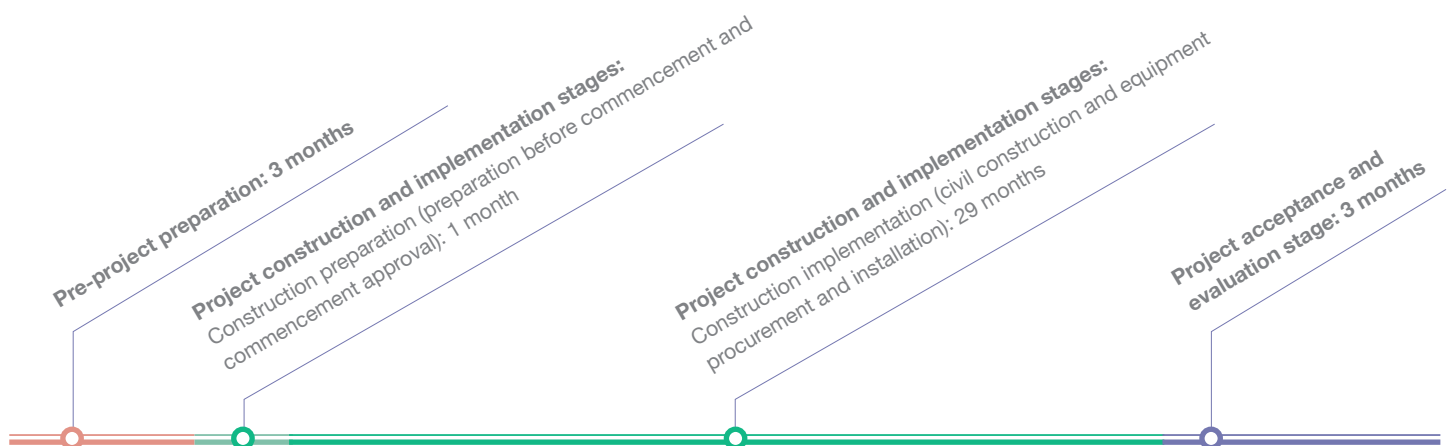


## 5) Optimize the schedule of rail transit development and real estate development to make the project implementation more efficient

### Timetable



### Project implementation schedule

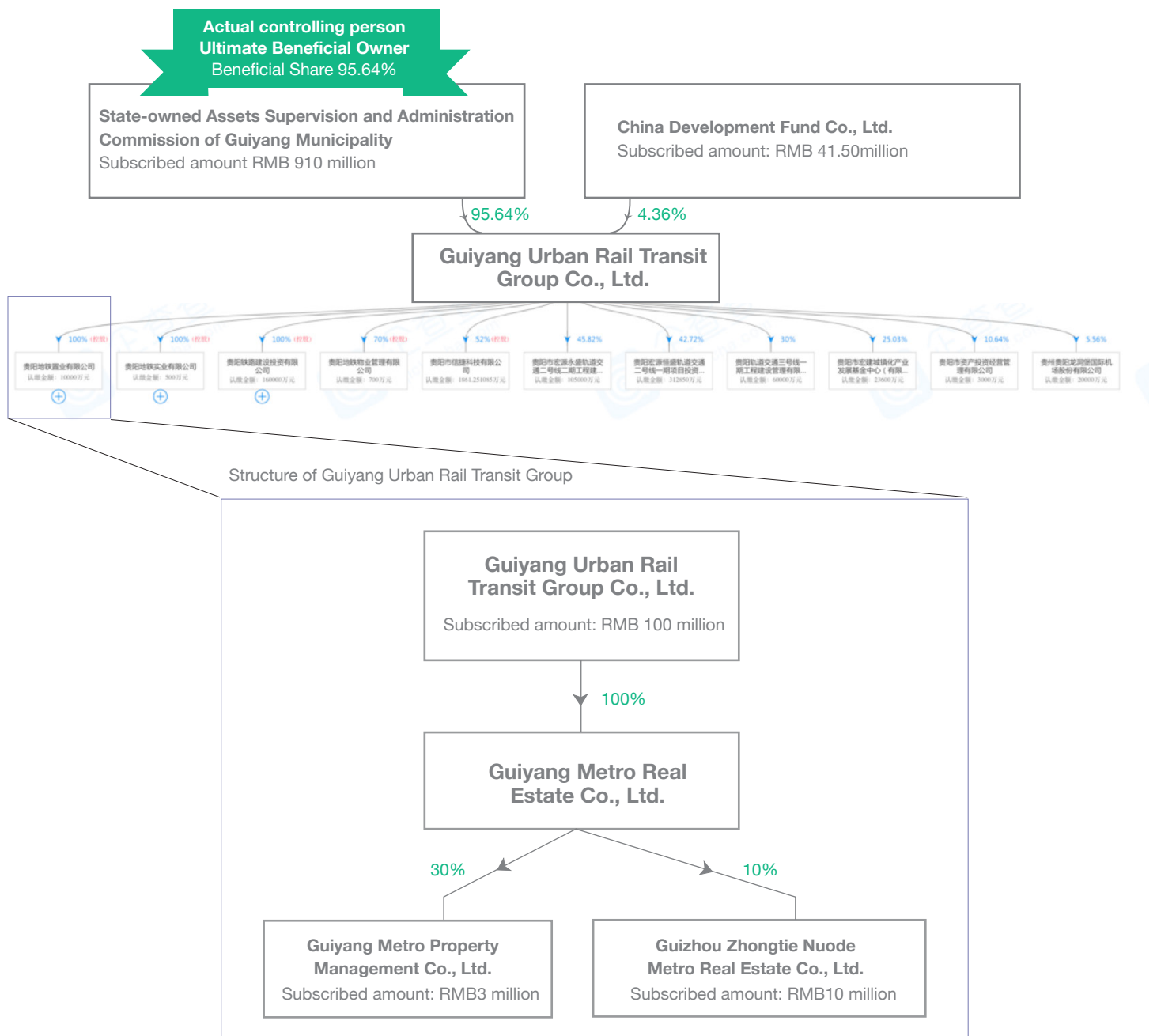




## 4. Project Financing

Land equity investment and primary and secondary joint development enabled the developer to control the cost of land acquisition to a great extent. The construction cost is self-raised through loans from the construction unites to banks.

The third-party evaluation unit recognized by the land resources department and state-owned assets department; the parcels were evaluated based on the market price. Guiyang Urban Rail Transit Group acquires the reserved land and expands its net assets by land equity investment. As a wholly-owned subsidiary of Urban Rail Transit Group Co., Ltd., Guiyang Metro Real Estate Co., Ltd., could realize the primary and secondary joint development within the group, promotes the rolling development investment to alleviates the financial pressure during the project cycle, and gradually promoting the development of the rail transit industry, so as to realize the financial sustainability of the group.







## Future Challenges

**Urban rail transit company as the main body of TOD project development has become a trend in China. Though the land equity investment largely reduces the land acquisition cost, fundraising turnover problems are still prominent. The long cycle of revenue generation also becomes a challenge for subsequent development and operation.**

- **Financing Issues:** The latest financing policy increases the difficulty in primary land development. The rail transit company needs to invest a large number of funds in the early stage for land and housing demolition and resettlement. The long backlog of the funds and the low capital turnover ratio affect the company's rapid development and expansion of the real estate business.

- **Long Cycle of Revenue Generation:** Use raw land for equity investment, the company must complete the regulatory detailed planning adjustment and primary land development first, which makes the entire long development cycle of the project, and brings about weak profitability, which makes it very difficult to generate revenue to subsidize the metro operation.

- **Resource Integration Issues:** Most of the parcels completed and planned for equity investment are located at both ends of the line. They are relatively far from the central station, which takes a long time to attract clients, resulting in a slow sales process and long capital recovery.

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## Report Sharing

- Assessing Physical Environment of TOD Communities around Metro Stations using Big Data and Machine Learning
- Integrated Urban Design Guidelines for Chengdu Rail Transit Station

## Upcoming Related TOD Events

- 2nd Annual Transit-Oriented Developments 2020, July 27-29, 2020, Singapore  
([link](#), password: goh3)

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