GEF-6 China Sustainable Cities Integrated Approach Pilot Project Quarterly Newsletter

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GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

WORLD BANK GROUP
Urban, Disaster Risk Management, Resilience & Land

PROJECT PROGRESS (As of September 15, 2021)

MOHURD

GEMH-01A: ***"Development and Application of TOD Policies, Technical Standards, and Management Tools in Chinese Cities"*** - An expert review of the development of diagnostics and planning modules of the TOD platform, as well as of TOD evaluation indicator system was carried out online on August 26, 2021. The revised intermediate output is expected to be submitted to the World Bank by the end of September 2021.

Beijing

GEBJ-1A: ***"Preparation and Implementation of City-Level Transit-Oriented Development (TOD) Strategy and Project Management Support"*** - Task 5 TOD Performance Assessment Standards, a TOD implementation plan, and Task 6 TOD Policy Framework Improvement and Operational Manual Preparation are under implementation. The first draft of the TOD implementation plan has been formulated, while public participation events were being carried out simultaneously. Four capacity building events have been held.

GEBJ-2: ***"Corridor-Level and Station-Level Application of TOD Strategy: Research on Optimization of Rail Transit Lines and Land-Use Based on TOD Principles"*** - For Task 2, the intermediate output for Optimizing Functions and Layout of Land along the Rail Track has passed expert review and was submitted to the World Bank on June 25, 2021. For Task 3, the development of a comprehensive design framework for key stations along Tongzhou-Miyun Line and the coordination and sorting of station design conditions are underway. An intermediate output seminar is planned for late September 2021 to determine the preliminary research concepts.

GEBJ-3: ***"District-Level Application of TOD Strategy: Urban Regeneration of Life Science Park Near Jingzhang HSR and Changping Metro Line"*** - For Task 2, the Comprehensive Planning and Transformation Study of the Urban Renewal Area around Rail Transit Stations passed expert review on August 25, 2021. The intermediate output is planned to be submitted to the World Bank by the end of September 2021. For Task 3, the "Comprehensive Assessment of Environment and Social Impact on Urban Renewal Areas around Rail Transit Stations" is advancing well with completion planned for March-April 2022.

Tianjin

GEFTJ-1: ***"Preparation and Implementation of City-level Transit-Oriented Development (TOD) Strategy and Project Management Support for Tianjin"*** - Tasks 1-7 have been completed, while Tasks 8 and 10 are progressing well. Tianjin PMO plans to carry out its final project review in October 2022.

■ **GEFTJ-2:** ***"Research on Financing a Tianjin Urban Rail Transit Project Applying TOD Principles."*** - The following milestones have been completed: the "Evaluation of the Current Status of Financing Urban Rail Transit in Tianjin", "Research Summary of Financing TOD Project for Main Urban Rail Transit Stations in Tianjin", and "Research Summary of Financing Urban Rail Transit Corridor Applying TOD Principles." Tianjin PMO plans to complete and submit revised intermediate outputs to the World Bank by the end of September 2021.

■ **GEFTJ-3:** ***"Tianjin Jianchangdao Area Rail Station - Planning and Design Research Project based on TOD Principles"*** - The contract was officially signed on August 10, 2021. An expert review of the inception report was completed on August 29, 2021. The revised report is expected to be submitted to the World Bank by the end of September 2021.

Shijiazhuang

■ **GEFSJZ-1:** ***"Preparation and Implementation of City-Level Transit-Oriented Development (TOD) Strategy and Project Management Support for Shijiazhuang"*** - Work under Tasks 5-7 has been advanced from June to September 2021. An expert review of intermediate outputs is planned for October 2021.

■ **GEFSJZ-2:** ***"Land Adjustment Plan for Shijiazhuang Urban Rail Transit Line 4"*** - Work under Tasks 1-3 has been advanced from June to September 2021. An expert review of intermediate outputs for Tasks 1-3 has been advanced is planned to be carried out by the end of 2021 and the revised version will be submitted to the World Bank.

■ **GEFSJZ-3:** ***"Research on Applying TOD Strategies to Five Stations and Three Areas Located to the North of Shijiazhuang East Station"*** - The contract was officially signed on June 30, 2021. The inception report is currently in the preparation stage. An expert review is planned to take place by the end of September 2021.

Nanchang

■ **GENC-1A:** ***"Preparation and Implementation of City-Level Transit-Oriented Development (TOD) Strategy and Project Management Support for Nanchang"*** - Tasks 4-6 passed expert review on June 28, 2021. Nanchang PMO has submitted the relevant intermediate outputs of Tasks 4-7 to the World Bank on September 1, 2021.

■ **GENC-2A:** ***"Study of TOD Planning and Design for Rail Transit"*** - Nanchang PMO has submitted revised intermediate outputs of Tasks 1-2 and the comprehensive project plan and test feedback report of Tasks 3-5 on September 1, 2021. A second stage expert review is planned for late September 2021.

■ **GENC-3B:** ***"Study of TOD-based Regional Planning around Rail Transit Stations"***
- Nanchang PMO has started the second stage contract negotiations and confirmed the total price of the project on July 28, 2021. The PMO plans to officially sign the contract by the end of September 2021.

Ningbo

GENB-1: ***"Study on TOD Strategies in Ningbo"*** - The diagnostic analysis and TOD typology identification for Task 4 have passed expert review. Further research on relevant departments of district government and reexamination of Task 4 are being carried out in accordance with the review. Research for Task 5 started in August 2021, with an intermediate output progress seminar to be held in November 2021. Public participation events have been repeatedly postponed due to the pandemic. At present, Ningbo PMO has conducted small-scale discussions and surveys in accordance with the relevant requirements and practical considerations. Public participation events are planned for around October 2021 if COVID-19 prevention measures allow for it.

GENB-2A: ***"Consulting Service regarding TOD Implementation for Kaiming Street (Yaoxing Street-Zhongshan Road), Xin Street, and Shuangliang Community"*** - The initial design of the Kaiming Street pilot project plan has been completed. Plan review and financial model calculation stage are in process. Ningbo PMO plans to coordinate with relevant pilot project stakeholders in the next stage in September 2021.

GENB-2B: ***"Research on Financing Schemes of TOD Implementation for Kaiming Street (Yaoxing Street-Zhongshan Road), Xin Street, and Shuangliang Community"*** - Financial analysis and demonstration has been carried out in accordance with the design plan of the GENB-2A contract. Preparation of the intermediate output report for Task 1 is currently underway, and an intermediate output progress seminar will be held in November 2021.

GENB-3: ***"Study of TOD-based Regional Planning round Rail Transit Stations"*** - An expert review of the comparison and selection of research plans for the key stations of Task 3 was completed in August 2021. Urban design research on Kaiming Street Corridor Area under Task 4 is currently being carried out. Intermediate outputs of Task 4 are expected to be submitted to the World Bank by November 2021.

Guiyang

GEFGY-1: ***"Preparation and Implementation of City-Level Transit-Oriented Development (TOD) Strategy and Project Management Support for Guiyang"*** - Guiyang PMO and project team conducted surveys in Yunyan District, Nanming District, the Economic and Technology Development Zone, Shuanglong District, Wudang District, Baiyun District, the High-tech Industrial Development Zone, and Qingzhen in June 2021. The third stage of research is currently underway. The first draft of the greenhouse gas calculation proposal and the preliminary results of the Guiyang TOD implementation plan were completed. The top-level Guiyang TOD design plan, Guiyang TOD implementation plan, and other relevant deliverables are being further reviewed and improved. Guiyang PMO plans to submit intermediate outputs to the World Bank by the end of October 2021.

■ **GEFGY-2:** ***"Research for the TOD Comprehensive Development Planning for Areas Along the Rail Transit Line S1 Phase I and Line 3 Phase I Project in Guiyang City"*** - Analysis of land development potential, land use planning and station typology identification in Huaxi District, and urban design plans for Huaxi Station and Taohuazhai Station have been completed. Land use planning and station typology identification along transit lines in Gui'an, Nanming, Yunyan, Wudang, and the Economic and Technology Development Zone, research for TOD urban design plans of Huansha Road Station and Wenquan Road Station, and research on a integrated transportation plan in transit corridors are being carried out. The research is expected to be completed by the end of September 2021. Intermediate outputs are expected to be submitted to the World Bank by the end of October of the same year.

■ **GEFGY-3:** ***"Study on the TOD Comprehensive Development Planning for Areas Along the Ring High-speed Railway in Guiyang City"*** - Partial status analysis, functional layout analysis of construction land, existing plan, control research of construction land, and comprehensive transit planning of 17 stations have been completed. Intermediate outputs are expected to be submitted to the World Bank by the end of October 2021.

■ **GEFGY-4:** ***"Strategic Environmental Assessment and Social Impact Assessment for TOD Planning and Research"*** - Contract negotiation was conducted on July 22, 2021, and the final contract is still being refined. Guiyang PMO plans to officially sign the contract by the end of September 2021.

Shenzhen

■ **GESZ-1:** ***"Preparation and Implementation of City-Level Transit-Oriented Development (TOD) Strategy and Project Management Support for Shenzhen"*** - The diagnostic analysis and TOD typology identification for Task 4 have been completed. An expert review (covering Tasks 1-4) was carried out on June 22, 2021. A Chinese and an English version of the intermediate output report were submitted to Shenzhen PMO. Research for Tasks 5-6 is being carried out. In terms of strategic environment and social impact assessments, a preliminary report outline has been developed in accordance with the requirements. The composition of a preliminary report is being accelerated.

■ **GESZ-2A:** ***"Research for the Sustainable Development Planning and Construction Management of the Bainikeng Community Based on TOD Principles"*** - Intermediate outputs of Tasks 1-5 have been completed. An expert review of semi-annual report (covering Tasks 1-5) was conducted on July 14, 2021. The Chinese version of the semi-annual report has been submitted to Shenzhen PMO and is currently being translated to English. District- and station-level urban design for Task 6 is being carried out. In terms of strategic environment and social impact assessments, the task outline of this section has been revised in accordance with the requirements. Preliminary results are being formulated.

PROJECT IMPLEMENTATION PROGRESS (As of September 15, 2021)

PMO	Activity	Draft TOR	Final TOR	Bidding Announcement	Shortlist Review	Bid Evaluation	Contract Negotiation	Contract Signing	Inception Report	Intermediate Output	Mid-term Report	Draft Final Report	Final Report
MoHURD	National TOD Platform												
Beijing	City-level TOD Strategy												
	Corridor and Station-level TOD Application												
	District-level TOD Application												
Tianjin	City-level TOD Strategy												
	Research on Private Sector Engagement in TOD Financing												
	District-level TOD Application												
Shijiazhuang	City-level TOD Strategy												
	Corridor-level TOD Application												
	District and Station-level TOD Application												
Nanchang	City-level TOD Strategy												
	Corridor-level TOD Application												
	Station-level TOD Application												
Ningbo	City-level TOD Strategy												
	District-level TOD Application												
	District-level TOD Application												
	Station-level TOD Application												
Guiyang	City-level TOD Strategy												
	Corridor-level TOD Application												
	Corridor-level TOD Application												
	Strategic Environmental Assessment for Corridor-level TOD Application												
Shenzhen	City-level TOD Strategy												
	District and Station-level TOD Application												

LEGEND

Colored cells indicate the progress of each project. Blue cells indicate progress from July 15, 2021 - September 15, 2021.

CAPACITY BUILDING AND ACADEMIC EXCHANGES

On June 25, 2021, the China Rail Transit Innovation and Development Conference was held in Hefei. Hefei Municipal Government targeted an average annual growth of 45% for the rail transit equipment industry over the period of the 14th Five-Year Plan. On the same day, relevant scholars, experts, and personnel from the Hefei Municipal People's Government and China Railway Group took a test ride on the "New Era" straddle-type monorail and the hydrogen-fuel low-floor tram. During the period of the 14th Five-Year Plan, Hefei will facilitate national transit development and actively participate in the joint construction of the Yangtze River Delta Metropolitan Areas along Rail Networks project. Hefei will also vigorously implement the "1155 Action Plan", which aims to construct and expand 1,000 km of railways, 1,000 km of highways, 500 km of urban expressways, and 500 km of urban transit railways to form a clock-shaped high-speed rail network. *(Relevant Link)*

(Image Source: Hefei Shike)

Guided by the China Society of Territorial Economists (CSOTE) and hosted by TOD Committee of CSOTE, the New and Old Kinetic Energy Conversion — Rail Transit-Led High-Quality Development of Urban Agglomerations and Metropolitan Areas Summit was held from June 26 to June 27, 2021. The theme of this summit was about accelerating the conversion of new and old kinetic energy to realize high-quality urban development. By implementing the national transit development (building national strength in transportation strategy) and territorial spatial planning strategy, local governments should peak carbon emission and achieve carbon neutrality. They should also push the integration between urban (suburban) railway planning and territorial spatial planning, the planning of urban agglomerations and metropolitan areas, multi-level rail transit, comprehensive urban transportation systems, railway hubs, and urban rail transit. The Summit hosted in-depth discussions on three topics: urban development opportunities brought by the Four-Transit Network Integration, comprehensive development brought by TOD, and urban renewal under the new circumstances. *(Relevant Link)*

(Image Source: TOD Committee of the China Society of Territorial Economists)

Hosted by Taiyuan Railway Transit Development Co. Ltd. and co-organized by Vanke Taiyuan, the 2021 Urban Rail Transit-Oriented Comprehensive Development — Taiyuan Forum was held on July 10, 2021, in Yingze Hotel. Bai Xiaoping, Chairman of Taiyuan Railway Transit Development Co. Ltd., Zhou Xiaoqin, Executive Vice President of China Association of Metros, Fu Zhiqiang, Chief Product and Committee Planner of Vanke, and other experts and scholars attended the forum. Experts noted that with the increasing scale of cities and the number of private cars year by year, the pressure on urban roads would increase significantly. The emergence of TOD mode will greatly relieve this pressure. *(Relevant Link)*

(Image Source: Vanke Taiyuan)

On July 13, 2021, the Chongqing Municipal People's Government held a signing ceremony for the launch of the Action Plan for Introducing Innovative Technology Resources. The Chongqing Municipal People's Government signed strategic partnership agreements with China Agricultural University, Nanjing University, Central China Normal University, and Southwest Jiaotong University. Liang Jiang New Area and Nanjing University, Tongnan District and Nanchang University, and Dianjiang County and the College of Information and Electrical Engineering of China Agricultural University signed cooperative agreements respectively. These agreements cover strategy consultation, transformation of scientific and technological achievements, industry-university research collaborations, talent exchange, and other relevant areas. Each agreement was designed to be efficient and pragmatic. All agreements not only meet the practical needs of Chongqing, but also demonstrate the unique advantages of each university. *(Relevant Link)*

(Image Source: Southwest Jiaotong University News Network)

On July 14, 2021, the Chengdu-Chongqing Metropolitan Area TOD Forum was held in Chongqing. Focusing on topics such as the TOD integrated comprehensive development of urban rail transit, the forum invited Nikken Sekkei, Chongqing Design Group, China Southwest Architectural Design and Research Institute Corporation Ltd. (CSWADI), and other outstanding companies in the industry to provide suggestions for the development of the Chengdu-Chongqing Economic Circle on the Rail. Cushman & Wakefield also published the Rail Transit-Oriented Urban Development — TOD in Chengdu-Chongqing Metropolitan Area White Paper at the forum. *(Relevant Link)*

(Image Source: Chinadaily.com.cn)

On July 16, 2021, Qingdao Metro Group participated in the 2021 Shandong (Qingdao) Livability Expo and China (Qingdao) Livability and High-Quality Development of Construction Industry Forum. Zhang Jiangang, Secretary of the Party Committee, Chairman of the Qingdao Metro Group, attended the Expo as a special guest. He participated in a round table forum and exchanged ideas on the implementation of comprehensive TOD and the realization of livable cities. Adhering to the principle of "Metro development is urban development," Qingdao Metro Group focuses on using marketization, branding, and capitalization to drive the development of a new urban development pattern led by rail transit. The company plans to fully implement 15-20 TOD demonstration projects by 2025, realize two goals: a net worth of over CNY 100 billion asset value and a net worth of over CNY 100 billion investment, and become the city operator that creates a livable and business-friendly environment. *(Relevant Link)*

(Image Source: Qingdao News)

On July 18, 2021, Traffic Control Technology (TCT) announced the moving block system which was independently developed by TCT will be used in heavy-haul railway system for the first time. This application represents a technological breakthrough in the key field of train control systems. In the exclusive interview with People.cn, TCT Chairman Gao Chunhai stated that the application of moving block system on heavy-haul railways will create a new billion-level market for the company. As the development of a modern comprehensive transit system deepens, constructing smart urban rail transit through the development of smart systems has become a key direction for transit development in the future. TCT is the general responsible party and core technology provider of the heavy-haul moving block system for Shuozhou-Huanghua Railway. *(Relevant Link)*

On July 21, 2021, Fuzhou News Network hosted the "Upwards Fuzhou!" TOD Driven New Urban Development Forum at the Listen Bookstore in Shang Xia Hang, Fuzhou. In the forum, Chen Liang, Chief Planner of the Fuzhou Planning & Design Research Institute Group Co. Ltd., Zheng Zhang, a well-known figure and market research expert in the real estate industry, and Jiang Jing, Co-Founder of Incity MCN, discussed current urban planning and policies. At present, Fuzhou has approved the station constructions for Doumen Station, Dongsheng Station, Banzhou Station, Luozhou Station, Zhanglan Station, and Fenggangli Station. Key TOD projects under construction in Fuzhou include Zhongjun World City FUNWORLD, Interfuture (Rongxin Yingyue), Shimao the River One, Greentown Begonia Moon, Guomao Shangjiangyuan Villa, and Gemdale Freetown. *(Relevant Link)*

(Image Source: Qingdao News)

On July 30, 2021, the Ministry of Transport (MOT) held a video conference on operational safety of national urban rail transit. At the conference, Minister Li Xiaopeng emphasized that the protection of lives and property must be the priority. A safe and stable operation of urban rail transit should be ensured. All urban rail transit authorities should have zero-tolerance for potential safety hazards and learn from the flooding incident of Zhengzhou Metro Line 5. Li Xiaopeng asked all local transit authorities and departments to thoroughly investigate and troubleshot hidden hazards caused by extreme weather and cooperate closely with meteorological departments in flood control and typhoon prevention. Li also emphasized the importance of improving contingency plans in a target manner and strengthen emergency response and handling. In the event of extreme weather or emergencies that endanger the lives and safety of people, operation units should immediately cease operations on relevant sections or the entire network in accordance with regulations. The Minister also noted the importance of properly conducting disaster recovery. Daily operations should not be resumed until safety assessments have been conducted and hidden hazards have been eliminated to prevent further incidents.
(Relevant Link)

INDUSTRY NEWS

Metropolitan Areas along Rail Networks

On June 21, 2021, the National Development and Reform Commission (NDRC) and the Ministry of Transport (MOT) jointly issued the *"Integrated Transportation Development Plan of Chengdu-Chongqing Economic Circle"*. The Plan outlined that the Chengdu-Chongqing Economic Circle on Rails should be basically completed by 2025 with over 10,000 km of rail track. Using rail transit as the backbone and highway networks as the foundation, the Plan facilitates the construction of a comprehensive transit network with a 1-hour transit and commute circle between Chengdu and Chongqing as well as other central cities in the region. *(Relevant Link)* On July 9, the People's Government of Fujian Province officially released the *"Fuzhou Metropolitan Area Development Plan"*. Following the Nanjing Metropolitan Area, this will be the second metropolitan area approved by the NDRC.

Public Transit Pilot City

On July 30, 2021, the Ministry of Transport announced on its website that 7 cities (Taiyuan, Changchun, Chongqing, Guiyang, Kunming, Lanzhou, and Xining) successfully passed the national transit metropolis demonstration project assessment and were named as national model transit metropolises. *(Relevant Link)*

On August 11, 2021, the Ministry of Transport issued the *"Notice on Naming 7 National Model Cities for Public Transit" (hereinafter referred to as the 'Notice')*. The Notice named Taiyuan, Changchun, Chongqing, Guiyang, Kunming, Lanzhou, and Xining as national model transit metropolises. To date, a total of 33 cities have been named national model transit metropolises. The Notice outlines that these seven cities should place top priority on urban public transit development, actively benchmark against international advanced public transit system, establish a long-term mechanism for the construction of national transit metropolis. They should also continue improving the quality of urban transit governance and accelerating the high-quality development of urban transit to continuously meet the demand of advanced transit. *(Relevant Link)*

TOD Integration Project Development

The Jinyi Section of the Jinyidong Rail Transit in Jinhua, Zhejiang, has completed its construction and started trial operations at the end of June 2021. This section of the track connects three primary urban areas (Jinhua, Yiwu, and Dongyang), four railway stations (Jinhua Station, Jinhua South Station, Yiwu Station, and Hengdian Station), and five key complexes (Jinhua Commercial Center, Jinhua Science and Technology City, Yiwu International Trade Market, Dongyang China Woodcarvings City, and Hengdian World Studios). *(Relevant Link)*

On July 11, 2021, the City West Transfer Hub, Nanjing Jiangbei New Area's first TOD project, officially came into operation. The Pukou Chengxi Road Transfer Hub Project is located on the southeast side of the intersection of Jianshe Road and Guangming Road in Jiangpu Subdistrict, which is close to Yushan Road Station of Metro Line 10. The project features a gross floor area of 78,000 m² above ground and an underground gross floor area of 36,000 m². It received about CNY 687 million investment in total. *(Relevant Link)*

On July 14, 2021, Erjiang Temple TOD Liangjiang-Yingyue Project successfully obtained a pre-sale permit. The project is the first TOD project in the Shuangliu District and will soon be officially launched. At present, four TOD projects (Luxiao, Shuangfeng Bridge, Zitong Palace, and Erjiang Temple) have been launched in the Chengdu real estate market. The Erjiang Temple TOD project is connected to the entrance and the exit of Erjiang Temple Metro Station on Metro Line 5. The project covers an area of 28,000 m² and is surrounded by 4 high-rise residential buildings with a floor area ratio of 2.0. The 0.4 km² Nanhu Sports Park, 4 km² Nanhu Park, and 1.4 km² Yixin Lake are within a walking distance of the Erjiang Temple Metro Station. *(Relevant Link)*

On July 15, 2021, the requisition and relocation procedure for the first TOD project in Nanchang Economic and Technological Development Zone has started. The site will be connected to Shuanggang Metro Station on Metro Line 1 and is located to the east of Lushan Avenue, south of Zhimin Avenue, west of Beijing–Kowloon railway, and north of Shuanggang Avenue. The project consists of 12 plots of land (five for residential use, one for commercial use, one for primary and secondary school, one for storage, one for university, one for urban rail transit, one for green park space, and one for protected green space). *(Relevant Link)*

On July 19, 2021, the first plot of Sancha TOD project entered the main building construction phase. The project is located in the Jiangxi South Cluster of New Aerotropolis in the Chengdu Eastern New Area. The TOD project is right next to Tianfu Olympic Sports Park and will serve as the core of the strategic spatial structural planning of the Chengdu Eastern New Area. As first station come into operation on Line 18, Sancha TOD project will serve as a connecting point between two airports as well as a transfer hub for rail transport and ground transport. In the future, the Project will also serve as a transfer point for the S2 line. According to the "Comprehensive Urban Design Plan for the TOD Integration Project of Sancha Station in Chengdu Eastern New Area", the project will include the construction of a comprehensive two-layer corridor system to provide a forward-looking, overall solution for a car-free, pedestrian-friendly public transit system. *(Relevant Link)*

On July 20, 2021, the construction of Chengdu CIFI (Xuhui) Center, the first TOD project in Wenjiang District, officially began. The project features a gross land area of around 188,000 m² and a planned gross floor area of 730,000 m², including 110,000 m² of commercial shopping center, 147,000 m² of unique commercial blocks, offices, etc. The project has a total planned investment of CNY 10 billion. *(Relevant Link)*

On August 2, 2021, Dongping Road TOD Station project of Taizhou Market Station Real Estate, a subsidiary of Taizhou Public Transportation Group, effectively alleviated the shortcomings of urban public transit station infrastructure construction and greatly reduced the pressure on government financial investment. This TOD station project is located to the south of Dongping Road and the east of Hailong Road. The planned construction gross land area is 11,800m². The project consists of a 17-story residential building and a 9-story office building with a 2-story podium (with 1 floor and partial 2-floor at the below grade) sitting in the bottom. The podium is programmed as a transit hub and a shopping center. Dongping Road TOD

project of Taizhou Public Transportation Group adopts a three-dimensional development model. The project features residential, commercial, and office buildings planned and designed with convenient public transit functions along with various scientific planning measures to control and reduce the environmental impact of station facilities. *(Relevant Link)*

On August 3, 2021, the Xingfuqiao TOD Xingfu Shiguang project of Chengdu Rail Transit Urban Investment Group, a subsidiary of Chengdu Rail Transit Group, successfully obtained a pre-sale permit. This is the sixth TOD project launched in Chengdu since the planning of TOD for Chengdu in 2017 and the first in Jinniu District. The project is located at the intersection of Tianbao Road and Tianyin Road in Jinniu District, close to Xingfuqiao Station of Metro Line 5 and with Shimenkan Station of Line 27 (under construction) to the east of the project location. Moving from north to south, Line 5 connects many key areas such as Yixin Lake, Dayuan, Jincheng Lake, Qingyang Palace, and more. This metro line also includes direct transfers to Lines 2, 3, 4, 6, 7, 8, and 9. The project features a three-dimensional transit network made up of three vertical avenues (Beixing Avenue, Jinfurong Avenue, Rongdu Avenue) and two ring roads (the City Ring Expressway and the Third Ring Road). *(Relevant Link)*

On August 4, 2021, the Century City VAYAlley (Shangxianli) TOD Commercial Street Project, the first commercial complex run by Chengdu Rail Transit, was officially unveiled. Located at the interchange station of Metro Lines 1 and 18, the project features leading brands such as Starbucks, FamilyMart, McDonald's, and others. In terms of retail format, the project relies on the development of underground spaces to actively create a multi-functional rail transit commuter complex that are connected to business, commercial, and residential functions. *(Relevant Link)*

As of August 9, 2021, Guangzhou Cadre International Tod Center (ITC), the first TOD project in China, had been involved in multiple lawsuits starting from 2019. According to plans, the ITC ground-level shopping mall should have started to operate on January 1, 2019, while the hotel and office buildings should have been commissioned on December 30, 2019. According to the Cadre ITC official WeChat account, primary reasons for the project delay were the significant challenges posed by dealing with multiple rail transit systems and the sudden outbreak of COVID-19 pandemic in 2020. At present, the ITC project is being reorganized with target enterprises in Guangzhou and proceeding smoothly with government support at all levels. *(Relevant Link)*

On August 17, 2021, the National Development and Reform Commission officially approved the feasibility report on the construction of Chengdu–Chongqing Central Line High-Speed Railway including Shiling South Station. According to the approval statement, the project should start from Chongqing North Station (Chongqing hub), pass Chongqing Science City, Tongliang, Dazu, Anyue, Lezhi, and Jianzhou New Town, and end at Chengdu Station (Chengdu hub). The mainline is 292 km in length and runs through 8 stations, 6 of which will be newly built. The railway features a double-track design with an operating speed of 350 km/h, a planned long-term annual single-direction transport capacity of 32 million people per year and represents a total investment of CNY 69.273 billion. *(Relevant Link)*

On August 20, 2021, the Town Planning Board of Hong Kong SAR approved the improvement plan for Sun Hung Kai Properties Limited's (00016. HK) commercial complex atop the West Kowloon Station of Guangzhou–Shenzhen–Hong Kong Express Rail Link. The project will connect Yau Tsim Mong District and Tai Kok Tsui Area with the superstructure of West Kowloon Station and West Kowloon Cultural District through the 1.5 km West Kowloon Garden Path. This Garden Path will improve the accessibility of the waterfront and the integration of old and new communities. It will also serve a communal function of connecting communities to the Victoria Harbor. *(Relevant Link)*

On August 30, 2021, the Chongqing Municipal Bureau of Planning and Natural Resources issued the *"Solicitation Announcement of Comprehensive CRT Line 6 (Including International Expo Line) Route Plan, TOD Comprehensive Development Plans for Demonstration Sites, and Urban Design Proposal"*. This announcement outlined that Chongqing Rail Transit (CRT) Line 6 would serve as a core transit line running from the southeast to northwest of Chongqing's rail transit network, through Liangjiang New Area. *(Relevant Link)*

On August 27, 2021, the National Steering Group of the "Three Districts and Three Lines Pilot" Project visited CCCC Urban Investment Holding Company Limited to investigate and research the Linyuexi TOD project in Foshan, which is the company's largest commercial complex TOD project. The project is located in Sanshan New City. Sanshan New City is located at the intersection of Foshan Metro Line 2 and Nanhai New Transport (Tram Station). The project is financed by CCCC Urban Investment and features a gross floor area of 700,000m² that includes a 55,000m² sports park, a 26,000m² commercial area, a nine-year system school, and other facilities. The comprehensive development project is in a hub area that integrates public transportation, public facilities (parks, schools), above-ground garages, and commercial and residential buildings. *(Relevant Link)*

Transport Hub Integration

On August 10, 2021, the facilities at Lianhua Road Station on Shanghai Metro Line 1 and the Public Transit Hub were successfully upgraded and put into operation. The TOD complex of Lianhua Road Station is also undergoing renovation. According to relevant departments, 8 large-scale constructions above subway system (CASS) projects will be added along urban rail transit lines during the period of the 14th Five-Year Plan. The Shanghai 14th Five-Year Plan outlined that it is necessary to strengthen the TOD mode in order to fully utilize the guiding role of key regional transit corridors when planning the spatial layout of cities and towns. With rail transit stations as centers, the functionality and environment around project sites should be optimized through three-dimensional high-density development. Rail transit and regional development should form a virtuous cycle of mutual benefit by unleashing the potential of land. *(Relevant Link)*

On August 20, Guangzhou Panyu Passenger Station TOD Project issued a pre-approval announcement for the adjustment of its plan. This project is a large-scale complex that includes subway stations, coach stations, bus terminals, primary schools, kindergartens, and residential areas, and located above Panyu Passenger Station on the 9.6 km east extension of Metro Line 3 (under construction). The extension features 4 stations, including a transfer station, Haibang Station, to Line 4. Panyu

Passenger Station is located on the west side of the intersection of Yayun Avenue and Bangyan Road. Since 2017, the Guangzhou Municipal Government has added 1.95 million m² of residential land and 4.64 million m² of gross floor area through this mode. Guangzhou has also provided 357,000 m² of government housing along subway lines through land leasing and tie-in construction. The development of CASS complexes can effectively increase land value and the quality of urban space around rail transit stations. An innovative "rail + industry + community" model will be achieved by the purchase and integration of surrounding land and the planning adjustment of station complexes. A new benchmark for urban construction will be created to promote the sustainable development of rail transit constructions. *(Relevant Link)*

On August 30, 2021, Guangzhou Public Resources Trading Center announced an invitation to bid. This invitation is an open tendering for modifications of Jiaokou Bus Station's regulatory plan and the preliminary research project of urban design at a maximum bid price of CNY 3.256 million. Since the project site is closely connected to Jiaokou Metro Station and serves as part of a regional comprehensive public transit hub upgrade and transformation project, the land-use planning and control of the project should be considered from the perspective of integrated transit. The project site is located in the contiguous development area of the Liwan-Nanhai pilot zone, which is one of the key pilot zones listed in the Guangzhou-Foshan High-Quality Development Integration and Innovation Pilot Zone Plan. Besides, it also involves Wuyanqiao Village, which is part of the Three-Year Urban Village Renewal Plan in Liwan District. As such, the announcement noted that the scope of the regulatory plan should be in conjunction with the Wuyanqiao District. Overall, the project has a construction period of 120 working days including a preliminary urban design research proposal, mortifications of the regulatory plan, land reserve research, functionality planning research, traffic impact assessments, and six other areas. *(Relevant Link)*

On July 14, 2021, Dongguan Municipal People's Government invested CNY 24 billion into the development of the Humen High-Speed Rail Station's core TOD area. The project covers an area of around 0.37 km² and features a construction scale of 1.35 million m². The construction is scheduled to start in September 2020 and finish in July 2024. According to the Plan, the HSR station area will use Humen HSR Station and its comprehensive development to transform the area into a complex with three primary services (commerce, business services, and R&D) and three additional functions (shopping, residential, and services). The complex is scheduled to come into operation before the Spring Festival travel rush in 2023. *(Relevant Link)*

Integrated Development of Underground Spaces

On June 21, 2021, Qingdao Municipal People's Government launched the city's first underground TOD project in the International Cruise Port Area in Shibei District. On May 20, Qingdao Huanhaiwan Development and Construction Co. Ltd. made a successful bid for the project. The project is expected to be completed by the end of 2023. This is the first construction project in Shandong that feature the transfer of integrated underground space. The project is located in the area below Xinjiang Road, Bohai Road - Puji Road Extension Line - Jiaozhou Bay Coastline - Qiuxian Road in Shibei District. It covers an area of around 72,500 m², 4-floor underground, and a gross floor

area of around 218,000 m². Designed with the principle of using rail transit as a framework and TOD as the core, the underground spatial structure takes the form of "three corridors, three cores, three nodes, and five clusters". The Eye of the World is a subway construction project. It plans to build four underground floors. The first floor underground is a multi-functional transfer station for tourist buses and taxis. It interconnects with the pedestrian zone and the subway property management area on the B1 floor. The B2 floor is a large flat space for private vehicles, while others are parking and equipment floors. *(Relevant Link)*

On August 26, 2021, to accelerate the research and compilation of the "Special Plan of the Development and Utilization of Rail Transit Land" and the "Strategic Plan for a Comprehensive Transit-Oriented Development", the personnel in charge of the Qingdao Municipal Bureau of Natural Resources and Planning led and hosted the Integrated Rail TOD Planning Seminar. Qingdao Metro Group and other related design organizations participated in this seminar. The seminar emphasized that the operability, implementability, and practicability of the Plans should be ensured. The seminar also noted that during the research and compilation process, it is necessary to learn from the experience of developed countries and advanced cities. The Plans should consider Qingdao's actual conditions, focus on industries and functions of the city, and conduct an in-depth analysis on territorial spatial planning, features and the status quo of urban functions, and functional positioning of current track lines and stations. The final goal is to establish a hierarchical classification system for rail transit stations in order to classify, guide, plan, optimize, and upgrade the surrounding areas of stations. The Plans should also facilitate the integrated development of rail transit and urban functions and highlight the local characteristics of Qingdao. *(Relevant Link)*

The Special Plan on Transit-Oriented Comprehensive Development in Wenzhou during the 14th Five-Year Plan Period was issued on August 30, 2021. The Plan outlined that Wenzhou should promote the comprehensive development of Wenzhou TOD and use TOD to lead urban space optimization and functional transformation. Land along the S+M transit network should be comprehensively developed and utilized. During the 14th Five-Year Plan period, the real estate company affiliated with Wenzhou Rail Transit Investment Group will continue to use TOD as a breakthrough point to deepen the development concept of "Rail Transit + New Urbanization + Intelligence." In conjunction with the "Implementation Opinions on Comprehensive Development of Land Along Rails" was drafted and issued by the Rail Investment Group in collaboration with the municipal government. The affiliated real estate company will facilitate the preparation, demonstration, and promulgation of the "Administrative Measures for Wenzhou TOD Comprehensive Development and Utilization Planning", "Guiding Measures for Approving Process of Wenzhou Rail Transit Complex Projects at Early Stage", "Integrated Urban Design Guidelines for Wenzhou Rail Transit Stations", "Administrative Measures for the Special Land Reserves around Wenzhou Rail Transit Stations", "Construction Investment and Financing Management Measures for Wenzhou City Rail Transit", "Detailed Rules for the Implementation of Comprehensive Development of Wenzhou Rail Transit Stations", and other related policy documents and measures. *(Relevant Link)*

Call for TOD Integration Plan Tenders

On July 6, 2021, co-hosted by Hangzhou Bureau of Planning and Natural Resources and Hangzhou Metro Group and operated by the Hangzhou Research Center for Urban Planning and Hangzhou Metro Development Co., Ltd, the Hangzhou TOD Urban Design Demonstration Project is calling design plan submission for Haichao Station, Hejing Road Station, and Westlake University Station. *(Relevant Link)*

On August 12, Changsha High-Speed Rail Xicheng Construction Investment Co., Ltd. Issued the "Invitation to Bid for Changsha High-Speed Rail Xicheng Hub Core Area Project" on the Changsha Public Resources Trading Platform. The planned area extends from Purui Avenue in the north to Qingshan Road in the south, Huangqiao Avenue in the west, and Third Ring Road in the east, covering around 30 km² (including 12.52 km² of HSR Xicheng Station and Chancheng Integration Demonstration Zone). The planned core area covers around 5.81 km². *(Relevant Link)*

On August 27, 2021, the Planning for Hangzhou TOD Demonstration City Project for Hanggang Station Project and Shuangpu Depot Project passed the expert review. The Hanggang Station Project was awarded to Skidmore, Owings & Merrill (SOM). The Shuangpu Depot project was awarded to a consortium, whose members include China Academy of Urban Planning and Design, Aedas Asia Limited, and the Architectural Design and Research Institute of Harbin Institute of Technology. The Hanggang Station TOD project is located in the Hanggang Core Area and features a total land area of 188,667 m², a gross floor area of 660,000 m² (subject to the approved plan), and serves as one of the eight demonstration TOD projects in Hangzhou. This project site is the former Hangzhou Iron & Steel Plant. The urban design plan is scheduled for completion in October 2021 and should acquire conditions for land transfer by June 2022. *(Relevant Link)*

Comprehensive TOD Project Management Consulting Services

On August 23, 2021, Foshan Rail Transit Bureau issued the "Announcement of Invitation to Bid for Rail Transit Construction Management Consulting Services (2021)" (hereinafter referred to as the "Announcement"), which outlined those winning bidders will then form the Foshan Rail Transit Planning and Construction Management Consulting Project Team. This team will be part of the Rail Transit Planning Office and will participate in daily operations. Its main responsibility is to provide consulting services to the management of rail transit planning and construction in Foshan. The Announcement made a special note on the development of the tracking service for TOD projects in Foshan. The Foshan Rail Transit Innovative Financing System will fill the funding gap in rail transit construction and operation through the comprehensive development of Foshan's TOD projects. This new system is currently conducting research on 26 stations' comprehensive development and their regulatory plans. The Foshan Municipal Government 2021 Work Report stated that the city is striving to complete full trial operations of Metro Line 2 Phase 1 within this year. The largest TOD project in the city (Linyue Depot on Foshan Metro Line 2 Phase 1) was completed ahead of the schedule during the start of the year. *(Relevant Link)*

POLICY CHANGES

Industry Standards

On June 30, 2021, *"Standards for Design of High-Speed Maglev Transit" (CJJ/T310-2021)* jointly compiled by 15 organizations, including the National Maglev Transportation Engineering R & D Center of Tongji University and the China Railway Design Corporation, was officially released by the Ministry of Housing and Urban-Rural Development (MOHURD). It is scheduled for implementation on October 1, 2021. The release of these industry standards is of great significance for promoting the application of high-speed maglev transportation technologies in China and supporting the development of the industry. *(Relevant Link)*

A unified standard in the Yangtze River Delta Region, the "Service Specification for Urban (Suburban) Passenger Railway Transport" was jointly issued by Zhejiang, Shanghai, and Jiangsu Municipal Administrations for Market Regulation were issued on August 8, 2021, and came into effect on the same day. As the first unified standards for rail transit in the Yangtze River Delta Region, they stipulate comprehensive requirements for urban (suburban) passenger rail transport services along with technical requirements for personnel, service facilities, service quality, service safety, service environment, evaluation and improvement, and other areas. These standards effectively fill in the gap of passenger transportation services in China's urban (suburban) rail standard system. *(Relevant Link)*

Territorial Spatial Planning

On July 15, 2021, Xinjiang Autonomous Region issued an announcement to solicit opinions and suggestions regarding the "Territorial Spatial Planning of Xinjiang Autonomous Region (2021-2035)" from the public. Xinjiang Autonomous Region has been organizing and preparing the *"Territorial Spatial Plan of Xinjiang Autonomous Region (2021-2035)"* (hereinafter referred to as the "Plan") since May 19. At present, the initial plan has been formulated. In order to better reflect the opinion of the public, build consensus, and gather wisdom from all parties, the Plan has been made available to the public to solicit opinions and suggestions from the people.
(Relevant Link)

On July 29, 2021, Qingdao Bureau of Natural Resources and Planning issued the draft of the *"Territorial Spatial Planning of Qingdao (2021-2035)"* and collected public opinions to further improve the feasibility and scientific nature of the Plan in principle of gathering wisdom and building consensus. *(Relevant Link)*

On July 30, 2021, Liaoning Provincial Department of Natural Resources issued the *"Territorial Spatial Planning of Liaoning Province (2021-2035)"*. According to the version of the Plan issued to solicit opinions from the public, the overall positioning of Liaoning over the next 15 years will be: a national security base, the core development zone of the Revitalization of the Northeast Plan, a green transformation demonstration city in the old industrial base, and the gateway zone for the Northeast Asia cooperation. The primary focus of the Plan is to carry out the national territorial spatial planning, and coordinate the overall development and conservation activities of land and space

throughout the province. The Plan also proposed the construction of a "two ecological barriers + one seashore belt + seven corridors" spatial ecological space, an agricultural spatial layout of five unique agricultural and animal husbandry development zones, and a "one metropolitan circle + one coastal economic belt + two cores + two axes" urban spatial pattern. *(Relevant Link)*

Modernization and Optimization of Transportation

On June 17, 2021, the General Office of Zhejiang Provincial People's Government issued the *"14th Five-Year Plan for the Comprehensive Transit Development of Zhejiang"* (hereinafter referred to as the "Plan"). The Plan emphasized that an advanced transportation system will be basically completed, and the modernization of an advanced transit system will be basically achieved by 2035. A "six vertical and horizontal" comprehensive transit network and a modern urban hub system that centered around Hangzhou and Ningbo (Zhoushan) which are international comprehensive transit hubs as well as Wenzhou and Jinhua (Yiwu) which are national comprehensive transit hubs will be also built by 2035. Three high-quality 1-hour radius transit circles and two "1-2-3 logistics ranges"[1] should be formed. The Plan noted that local governments should develop their transit systems with the layout of the city. Functions of industries inside and around the hubs should be improved, so as to guide and optimize the concentration of human, logistics, information, and capital flow and create a new "ring-expansion and station-city integration" development model for hub economy. The Plan focuses on the construction of key comprehensive passenger transit hubs such as Hangzhou West Railway Station, guiding the construction of a TOD economic circle. Hangzhou should facilitate the agglomeration and development of consumer industries, such as commerce, finance, tourism, food, shopping, and entertainment to develop an urban economic complex. *(Relevant Link)*

On July 3, 2021, the National Development and Reform Committee issued the *"Multi-Level Rail Transit Plan for the Yangtze River Delta Region"* (hereinafter referred to as the "Plan"), which outlined that the "Yangtze River Delta Metropolitan on the Rail" should be built by 2025 with 22,000 km of rail, of which over 8,000 km would be newly added. The project will connect cities at prefecture-level or above with high-speed rails and all urban areas with a permanent population over 200,000 with railway. Rail transit services will also cover over 80% of the cities with a permanent population over 50,000. To be in line with the needs of multi-level transit, the Plan requests the coordination and integration of arterial railways, intercity railways, and urban (suburban) railways to create an interconnected rail transit network with adequate coverage and smooth internal and external connections. The intercity rail network should focus on increasing connectivity and optimizing the planning and layout of intercity railways. The urban (suburban) rail network should focus on optimizing commuting options, highlighting support and from the urban (suburban) rail network to metropolitans' main areas, and connecting conurbations (city clusters?) with over 50,000 residents along with key industrial parks, and tourist attractions to build a 0.5-1 hour commute network between central urban area and surrounding city clusters. *(Relevant Link)*

[1] By day, 1-day domestic delivery, 2 days for neighboring countries, and 3 days to major cities around the world. By hour, 1 hour for urban/rural area delivery, 2 hours for in-province delivery, and 3 hours to major cities in the Yangtze River Delta Region

On July 3, 2021, Longquan Municipal Party Committee and Longquan Municipal People's Government issued the *"Planning Outline for High-Quality Development of Longquan (2020-2035)"*. This planning outline proposed the establishment of a carbon neutral demonstration county in Longquan. It also proposed to explore how to achieve Dual-Carbon Goals and air quality control and actively participate in the research and formulation of Longquan's carbon neutrality action plan. Longquan should strive to be the first county achieving carbon neutrality in Lishui and Zhejiang. The Outline emphasizes the promotion of Transit-Oriented Development (TOD) model, the facilitation of urban-rural passenger transport integration, and the construction of a modern urban transit network. The Outline stated that the transportation connectability to outside of the province should be improved comprehensively and the construction of Longquan Airport should be accelerated. The construction of the Quning Railway Station and Passenger Transportation Hub (Tourism Distribution and Transfer Center) should be accelerated to realize a seamless transfer between road and rail. The acceleration of the construction of Wenzhou-Wuyishan-Ji'an Railway and Jinlong Intercity Rail will help promote the formation of the railway center in southern Zhejiang. The Outlines propose that Longquan will construct the Yiwu-Longquan-Qingyuan Expressway to build an expressway network that extends in all directions. The Outline targets to build a three-hour traffic radius from Longquan to Hangzhou by highway and two-hour by rail and a two-hour traffic radius from Longquan to metropolitans in Central Zhejiang and Wenzhou metropolitan area by highway and one hour by rail. *(Relevant Link)*

On July 6, 2021, China Railway issued the *"Administrative Measures for the Connection of Approved Local Railways and National Railway Networks"*. This document requires that during the process of connecting approved local railways to national railway networks, this local railway must be included in the railway development plan approved by the state. This local railway should also match the planning period and functional positioning of the plan. It also needs to receive the response letter from China Railway before receiving an approval of feasibility study of the project. *(Relevant Link)*

On July 7, 2021, Chengdu Bureau of Planning and Natural Resources issued the *"Chengdu Urban Rail Transit Network Plan (2021).* The prospective plan for the network includes 55 lines (27 ordinary lines, 9 express lines, and 19 municipal railways) with a total length of around 2382 km. The long-term plan for the network includes 36 lines (21 ordinary lines, 8 express lines, and 7 municipal railways) with a total length of around 1666 km. Lines 1-8, 11, 12, 15, 20-22, 26-30, 32, 33, and D1-D6 are ordinary lines. Lines 9, 10, 13, 14, 16-19, and 23 are express lines. Lines S1-S19 are municipal railways. *(Relevant Link)*

On July 11, 2021, the Provincial People's Government of Zhejiang issued a solicitation of public opinions regarding *"Opinions on Promoting Sustainable Development of Rail Transit in Zhejiang Province"*. The document aims to promote a healthy and sustainable development of rail transit and solve problems such as insufficient planning and coordination, poorly structural railway networks, inaccurate project positioning, and high pressure on the rail operating system. The *document* pointed out that each city should strictly implement the construction plans approved by the state, construct all lines at the same

time to create a scientific coordinated railway network. Local authorities should strengthen the interconnection between rail transit planning and territorial spatial planning, urban planning, and the planning of comprehensive transit systems and design comprehensive plans for the intensive and economical utilization of land and space along lines, stations, and their surrounding areas. The format of rail transit systems should be reasonably determined to ensure that corridors are laid out along the main direction of passenger flow and connect key groups and traffic nodes. The Opinions also noted that the construction of rail transit should pay close attention to effectiveness. When constructing new railway networks, their layout methods should be in accordance with local conditions. Only pursuing high-standard constructions and endless expansion of subway networks should be prevented. All cities should be innovative in investment and financing models, pay more efforts to comprehensive development, and optimize the subsidy mechanism for rail transit operations. City authorities should also prevent and defuse debt risks, focus on improving overall economic benefits, and enhance sustainable development capacity. *(Relevant Link)*

On August 25, 2021, Hebei Provincial People's Government held a press conference to issue the *"Plan Outline for the Hebei Comprehensive Three-Dimensional Transportation Network"*. It is the first provincial-level comprehensive three-dimensional transportation network planning. The planning period is from 2021 to 2035. The Outline targets that by 2035 and the mid-21st century, Hebei will promote the multi-dimensional comprehensive transit development through building a comprehensive three-dimensional transportation network, including railways, roads, sea and civic aviation, and postal service. This transportation network will be convenient, smooth, cost-effective, green, smart, advanced, safe, and reliable. *(Relevant Link)*

Infrastructure and Disaster Risk Management

On July 21, 2021, the Ministry of Transport issued the "Urgent Notice on Effectively Implementing Flood Control for Urban Rail Transit." This notice required that in the event of emergencies such as flooding and backflow, operations should be immediately suspended if relevant safety conditions are not met. All local authorities should learn the lesson of rainwater backflow incident to improve emergency planning.

On July 25, 2021, the National Development and Reform Committee issued the *"Notice on Strengthening the Safety Protection of Important Urban Infrastructures."* This notice emphasized that the protection of lives and property should always be prioritized and close attention should be paid to various flood prevention and disaster relief measures. The Notice required that all regions should immediately carry out comprehensive investigations of potential disasters. Based on the investigation results, local transportation authorities should refine and improve emergency response plans, improve shortcomings of facilities, fully prepare for extreme events, quickly supplement the types and quantities of emergency rescue materials, and comprehensively strengthen weak links. The Notice also outlined the emergency response mechanisms should be improved and implemented. Adhering to the principle of "over-prepared is better than underprepared", authorities must improve emergency plans in accordance

with the most severe weather conditions. They should establish an initial response mechanism to make sure the safety management and control of constructions in progress. For urban rail transit, railways, highways, municipal roads, airports, and projects that are under construction, targeted measures should be implemented to improve emergency plans and response mechanisms.

Carbon Neutrality and Green Transit

On July 22, 2021, Shanghai Municipal People's Government issued the *"14th Five-Year Plan for Comprehensive Transit Development in Shanghai"*, which proposed the implementation of the "Outline for the Construction of Nation with Strong Transportation System" and the construction of a comprehensive three-dimensional transportation network. Based on the document, Shanghai plans to achieve cutting-edge breakthroughs in the fields of comprehensive, smart, and green transit. Shanghai Municipal People's Government wants to develop Shanghai into the central node of the domestic transportation network and a strategic link between the domestic and international transportation networks. Shanghai Government also aims to build an advanced megacity transportation system that has the organic renewal ability, refined management, and enhanced risk management based on the initial formation of its megacity transit system structure. Shanghai Government will actively achieve requirements for a people-oriented urban development and "Dual Carbon" goals and accelerate the digital transformation. *(Relevant Link)*

On August 24, 2021, Henan Provincial People's Government issued the *"Implementation Opinions on Accelerating the Establishment of a Green and Low-Carbon Circular Economic Development System"* to implement the *"Guiding Opinions of the State Council on Accelerating the Establishment of a Green and Low-Carbon Circular Economic Development System"* (No.4 [2021] of the State Council). The Opinions noted that green growth of transit infrastructure should be improved. The concept of environmental protection should be applied throughout the process of planning, design, construction, operation, and maintenance of all transit infrastructure. Land resources such as land, shoreline, and airspace should be utilized intensively and efficiently. The interconnection between comprehensive transit development planning and territorial spatial planning should be improved. The coordination of transit infrastructure and green spaces should be enhanced. The Opinions also stated that it is necessary to implement green transit demonstration projects and construct a transit corridor along the Yellow River with ecological functions. *(Relevant Link)*

Integrated Land Development

On July 20, 2021, the Qingdao Bureau of Natural Resources and Planning and the Municipal Subway Office jointly launched the compilation and research work for the "Special Plan for the Development and Utilization of Land Resources in Rail Transit" (hereinafter referred to as the "Plan"). The Plan presents advanced concepts from model domestic and international cities and introduces high-level design teams. It also actively carries out strategic research for rail TOD integration planning, rail transit land resource surveys, key TOD project planning, and urban integration design. The preliminary results of the Plan have been completed. *(Relevant Link)*

On August 1, 2021, Suzhou Municipal People's Government formally carried out the *"Implementation Opinions for Accelerating the Comprehensive Development and Utilization of Suzhou Rail Transit Stations and the Surrounding Land"* to improve the efficiency and quality of TOD in Suzhou and enhance the city's capacities. In terms of transit-oriented comprehensive development issues, rail transit connection difficulties, and time period mismatches, the Opinions required the implementation of synchronous planning and development of land and lines around rail transit stations and strengthening the guiding role of TOD. Gathering and planning land and indicators, integrating regional development and rail transit construction to intensively develop eligible rail transit stations and surrounding areas. This document also guided the optimization of the urban spatial layout. The Opinions outlined that centering around rail transit stations, the scope of Suzhou TOD R&D would be at a radius of 500 meters for ordinary stations and 800 meters for transfer stations. The research scope may be altered regarding the balance of funds for development projects.
(Relevant Link)

Urban Renewal

On July 12, 2021, Beijing Municipal Commission of Planning and Natural Resources issued the *"Guidelines for Urban Design of Key Stations in Beijing"*, which primarily outlined design ideas for municipal facilities basing on their characteristics of large number and widely spread out. The formulation and implementation of the Guidelines focuses on fulfilling requirements of constructing municipal rail yard facilities and the city skyline in Beijing's overall urban planning. Through analyzing the development of municipal rail yard facilities, the interpretation of outstanding case studies, and the re-orientation of value metrics, relevant authorities will provide new concepts for development and inspirate innovative thinking in design. The goal of the Guidelines is to drive and improve the sophistication of management and sustainable development throughout the industry. On the premise of implementability, the Guidelines seek to provide a direction, outline management and control requirements, lay out a technical path for the construction of municipal station facilities, and provide technical support for planning, design, and management. *(Relevant Link)*

On August 11, 2021, the Department of Circulation Industry Development of the Ministry of Commerce (MOFCOM) issued an announcement to solicitate public opinions on the *"Guidelines for the Development of Urban Commerce Districts (Draft for Solicitation of Comments)"*. The Guidelines proposed that in megacities with over 10 million permanent residents, their unique characteristics should be integrated into urban renewal and transformation. Based on the foundation of existing urban commerce districts, focus should be placed on optimizing capacity and revitalizing businesses with idle resources. The Guidelines also outlined that based on the urban economic development level, population size, and the need of consumption upgrade, combining with the urban planning in relevant areas, the overall scale of urban business districts can be determined, network layouts will be optimized, and service functions of the city will be improved. *(Relevant Link)*

On August 21, 2021, the General Office of the Communist Party of China Beijing Committee and he General Office of the Municipal People's Government of Beijing jointly issued a notice on the *"Beijing Urban Renewal Action Plan (2021-2025)."* This document proposed the further

improvement of urban spatial structures and functional layouts through implementing urban renewal will facilitate industrial transformation and establish a positive urban self-renewal mechanism. The quality and efficiency of spatial resources will be improved so as to provide more effective measures for "dual districts" development. Beijing will also vigorously develop digital economy. New demands will be created and driven by supply-side structural reforms. The city will facilitate adjustments and upgrades for industry structures through renewal and transformation, expand the effective supply of culture, optimize the investment supply structure, and drive consumption upgrades. The Plan noted that during the urban renewal process, it is necessary to efficiently find resolutions for problems such as incomplete public service facilities, insufficient public space, and poor fire protection infrastructures. Beijing should improve shortcomings and weaknesses to effectively improve the living environment and safety conditions and meet the demands of the "Seven Requirements" and "Five Characteristics."[2] *(Relevant Link)*

Infrastructure REITs

On July 10, 2021, the National Development and Reform Committee issued the *"Notice on Further Facilitating the Pilot Project of Real Estate Investment Trusts (REITs) in the Infrastructure Sector."* This document outlined the launch of infrastructure REITs pilot projects that are intended to have a significant impact on the formation of market-driven endogenous growth mechanisms. The infrastructure REITs will also help improve the quality and efficiency of the capital market when serving the real economy and build a new development pattern in the investment sector. The Notice requested that local Development and Reform Commissions should use REITs as a key to create a virtuous cycle of investment. Local Committees should also introduce targeted support measures based on local situations to ensure the healthy development of the infrastructure REIT market. The Notice also stated that local authorities should fully educate relevant parties on the importance and positive role of infrastructure REITs. Local governments should strengthen project management and coordination, standardize the formulation of application materials, and ensure the quality of projects. Local development and reform commissions should, under the condition of mitigating risk, actively assume their responsibilities, optimize procedures, and submit project reports to the NDRC in a timely manner. *(Relevant Link)*

[2] "Seven requirements" refers to education for children, good-quality education for all, decent work, medical care for all, proper care for elderly, housing is affordable, and support for those in need; the "five characteristics" refers to convenience, livability, safety, fairness, and diversity.

ITDP
Institute for Transportation & Development Policy

CASE STUDIES

Towards a more "transit-oriented" development at Liqizhuangnan Station

GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

WORLD BANK GROUP
Urban, Disaster Risk Management, Resilience & Land

1. INTRODUCTION[1]

Liqizhuangnan Station, located in Xiqing District to the south of Tianjin and is the last stop on Metro line 5, see Figure 1. The station is completed and will open along with the adjacent district. This location presented an opportunity to analyze a Regulatory Plan of a relatively open area as much of the site will be cleared for development.

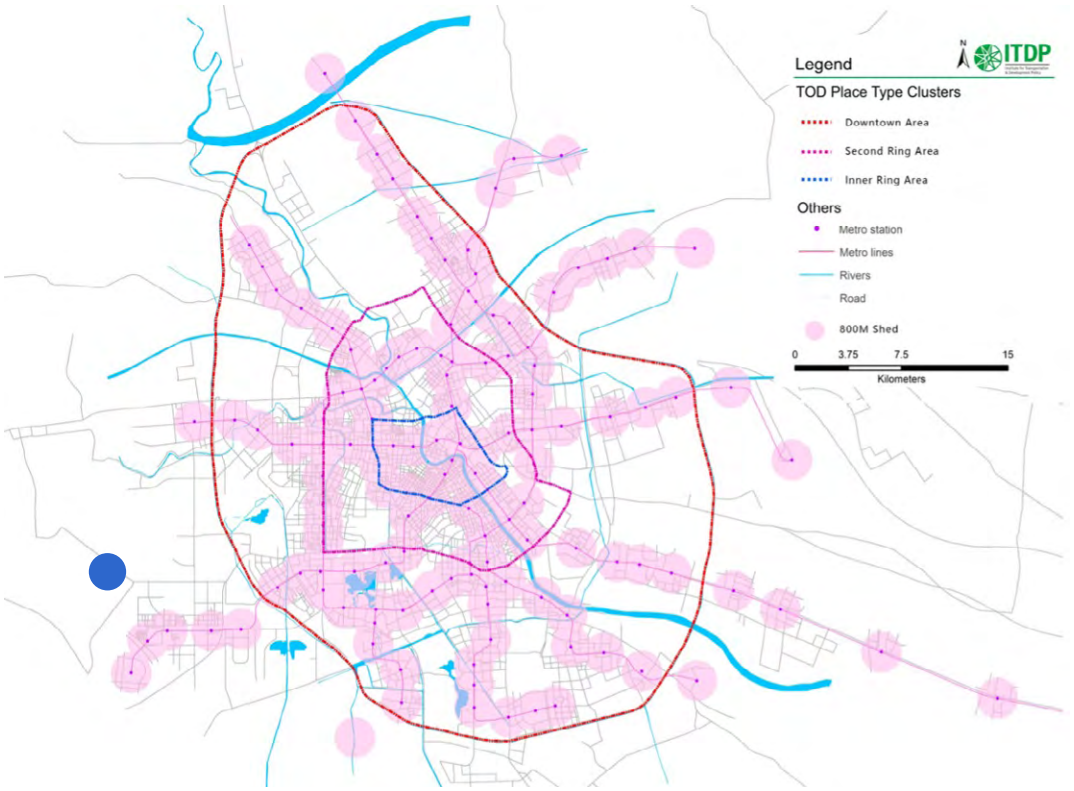

Figure 1 Location map - orange dot is site.

2. SITE ANALYSIS

Figure 2[2] shows the regulatory plan (from Tianjin Planning Bureau) over an aerial map of the site. It covers an area of roughly one kilometer by one kilometer, or 100 Ha. There are 42 Ha for residential (shown in yellow) and 20 Ha for park or open area (shown in green). There is a distinct commercial district (shown in red) and two areas for public facilities (shown in orange). The existing 6 Ha industrial area (shown in blue) is slated to remain. The area is divided into superblocks on a roughly 200-meter by 500-meter grid.

[1] The editing team thanks Michael King from ITDP for providing this case study.
[2] http://ghhzrzy.tj.gov.cn/ywpd/cxgh_43015/ghgb/202012/t20201206_4511584.html

• The land uses appear to be single use, with little overlap, so does not promote mixed use.

• The lack of mixed-use areas will force more travel within the district.

• The parks and open spaces are not integrated into the district.

• There appears to be little co-ordination with the surrounding land uses. There is a stadium to the south of the site, but no connection to it.

• The streets do not match residential uses to the east and north. This precludes access to the station.

Figure 2 Regulatory plan on aerial map

Figure 3 presents a rudimentary analysis of the site. Key items such as the Metro station, the existing industrial area, and the sports field are identified. Canals make borders of the site, as well as low lying areas that collect water. It will be important to mitigate against stormwater and flooding concerns given climate change. Five- and ten-minute walking radii show how much of the site can be covered on foot. From the station to the farthest point is about a 12-minute walk. Given that residents of the surrounding areas will travel through the site to access the station, potential connections are shown.

Figure 3 Site analysis

3. TOWARDS A TRANSIT-ORIENTED LAYOUT

In summer of 2021, the Chinese Ministry of Natural Resources issued "Spatial Planning Guidance: Community Life Unit". It established a 15-minute walk (5-10 minute for the elderly and children) as a basic unit of urban and rural lives - life's daily essentials should be located accordingly. The guidance encourages green travel modes, low-carbon technologies, community resilience, dynamic adaptation and flexible use of space, advance preparation for and mitigation of disasters and emergencies, and nature-based solutions. In response, ITDP developed the following to demonstrate how a transit-oriented development plan could meet the guidelines.

Land use

THE KEY TO A GOOD TRANSPORTATION PLAN IS A GOOD LAND USE PLAN.

The fundamental unit of the plan is an 80m x 200m block. Eighty-meter appears in cities throughout history and corresponds to a one-minute walk. Two-hundred meter is known as an "armature", which one can walk down and back in five minutes. Allowing for perimeter streets and a mid-block passage, the developable area of this block is one hectare.

The blocks are arrayed in a north-south grid, which permits the maximum sun exposure and/or shade–people get either morning or afternoon sun, or morning or afternoon shade. Each superblock is divided with a mid-block passage, which provide a non-motorized route across the site for children to visit their friends on bikes.

Blocks that occur where there is a canal or low-lying area are reserved for park and on-building sites. This will allow for passive storm water management, minimize flooding, and limit construction in low lying areas. The parks are connected and used as footpaths through the site.

Key:

- R = Residential
- C = Commercial, office, and shopping mall
- P = Park and public space
- S = School, public services, and community administration
- M = Municipal utility

Figure 4 Sketch land use plan

A second fundamental aspect is disaggregating the site into four neighborhoods. Each is centered by a neighborhood park, a school, and a community center. This will become the hub for daily life and is reachable within a five-minute walk. See precedent in Guangzhou, Figure 5.

Figure 5 Neighborhood park at Jianshe Xincun district in Guangzhou

To accentuate transit, half circle plazas are created at either side of the Metro station. These will serve as entry portals and the location of larger community events. See precedent in Lanzhou, Figure 6.

Figure 6 Plaza at Northwest Normal University in Lanzhou

A generous 60-meter-wide walkway cuts across the site and leads directly to the station. This will be the quickest route to the station for many passengers and will become a desirable commercial location. The east side of this street will become a wonderful location for al fresco dining. See precedent in Harbin, Figure 7. The green areas directly to the north of the station and the pedestrian passage to the west provide direct access. See precedent in Shanghai, Figure 8.

Figure 7 Zhongyang Ave. in Harbin

Figure 8 Pedestrian passage in Shangai

Circulation

With the grid layout and land uses established, the primary mobility network is identified, see Figure 9. The walking and cycling networks take priority. They follow the diagonal promenade, parks, and small roads. They extend to the adjacent districts, especially the sports fields to the south. Greenways follow the canals and train tracks–the latter will provide expedient passage to the station.

A bus network passes through the site and stops at the station plaza. It plys the perimeter roads to the east and west and connects with the larger network. These streets would be designed to prioritize transit–a BRT system. Private vehicles may pass through and into the district along select streets. Extensive traffic calming would be in place to manage drivers and vehicle speeds. Some streets would be for local access only. The neighborhood parks would be car-free except for deliveries. Truck access to the industrial area is routed to the south and west.

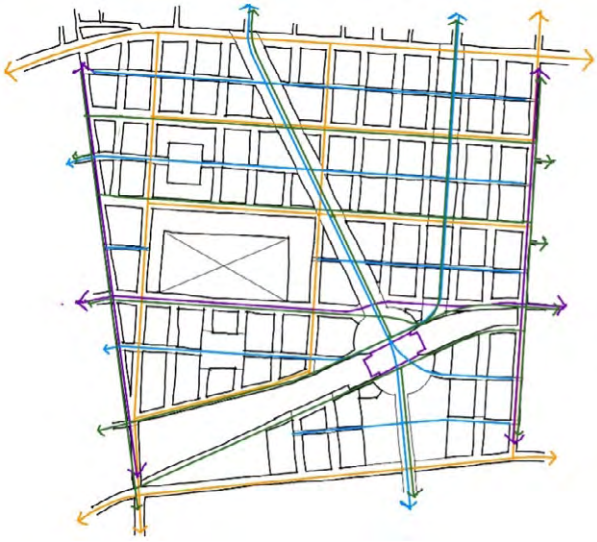

Figure 9 Circulation network

Comparing existing and proposed plans

Comparing the existing Regulatory Plan against the sketch grid layout reveals interesting observations, see Figure 10. Most obviously is the difference in block sizes. The superblocks in the Regulatory Plan are not further subdivided, but this is important to understand the circulation. Second is the mixing and integration of uses. The Regulatory Plan places green spaces at the perimeters, which the sketch plan integrate it into the district. The Regulatory Plan places all the commercial at the station, which is recommended; however, there will be needs for shopping throughout the district. Finally, the Regulatory Plan shows a park adjacent to the municipal utility area, which is an odd juxtaposition of uses.

Figure 10 Sketch land use plan compared to Regulatory Plan

4. COMPOSITE PLAN AND TOD PRINCIPLES

The TOD standard (www.todstandard.org) identifies eight principles of successful transit-oriented development. Figure 11 shows the composite land use and circulation plan on an aerial map of the district. This illustration adherance to the eight principles.

Walk –
A pedestrian-oriented methodology is used to organize the plan. Main walking routes to the station are identified and drive the layout. The district is subdivided into 5-minute neighborhoods. The grid structure uses a 1-minute block size.

Cycle –
Greenways, cycle-facilities, and small roads will facilitate bicycle travel. Cycling to the station is prioritized.

Connect –
Small blocks provide multiple circulation options and a high level of connectivity. Mid-block passages further sub-divide the grid.

Transit –
Bus service is prioritized through the district to the station.

Mix –
Land uses are mixed and integrated. Commercial blocks are along the pedestrian spine to create a system which minimizes driving. Neighborhood parks and schools create tight clusters of mobility.

Densify –
The blocks directly adjacent to the Metro station would be higher density. This will enjoin the greatest number of people quickest access to the Metro.

Compact –
The district is located on the periphery of the city where a new Metro station will soon open.

Shift –
Driving-oriented streets are minimized, as is parking. The main routes are prioritized for walking, cycling, and transit.

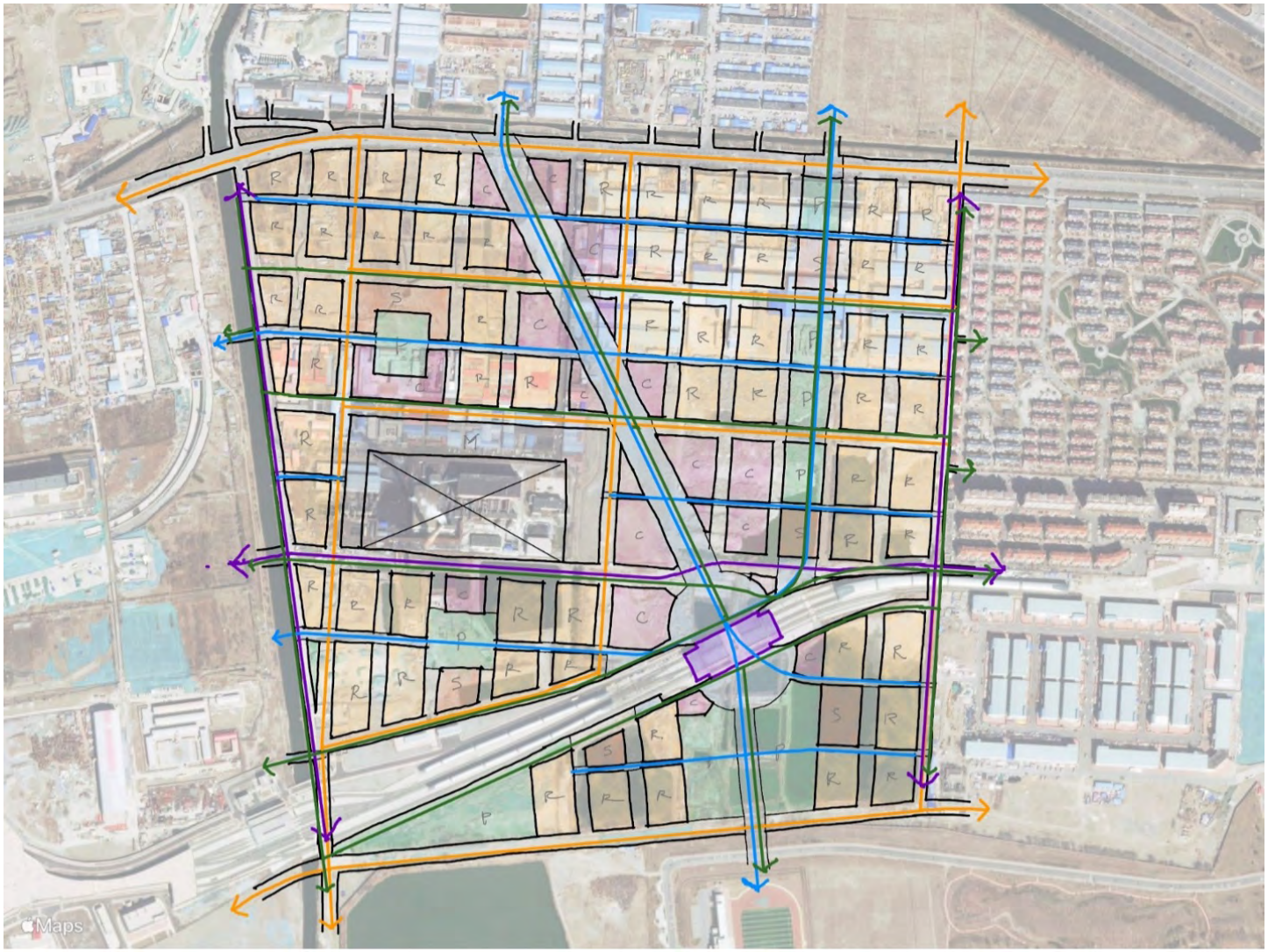

Figure 11 Sketch land use and circulation plan on aerial

All photos and drawings by author, except as noted.

REPORT SHARING

"Handbook of Resources and Tools for Public Transit-Driven Urban Development"

(Relevant Link, Code: bs97)

"Rail Transit Leading Cities Development — Chengdu-Chongqing Metropolitan Area TOD Report"

(Relevant Link, Code: qscy)

UPCOMING TOD RELATED EVENTS

2021 China International Railway Conference for Urban & Intercity Transit (CIRC)

October 17-19, Shanghai, China

(Relevant Link)

2021 China Urban Rail Transit Key Technology Forum & 30th Metro Academic Exchange Conference

November 2-3, 2021, Hangzhou, China

(Relevant Link)

Task Team Leaders:
Yuan Xiao (yxiao@worldbank.org)
Wenyan Dong (wdong@worldbank.org)

Editors-in-Chief:
Shuning Wang (swang9@worldbank.org)
Sihan Mao (smao@worldbank.org)

Editor (English edition):
Ziqing Zhang (zzhang426@gwmail.gwu.edu)

Typesetting:
Peng Xu (ben_xp223@tongji.edu.cn)