

Global Environment Facility

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

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Project Progress (As of September 9, 2022)

MOHURD

■ **GEMH-1A:** *“Development and Application of TOD Policies, Technical Standards, and Management Tools in Chinese Cities”* — The research team has developed and integrated the six functional modules of the national TOD platform, including the resource library, information, diagnostics, planning, monitoring, and impact assessment. A website portal, data maintenance system, user management system, access management system, usage analysis system, log system, and network security mechanism were developed. On September 8, 2022, the PMO arranged an expert review meeting for the intermediate output. The meeting reviewed the use of TOD platform functions and the development of backend management modules, along with a series of TOD case studies. The Classified Protection of Cybersecurity for TOD platform has been completed, and the intermediate results will be desensitized and submitted to the World Bank as soon as possible. The platform will be revised and improved in accordance with expert opinions to facilitate online trial operations and carry out training in pilot cities.

Beijing

■ **GEBJ-1A:** *“Preparation and Implementation of City-Level Transit-Oriented Development (TOD) Strategy and Project Management Support”* — Annual acceptance of work was completed for project management support Tasks 1-6 by December 2021. Three papers relating to Task 8 were published. The “International Experience in Transit-Oriented Development (TOD)” has been written. Project progress reports and intermediate presentations have been completed. The Task 7

general report, Task 9 environmental safety report, and Task 10 project implementation completion report are being prepared. An annual acceptance of work will be completed in December 2022. The final 20% contract payment will be issued by early next year.

■ **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”* — Task 2 and Task 3 have passed expert review and results have been submitted. For Task 4, data on relevant national standards is being collated. The expert review and acceptance of work for Task 4 will be completed in November. 20% of the contract payment will be issued before the end of the year. The implementation completion report is expected to be submitted in early next year. The final 10% of the contract payment will be made for the completion of all contract tasks.

■ **GEBJ-3:** *“Demonstration Project of Integrated Planning and Construction of Urban Renewal Areas Based on TOD Principles”* — The PMO held an expert review meeting for Task 3 “Comprehensive Assessment of Environment and Social Impact on Urban Renewal Areas around Rail Transit Stations on Urban Renewal Areas around Rail Transit Stations” on April 27, 2022. The results were submitted in May. A withdrawal was completed in June which means all contract tasks have been completed.

Tianjin

■ **GEFTJ-1:** *“Preparation and Implementation of City-Level Transit-Oriented Development (TOD) Strategy and Project Management Support”*

for Tianjin” — The PMO and the consulting partner have signed a supplemental agreement on environmental and social safeguards. Relevant work is currently underway.

■ **GEFTJ-2:** *“Research on Financing a Tianjin Urban Rail Transit Project Applying TOD Principles”* — The expert review meeting has been carried out, and the completion report has been submitted. The third payment (35% of the total contract) has been made, bringing the total issued contract payment to 90%. All tasks outlined in the contract will be completed and final payment shall be issued by the end of 2022.

■ **GEFTJ-3:** *“Demonstration project for Integrated Planning and Construction of Urban Renewal Areas Based on TOD Principles”* — At present, Task 6 “TOD Short-Term Action Plan and Safeguard Measures Report” and Task 7 “Research on Public Participation and Promotion” have been completed. All tasks will be completed in accordance with the contract should be completed.

Shijiazhuang

■ **GEFSJZ-1:** *“Preparation and Implementation of City-Level Transit-Oriented Development (TOD) Strategy and Project Management Support for Shijiazhuang”* — Tasks 1-4 were completed. Expert review and public participation activities were completed on April 1, 2021, and the revised results were submitted to the World Bank at the end of April 2021. From May to August 2021, relevant work for Tasks 5-7 were carried out, and expert consultation on the final report was completed on October 29. Due to the pandemic, the review of the final result was not completed in November. The leading group solicitation of opinions meeting was completed on December 3, and the final

review was completed on December 13. In the first half of 2022, the post-review revision works for reports of Task 5-1 and Task 5-2, the action plan and operational manual of Task 6, and the general report of Task 7 were completed.

■ **GEFSJZ-2:** *“Land Adjustment Plan for Shijiazhuang Urban Rail Transit Line 4”* — In June 2022, the analysis of current land use along rail lines and the report on potential development plots for Task 1, the market research and analysis report for Task 2, the review of comprehensive development report on stations and areas along rail lines for Task 3, the research on integrated transit systems of stations and areas along rail lines for Task 4, and the research on improving public space and green space quality for Task 5 were completed. Task 6 completed its recent action plan and safeguard measures inception report has also been submitted in June. By the end of this year, research outputs under the contract will be submitted to the World Bank after review.

■ **GEFSJZ-3:** *“Research on Applying TOD Strategies to Five Stations and Three Areas Located to the North of Shijiazhuang East Station”* — In June 2022, the current land use analysis and potential development plot report for Task 1, the market analysis report for Task 2, and review of the intermediate report for Task 3 were completed. By the end of this year, research outputs under this contract will be submitted to the World Bank after review.

Nanchang

■ **GENC-1A:** *“Preparation and Implementation of City-Level Transit-Oriented Development (TOD) Strategy and Project Management Support for Nanchang”* — Preparation of the “Nanchang TOD Strategic Planning Report” has been completed.

The social and environmental impact assessment reports for Contract A is being revised, while the assessment reports for Contract B and C were finalized after revision in accordance with the feedback of World Bank experts.

■ **GENC-2A: “Study of TOD Planning and Design for Rail Transit”** — A public seminar on the “Corridor-Level Manual” was held on August 11, 2022. The consulting partner is currently revising the report based on the opinions from participants.

■ **GENC-3B: “Study of TOD-Based Regional Planning around Rail Transit Stations”** — Experts reviewed the results of Tasks 1-6 on June 9. The revised report for Tasks 1-6 was submitted to the World Bank on July 12, 2022. The first draft of Task 7 “Traffic Forecast and Plan Test Report of the East Extension of Rail Transit Line 2” was submitted on August 9.

■ **GENC-4A: “TOD Concept Promotion and Knowledge Dissemination”** — The WeChat Official Account was created, and operations began in July 2022. The account is updated three times a week and may be updated more regularly based on the content of future events. An image IP has been determined, and a design patent is currently under application. On September 9, TOD-themed publicity activities were carried out in the Nanchang Municipal Government’s cafeteria. Promotional leaflets and branded gifts were distributed.

Guiyang

■ **GEFY-1: “Preparation and Implementation of City-Level Transit-Oriented Development (TOD) Strategy”** — The outputs of the fourth stage have been reviewed and revised in accordance with expert opinions. At present, 19 special reports, three papers, and a promotional TOD brochure

have been created. The project has also carried out nine sessions of TOD training as required by the contract. The supplemental agreement was signed on June 28, and the work outline has been created and reviewed. Research on the new content of the supplemental agreement is currently underway.

■ **GEFGY-2: “Study on the TOD Comprehensive Development Planning for Areas along the Rail Transit Line S1 Phase I and Line 3 Phase I Project in Guiyang City”** — The “Research Report on the Comprehensive Development and Planning of Areas along Rail Transit Lines” has been completed. The “Research Report on the Integrated Transit Planning of Areas along Rail Transit Lines” has been completed. The conceptual urban design plans based on TOD concepts for the key stations of Huaxi South Station, Taohuazhai Station, Huansha Road Station, Wenquan Road Station, Luowan Station, and Shubo Avenue Station have been completed. The design guidelines for the Guiyang TOD block have been completed. Research on the asset empowerment and income distribution mechanism of Guiyang’s comprehensive development, along with the research report of TOD implementation process and guarantee policies have been completed. The urban design of Zhongcaosi Station, Dayingpo Station, and Baima Road Station as outlined in the supplemental agreement is currently underway.

■ **GEFGY-3: “Study on the TOD Comprehensive Development Planning for Areas along the Ring High-Speed Railway in Guiyang City”** — The research on comprehensive development and planning of stations and the research on the integration of transit connections has been completed. The conceptual urban design and relevant policy research of Mengguan, Huaxi South, and Baiyun North Stations have passed the expert review and have been revised accordingly. The work outline of the supplemental agreement has been completed and reviewed, and relevant

research work is being carried out.

■ **GEFGY-4:** *“Strategic Environmental and Social Safeguards Assessment for TOD Planning and Research”* — The “Report on Strategic Environmental and Social Safeguards Assessment for TOD Planning and Research (Draft for Comments)” has been formulated and was issued on August 22, 2022, to solicit opinions from the relevant authorities in Guiyang.

Ningbo

■ **GENB-1:** *“Study on TOD Strategies in Ningbo”* — On the basis of previous discussions, it is expected that the review of the TOD planning and design guidelines, strategic policies, and operational manual for Tasks 5-6 will be completed in September. The preparation of the general report will be completed by the end of 2022.

■ **GENB-2A:** *“Consulting Service regarding TOD Implementation for Kaiming Street (Yaoting Street-Zhongshan Road), Xingjie Street, and Shuangliang Community”* — Review of the project strategy report of Task 2 has been completed, and 20% of the contract payment is being progressed.

■ **GENB-2B:** *“Research on Financing Schemes of TOD Implementation for Kaiming Street (Yaoting Street-Zhongshan Road), Xingjie Street, and Shuangliang Community”* — Evaluation of the research on the special bond + PPP realization model of Task 1 has been completed. 20% of the contract payment is being progressed, which is expected for completion before the end of 2022.

■ **GENB-3:** *“Study of TOD-Based Regional Planning around Rail Transit Stations”* — Evaluation of the TOD planning and design of areas surrounding rail transit stations of Task 4 has been completed. 20% of the contract payment has been made. The preparation of TOD station

technical guidelines and the main report of Task 5 will be completed and reviewed by the end of this year, and all payment shall be issued.

Shenzhen

■ **GESZ-1:** *“Preparation and Implementation of City-Level Transit-Oriented Development (TOD) Strategy and Project Management Support for Shenzhen”* — Tasks 5-7 have been completed, and an expert review was carried out on April 30, 2022. In terms of strategic environmental and social safeguards assessment, the first draft of the report has been formulated and is currently being edited. It is expected that by the end of this year, Tasks 8-10 will be completed, the first draft of the final report will be formulated, and further improvements will be made. The construction of the basic data foundation, query, screening, analysis, and evaluation functions of TOD big data indicators for the data platform, along with the construction of the TOD consulting platform, have been completed. The platform is currently being testing and debugging and enriching the content of the platform UI. Deployment of V1.0 of the TOD Data Management Platform is planned for the end of September.

■ **GESZ-2A:** *“Research for the Sustainable Development Planning and Construction Management of the Bainikeng Community Based on TOD Principles”* — Tasks 6-10 have been completed, and an expert review was carried out on April 30, 2022. In terms of strategic environmental and social safeguards assessment, PMO is currently deepening the research on the environmental impact mitigation measures. It is expected that by the end of this year, Tasks 11-13 will be completed, the first draft of the final reports will be formulated, and further improvements will be made.

Project Implementation Progress (As of September 9, 2022)

PMO	Activity	Draft TOR	Final TOR	Bid Announcement	Shortlist Review	Bid Evaluation	Contract Negotiation	Contract Signing	Inception Report	Intermediate Output	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											
	TOD Promotion and Knowledge Dissemination											
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. Yellow cells indicate progress from June 17, 2022 to September 9, 2022.

Capacity Building and Academic Exchanges

Industry News

From July 15-19, 2022, the GEF-6 China Sustainable Cities Integrated Approach Pilot Project Annual Workshop was jointly hosted by the World Bank and Beijing Jiaotong University TOD Academy. The Annual Workshop was held both online and onsite. There were more than 180 scholars and practitioners from over 10 countries participated in this workshop. The World Bank TOD Community of Practice and the Tokyo Development Learning Center (TDLC) provided strong support to the workshop. This year's Annual Workshop focused on five topics: Future Trends of TOD, City-Level TOD Strategy, TOD and Public Engagement, TOD Research by Beijing Jiaotong University, and Suburban Railway and Regional Development.



Source: World Bank

The Annual Workshop also included three field visits. The field visits were designed and organized by Beijing Jiaotong University to enrich participants' understanding and experience of Transit-oriented Development (TOD). ([Relevant Link](#))

From July 7-8, 2022, the second round of integrated TOD special training courses were held in Suzhou. The training focused on TOD policies and comprehensive development of the commercial areas around the stations. This training aims to effectively enhance the trainees' understanding of integrated TOD, drive the launch of Suzhou rail integrated TOD strategy, and accelerate the construction of a modern integrated three-dimensional public transit system. ([Relevant Link](#))



Source: Suzhou Rail Transit

On July 29, 2022, the “2022 Commuter Monitoring Report of Major Cities in China” was jointly released by the Urban Transportation Infrastructure Monitoring and Governance Laboratory and China Academy of Urban Planning and Design under the MOHURD, and Baidu Maps. The report covers 44 major Chinese cities and gathered 90 million pieces of commute data. From nine indicators covering commute time,

commute space, and commute traffic, the report outlines the changes in work/residential spaces and characteristics of commute in Chinese cities. This report will provide source material and suggestions for building a city that is friendly for young people to develop. ([Relevant Link](#))



Source: China-Up WeChat Official Account

On August 9, 2022, Beijing's First Experiential Learning Center for Rail Transit was officially unveiled. The center covers an area of around 500 m2 and features 16 different activities. The center adopts a centralized experiential learning and training model to improve the safety awareness and expertise of trainees. ([Relevant Link](#))



Source: Xiaoxiang Morning Herald

On August 30, 2022, a preliminary version of the "2022 China Metro TOD Index & City TOD Magnetic Index Report" was released. The report was developed and compiled by utilizing big data, drawing on real estate indicator research methods and experience, and soliciting opinions

from urban rail operators and real estate partners. The report has constructed an index framework system. Through analyzing the interaction between key elements, the report aims to strengthen the planning of areas along urban rail lines by looking at the impact of TOD on urban development and traffic. ([Relevant Link](#))

On September 1, 2022, the 15th Annual CITY-RAIL Summit was held in Shanghai. The theme of the Summit was "high-quality development: integration, security, intelligence, and environmental responsibility." The summit invited industry leaders, decision-makers in procurement, and experts for an in-depth discussion on the sustainable and high-quality development of rail transit. In addition to the main forum, sub-forums focused on the themes of "urban rail integration and sustainable development", "smart maintenance innovation", "digital transformation and informatization", and "mechatronics innovation" were also held. ([Relevant Link](#))



Source: Fuzhou Metro

On September 2, 2022, the 8th China Smart Rail Transit and Innovation Development Conference was jointly held by Fuzhou Metro Group and the World Railway Development and Research Society in Fuzhou. The theme of the conference was "innovation-driven digital transformation, knowledge-led high-quality development." The main forum focused on industry's hot topics such as digitization, intelligentization, and the smart transformation of

rail transit construction and operation. Three sub-forums were held concluded industry achievements, cutting-edge technologies, and prospects. ([Relevant Link](#))

On September 2, 2022, the World Artificial Intelligence Conference (WAIC): Digital Rail Transit Innovation Forum was held in Shanghai Zhangjiang Science City. It was the only industry forum focusing on the rail transit sector at the WAIC. With the theme of “empowerment through digital transformation and smart rail transit”, the forum held in-depth discussions on the achievements and trends of AI-empowered rail transit. Speaking on the pilot results of the Shanghai Metro Digital Transformation Demonstration Zone, Zhang Yu from Shanghai Metro Maintenance Guarantee Co., Ltd., expressed the view that the future of subway lifecycle management would be more intelligent. ([Relevant Link](#))



Source: Pudong News

Capacity Building Activities by Project Management Offices (PMO)

From June 27 to August 19, 2022, Guiyang PMO and the Transportation Research Institute of Tsinghua University jointly hosted a series of capacity-building activities that attracted extensive online and offline participation.

On July 4, 2022, ZHAO Yixin, the expert from the TOD research team of the MOHURD PMO, delivered a speech titled “TOD Evaluation Facilitates Line Approval and Urban Rail Synergy” at Suzhou Rail Transit Group. He introduced the situation of national TOD evaluation, rail construction decision-making based on TOD evaluation, and TOD and urban renewal. He also proposed a Suzhou rail TOD roadmap based on the current situation of urban transit in the city. The meeting trained and introduced participants on the construction, monitoring, and evaluation of a national TOD platform, discussed methods and implementation plans for Suzhou rail TOD, and proposed a strategy for the integration of the national TOD platform and local TOD.

On August 30, 2022, Shenzhen PMO invited QIAN Li, Director of Aedas, to provide a professional lecture on the theme of “Urban Construction Practical Cases and Experience Guided by Urban Design Guidelines.” The event was open to both online and offline participation.

Industry News

Planning and Construction of Rail Lines and Hubs

On July 16, 2022, Nanchang Municipal Bureau of Natural Resources and Planning issued the “Nanchang Phase II Urban Rail Transit Network Plan.” This plan outlines the construction of 12 urban rail transit lines (three express lines and nine general lines) with a total length of around 536 km. The plan also aims to improve the service quality of public transit in Nanchang. Another long-term plan for the intercity rail transit is to strengthen the rail transit services of major cities and towns within the Greater Nanchang Metropolitan Area. ([Relevant Link](#))

On August 2, 2022, the Guangzhou Municipal Bureau of Natural Resources and Planning issued the “Guangzhou Rail Transit Network Plan (2018-2035).” This Plan outlines the future construction of an urban rail transit system consisting of high-speed subways, express subways, and regular subways. There will be 53 new lines with a total length of 2,029 km. 30 new lines with a total length of 1,004 km were added the new plan comparing to the previous one. ([Relevant Link](#))

On August 8, 2022, the Xiamen Municipal Bureau of Natural Resources and Planning issued the “Xiamen Urban Rail Transit Network Plan (2020-2035) (Draft).” This document outlines 12 new lines as part of Xiamen’s network plan for 2035, with a total length of around 493 km. The long-term network planning intends to add five more control lines as the network continues to grow. ([Relevant Link](#))

On August 11, 2022, the S1 line, Suzhou’s first intercity rail transit line, was fully connected. The S1 line is around 41.25 km long and runs through 28 stations. Starting from Weiting Station in Suzhou Industrial Park, the Line connects the Shanghai Metro Line 11 at Huaqiao Station. After completion, the S1 line will serve as a key urban transit corridor for Suzhou, Kunshan, and Shanghai. ([Relevant Link](#))

On August 17, 2022, the Beijing Municipal People’s Government officially approved the “Beijing Rail Transit Network Plan (2020-2035).” The planned Beijing rail transit network consists of regional express lines (including suburban railways) and urban rail transit, with a total length of around 2,683 km. Urban rail transit comprises general subway lines, subway express lines, medium- and low-volume lines, and dedicated airport lines, with a total length of around 1,625 km. ([Relevant Link](#))

On August 26, 2022, the preliminary design of Xi’an East Railway Station of the Shiyao–Xi’an high-speed rail was jointly approved by China Railway Group and the Shaanxi Provincial People’s Government. The construction will start within the year. According to the planning and design, Xi’an Metro Lines 5, 12, 15, and 21 will be connected to Xi’an East Railway Station to build the seamless interconnection between railway and urban rail transit. Xi’an East Railway Station will become an integrated mega transport hub that includes high-speed rail, ordinary rail, intercity rail, subway, and bus. ([Relevant Link](#))

On September 5, 2022, the Development and Reform Commission of Shenzhen Municipality made a second public announcement on the environmental impact assessment of the “Shenzhen Urban Rail Transit Phase 5 Construction Plan (2023-2028).” The Plan includes 13 construction projects with a total length of around 226.8 km. The specifics of each project are subject to national approval. ([Relevant Link](#))

Partnerships and Financing

From June 22-24, 2022, Shenzhen Municipal People’s Government issued a total of CNY 4.85 billion government bonds, the third batch for 2022. The bonds were issued for rail transit construction projects. All funds raised will be used for the construction of Lines 12, 13, 14, and 16. ([Relevant Link](#))

On July 11, 2022, at the “Efficient Allocation: Roadshow for Major Projects and Centralized Issuance of Local Government Bonds” event held in Shanghai, Shentong Group, Jiushi Group, and SMI promoted the issuance of CNY 31.44 billion of new bonds, including CNY 12.9 billion of new general bonds and CNY 18.54 billion of new

special bonds. The bonds will be used for special projects such as the extension of subway lines and the expansion of the Taihe Sewage Treatment Plant. The total project investment is nearly CNY 150 billion. ([Relevant Link](#))

On July 21, 2022, Wuxi Metro Group and Landsea Group held a strategic partnership signing ceremony. By entering a strategic partnership, Wuxi Metro Group and Landsea Group will carry out strategic cooperation in residential development, commercial operations, and real estate renovation through equity partnerships, R&D, and development management services. The partners will leverage their advantages to drive the sustainable development of urban rail transit, cities, and enterprises. ([Relevant Link](#))

On August 4, 2022, Suzhou High Speed Rail New Town State-Owned Assets Holding Group and Suzhou High-Speed Railway Hub Investment and Development Co., Ltd. signed a strategic partnership agreement. The partnership agreement focus on constructing the core area of the Suzhou North Railway Station integrated transit hub following the TOD concepts. In the future, the area surrounding Suzhou North Railway Station will be upgraded through integrated TOD, and Suzhou HSR New Town will serve as an international model of “station-industry-city integration”.

([Relevant Link](#))

On August 8, 2022, Shaanxi Rail Transit Group was established. It was a merger between Shaanxi Province Railway Group and Xi'an Rail Transit Group. The Group will focus on driving the integration of high-speed rail, intercity rail, sub(urban) rail, and urban rail transit in the province. The Group will also construct an industry chain covering investment, construction, operation, services, and management in rail transit. ([Relevant Link](#))

On August 29, 2022, Shentong Metro Group and Poly Developments and Holdings Group signed a cooperation agreement on the Yuanjiang Road project of Line 15. The two parties will deepen cooperation on the integrated development of property over rail assets around the Yuanjiang Road project. The project is in the south of Minhang District, Shanghai, next to Yuanjiang Road Station on Line 15, with a gross floor area of 388,000 m². The planning consists of commercial housing, affordable and rental housing, office buildings, and community commercial and public service facilities. The project is the first integrated development project for property over rail in Shanghai after the Municipal People's Government issued the “Opinions on Accelerating Implementation of Integrated Development and Utilization of Rail Transit Railyards and Surrounding Areas.” The project will serve as a key reference for subsequent similar projects. ([Relevant Link](#))

On September 2, 2022, the Beijing Municipal People's Government and China Railway Group discussed deepening their cooperation. The two parties proposed to build a (sub)urban rail network that will lead the optimization of urban layout. The core areas of the network focus on optimizing hub functions. The central urban area focuses on activating new service corridors. Beijing Municipal Administrative Center (BMC) provides smooth external connections, while multiple stations in the new towns will be partially connected to the central city through express lines. Priority shall be given to make good use of existing railway resources and renovating or adding double-track lines, while emphasis is placed on giving full play to the leading role of the market. ([Relevant Link](#))

TOD Integrated Development

On June 30, Shanghai Municipal People's Government approved the "Revision of the Detailed Planning for Project SJC1-0017 of Songjiang New Town (Core Area of Songjiang Transit Hub) (Hu Fu Gui Hua [2022] No. 156)." The project is located in the core area of the Songjiang Transit Hub, one of the four key areas for the construction and development of the new town. The goal of this project is to build a gateway hub for "industry-city integration" and "station-city integration".

[\(Relevant Link\)](#)

On August 4, 2022, Shenzhen Metro Group won the second batch of Shenzhen residential land (Plot A503-0096 of Fenghuang Sub-district, Guangming District, and Plot G01048-0153 of Longcheng Sub-district, Longgang District) issued in 2022 through bidding, auction, and quotation. Shenzhen Metro Group plans to construct public housing and TOD urban complexes on this batch of land to further the development of a TOD model for Shenzhen. [\(Relevant Link\)](#)

On August 10, 2022, at the third meeting of the fourth Regional Planning Committee of Guangzhou Municipal Planning and Natural Resources Bureau, the "Guangzhou Liwan District Guangchuan Plot Project (AF0403 Planning Management Unit) Detailed Planning and Urban Design Optimization" was approved. The plan outlines that TOD concepts will be applied to Hedong East Station to create the next commercial and cultural community. The original dock and slipway of the Guangzhou Shipyard will be activated and utilized to create a theme park on the original site of the Binjiang Shipyard. [\(Relevant Link\)](#)

Policy Updates

Green and Low-Carbon Transit

On July 11, 2022, the Chengdu Municipal People's Government issued the "Action Plan to Drive Green and Low-Carbon Development by Optimizing Transit Structure in Chengdu" and the "Policy Measures to Drive Green and Low-Carbon Development by Optimizing Transit Structure in Chengdu." The plan outlines that by 2025, a green and low-carbon "rail + bus + slow traffic" system will be formed. The proportion of sustainable transport in the central urban area shall reach 70%. The proportion of public transit in motorized travel shall reach 60%. The number of new energy vehicles (NEVs) in the city shall reach 600,000. A green transit construction system shall be basically formed. [\(Relevant Link\)](#)

On August 18, 2022, the China Association of Metros (CAMET) issued the "Action Plan for Sustainable Urban Rail Development in China". This action plan focuses on the implementation of key sustainable urban rail measures. The goal is to increase people's usage of rail transit. The plan also formulated safeguard measures and proposed the construction of sustainable urban rail demonstration projects and a sustainable urban rail standardization system. [\(Relevant Link\)](#)

On August 19, 2022, in accordance with the "Notice of the Ministry of Transport on Completing the Acceptance of the National Public Transit Urban Construction Demonstration Project During the 13th Five-Year Plan" (Jiao Yun Han [2021] No. 501). The cities of Chengdu, Nanning, Anshan, Kunshan, Huzhou, Jinhua, Luoyang, Nanyang, Zhumadian, Xiangyang, Changde, Zigong, and Luzhou passed acceptance and reached the national public transit city standard. The Ministry of Transport has named these 13 cities as

demonstration cities for national public transit city. [\(Relevant Link\)](#)

On August 23, 2022, Qingdao Metro Group issued the “Sustainable Urban Rail Development Implementation Plan”, which outlined the overall objectives of the company’s green urban rail development, providing target indicators such as the utilization of sustainable energy. It proposes that by 2050, a green and low-carbon development system will be established, and an advanced and sustainable urban rail system with near-zero emissions will be formed. [\(Relevant Link\)](#)

Regional Integrated Development Planning and Integrated Transit Planning

On July 1, 2022, the General Office of the Sichuan Provincial People’s Government issued the “Plan of Sichuan Province to Strengthen the Construction of Transit Infrastructure in the Chengdu-Chongqing Economic Circle.” The plan outlines that by 2025, development of the economic circle on the rail shall be preliminary completed; external transit channels, inter-city transit express networks, and metropolitan commuter networks shall be formed; and the interconnection of transit infrastructure shall be improved. By 2035, Chengdu and Chongqing and their surrounding cities will be interconnected through rail transit. [\(Relevant Link\)](#)

On July 19, 2022, the Wuhan Municipal People’s Government issued the “Work Plan for Driving Public Transit Integration and Priority Development of Wuhan” which outlined the progress of station-city integration should be accelerated. The plan states that Wuhan’s station-city integration mode will be built based on TOD concepts. The plan outlines the metro and urban planning for the Wuhan metropolitan area will maximize the efficiency of public land resources

and transit facilitates and drive the sustainable development of rail transit. [\(Relevant Link\)](#)

On August 3, 2022, the 4th Meeting of the Standing Committee of the 15th People’s Congress of Wuhan Municipality voted to pass the “Regulations on the Promotion of Public Transit Integration in the Wuhan Metropolitan Area.” The regulations provide provisions on plan drafting, facility construction, route approval, operations and management, as well as law enforcement and supervision, and other aspects related to the integration of public transit in the Wuhan metropolitan area. The regulations aim to drive the standardization of public transit planning, infrastructure construction, route operation, policy support, and service supervision in the Wuhan metropolitan area. [\(Relevant Link\)](#)

On August 5, 2022, the Guangdong Provincial Department of Natural Resources issued the “Coordination Guidelines for Territorial Spatial Planning of Metropolitan Areas in Guangdong.” This document provides strategic reference to the spatial planning in cities and guides major metropolitan area projects and the allocation of land resources. The document provides guidelines for coordination from the aspects of spatial patterns, ecosystems and agricultural spaces, transit systems, and public service facilities and industry in major metropolitan areas in Guangdong province, include Guangzhou, Shenzhen, Zhuhai-Zhongshan-Jiangmen, Shantou-Chaozhou-Jieyang, and Zhanjiang-Maoming metropolitan areas. [\(Relevant Link\)](#)

On August 17, 2022, Guangzhou and Foshan jointly issued the “14th Five-Year Plan for the Integrated Urbanization of Guangzhou and Foshan” to accelerate the integration of Guangzhou and Foshan. The plan adheres to the goal-oriented construction, integrated planning, and market-

led development of Guangzhou and Foshan. The plan focuses on strengthening the coordination between Guangzhou Baiyun International Airport and the Pearl River Delta Hub Airport (Guangzhou New Airport), and incorporating Foshan West Railway Station into the passenger railway hubs of Guangzhou. ([Relevant Link](#))

On August 22, 2022, the Chongqing Municipal People's Government issued the "Chongqing Metropolitan Area Development Plan." The Plan outlined that by 2025, the development of the Chongqing metropolitan area shall advance, the interconnectivity of infrastructure shall be improved, the capability of collaborative innovation shall achieve significant breakthroughs, and industrial collaboration shall be enhanced. The plan also outlines that Chongqing metropolitan area will be international, green, intelligent, and modern by 2025. In terms of transit infrastructure, the plan outlined the "join construction of a metropolitan area on the rail." ([Relevant Link](#))

On September 1, 2022, the General Office of the Ministry of Natural Resources issued the "Letter on the Advance Use of Land for the Control Project of the New Shanghai-Nanjing-Hefei High-Speed Railway (Jiangsu Section)." This document approved the use of 56.8173 hectare of land in Jiangsu. Covering Shanghai, Nanjing, Nantong, Taizhou, Yangzhou, and other cities, the project shall further consolidate the foundation of rail transit facilities for the integrated development of the Yangtze River Delta. ([Relevant Link](#))

Industry Standards and Technical Specifications

On July 5, 2022, the Ministry of Housing and Urban-Rural Development (MOHURD) issued the industry "the Design Standards for Urban Rapid

Transit." This document covers the urban rapid transit design of construction, expansion, and reconstruction of steel-wheel and steel-rail systems with a maximum operating speed of 120-160 km/h that serve medium- and long-distance passenger transit in urban areas. ([Relevant Link](#))

On July 15, 2022, the Ministry of Housing and Urban-Rural Development (MOHURD) issued the "National Design Codes for Straddle Monorail Transit." This document covers the design of construction, expansion, and reconstruction projects of straddle monorail transit with a maximum operating speed of 100 km/h. The code will be used for ensuring the safety, reliability, functionality, energy efficiency, sustainability, cost effectiveness, and technological innovation of straddle monorail transit engineering and design. ([Relevant Link](#))

On July 22, 2022, the Ministry of Transport revised the "Interim Measures for the Safety Evaluations Before the Initial Operation of Urban Rail Transit." This documents looks at the safety evaluation of newly constructed urban rail transit projects prior to operation, the reconstruction and expansion of existing urban rail transit projects, and urban rail transit projects before their initial operations. The interim measures aim to enhance safety management of urban rail transit prior to initial operation by standardizing the evaluation. ([Relevant Link](#))

On July 22, 2022, the Ministry of Transport revised the "Administrative Measures for the Evaluation of Urban Rail Transit Service Quality", which covers the service quality evaluation of all urban rail transit lines, operators, and urban line networks. The administrative measures aim to enhance urban rail transit service quality by standardizing the evaluation. ([Relevant Link](#))

On August 10, 2022, the General Office of the Ministry of Transport issued the “Specifications for Sustainable Transport System (2022).” This document outlines the standards from the aspects of energy conservation and carbon reduction, pollution prevention and control, ecological and environmental protection and restoration, resource conservation and intensive utilization, and other related aspects. ([Relevant Link](#))

Special Discussion

TOD and Urban Development in the Post-COVID Era

——Tokyu Corporation as an example¹



¹ Ms. Xiaona Liang wrote this summary article, and this article is based on the speech titled “Urban Development toward the Post-COVID Society” by Mr. Noriaki Nakayama at the Annual Workshop on TOD of the GEF6 China Sustainable Cities Integrated Approach Pilot Project in July 2022.

Since 2019, the COVID-19 pandemic has greatly suppressed the travel demand of urban residents. Coupled with the pandemic prevention and control policies implemented by national and municipal governments to restrict gatherings, the three years of the pandemic have had a huge negative impact on urban development and rail transit operations. This impact is expected to continue as urban residents modify their travel and living habits. Under this context, this article uses the Tokyu Corporation² as an example to introduce the transformation of the transit-oriented development (TOD) model before and after the pandemic, with the goal of providing a reference for Chinese cities.

■ Pre-Pandemic TOD Model of Tokyu Corporation

Private Sector-Led TOD

Private rail companies such as Tokyu Corporation play a key role in the implementation of TOD in Tokyo. As shown in Figure 1, private rail companies such as Tokyu Corporation operates and manages subway lines across different urban areas of Tokyo, playing a leading role in both construction and operation. With the cooperation and support of local governments, they are responsible for subway operations and the development of surrounding land plots and ensuring the continuity of TOD goals. Private rail companies attach great importance to the balance of funds and the development model of construction and operation to maximize the profits of rail transit services, stations, and surrounding land. This has been a key factor of the success of TOD in Tokyo.

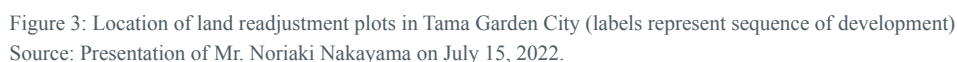


Figure 1: Distribution of private rail companies in Tokyo and lines under their operation
Source: Presentation of Mr. Noriaki Nakayama on July 15, 2022.

² Tokyu Corporation is a Japanese manufacturer of rail vehicles and three-dimensional parking lots. The company also engages in urban development and related activities along rail lines.



Land readjustment along subway lines was the most critical step for Tokyu Corporation in its implementation of TOD. Using the development of Tama Garden City as an example, as shown in Figure 3, land readjustment was carried out in accordance with development conditions and the progress of the construction of the subway lines. Land was acquired gradually in blocks and in cooperation with local landowners (land readjustment associations). As such, the planning, construction, and operation of each area reflects actual local needs and the local culture, providing a diverse landscape to Tama Garden City.



The adjustment method of each plot is outlined in Figure 4. An individual owner “donated” the land to the local land readjustment association. The land was then divided into three types, namely allocated land return to individual owners, reserved land, and public land. After the construction of the stations and surrounding commercial buildings were completed, the reserved land would be sold, typically at a large premium. The profits generated from these sales were then used for repaying the bank loans utilized for land readjustment and the construction of public facilities. During this process, the land returned to individual owners will also appreciate in value. The entire process achieves a variety of goals, including capturing the value of land along subway lines, improving the financial position of the private rail company, and improving public facilities.

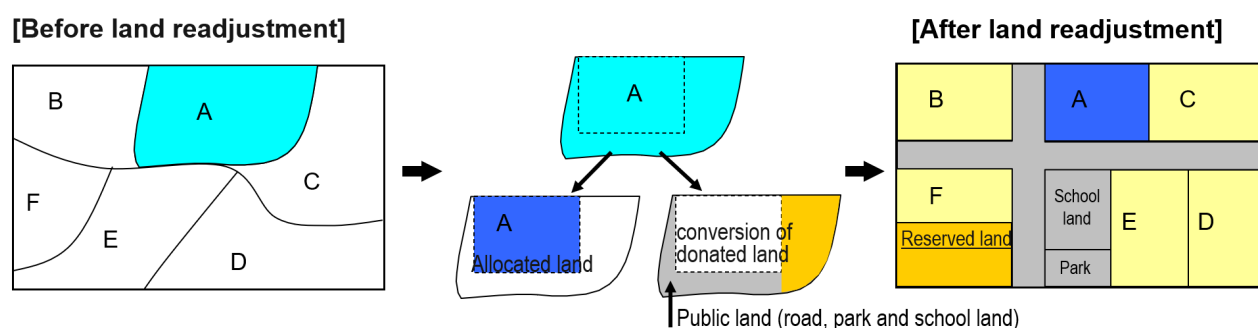


Figure 4: Schematic diagram of land readjustment

Source: Presentation of Mr. Noriaki Nakayama on July 15, 2022.

People-Oriented Property Development around Subway Stations

In order to cover the expenses of subway construction and land readjustment, private rail companies must fully tap into the commercial value and potential of surrounding properties and facilitates. Tokyu Corporation has adopted a design and operation concept based on residential needs, roughly summarized into three strategies: **connecting city and station, connecting people beyond generations, and connecting the daily lives**. First, Tokyu Corporation constructs commercial complexes over rail station so that residents can satisfy their day-to-day needs without leaving the subway station. Second, the company constructs condominium adjacent to the commercial complex with access that has no staircases to ensure station’s accessibility and attract elderly residents. Young families who need space for their children are encouraged to buy or live in single houses owned by elderly residents within a certain distance of the subway station. A positive intergenerational exchange and replacement is created through taking into the actual spatial needs of families of different age groups. The subway complex provides day-to-day public services, including childcare, eldercare, clinics, pharmacies, banks, and convenience stores, thereby serving as a commercial service center that fully satisfies the needs of residents of all ages.

■ Pandemic Impact Analysis

The TOD and urban development strategies of Tokyu Corporation have achieved great results over the past few decades. This TOD model has driven the continuous development of the Tokyo metropolitan area along rail lines and stations. However, data disclosed by Tokyu Corporation have shown that the outbreak of COVID-19 pandemic in 2019 has brought great challenges to this development model.

The comparison of operating data before and after the pandemic (Figure 5) shows that the number of subway passengers, department store sales, retail chain store sales, and hotel occupancy all significantly decreased year-on-year from April to September of 2020. The decline in April and May was particularly significant, with subway travel falling to less than 50% of pre-pandemic levels and department store sales falling to less than 30% of 2019. These pieces of data largely reflect the integration and prosperity of transit and commercial services centered in rail stations. From the perspective of TOD, the significant reduction of these indicators one year after the pandemic began reflects the level of integration decreased and shows that the pandemic has seriously damaged the practical application of TOD.

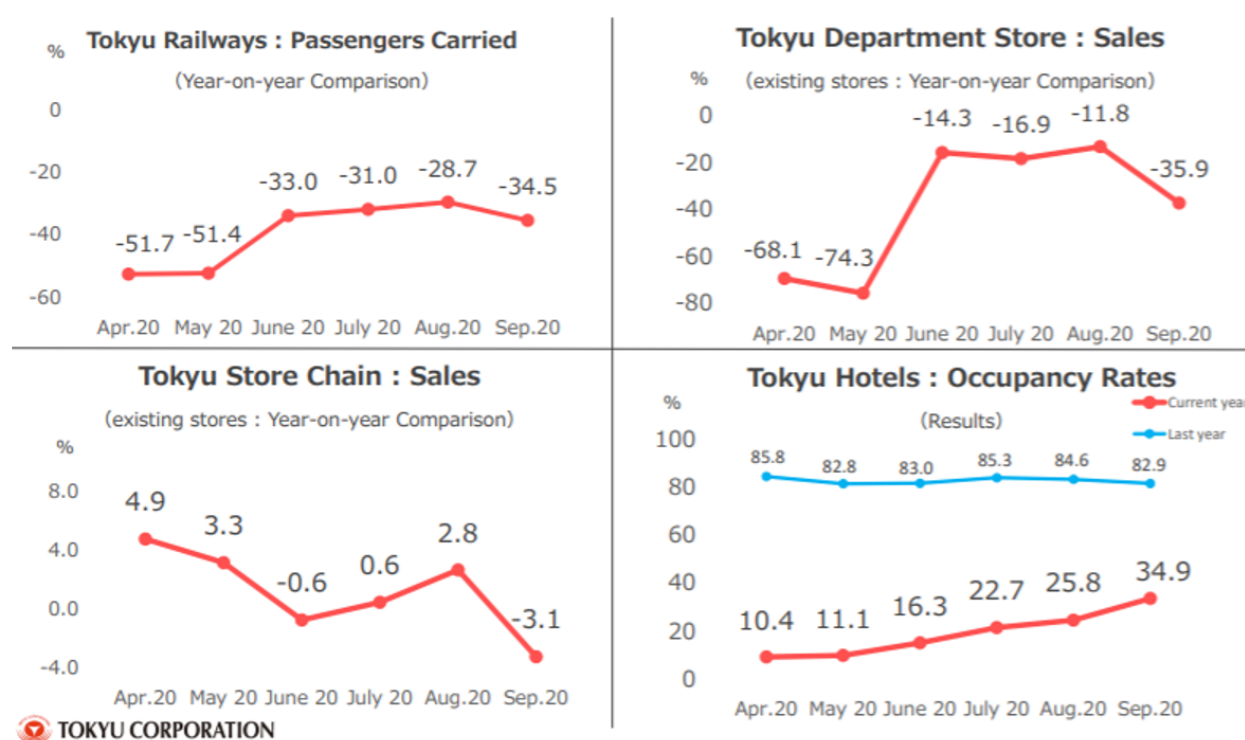


Figure 5: Comparison of Tokyu Corporation operating data before and after the COVID-19 pandemic (2019 and 2020)
Source: Presentation of Mr. Noriaki Nakayama on July 15, 2022.

The year-on-year changes in the data of Tokyu Corporation's commercial properties before and after the pandemic (Figure 6) show that the revenues of shopping malls and business centers declined; the commercial revenue of the local subway stations remained basically the same, while the commercial revenue of suburban residential area increased by almost 25% from the April of last year. This data reflects the transformation of the spatial distribution of residents' consumptions as a result of the pandemic. A portion of consumption originally located in urban commercial and business centers have moved to the suburbs and surrounding stations of residential areas. It is clear that the pandemic has resulted in major changes to the demands on commute and consumptions of urban residents. To a certain extent, these changes will have an impact on the urban and commercial spatial structure formed under traditional TOD models.

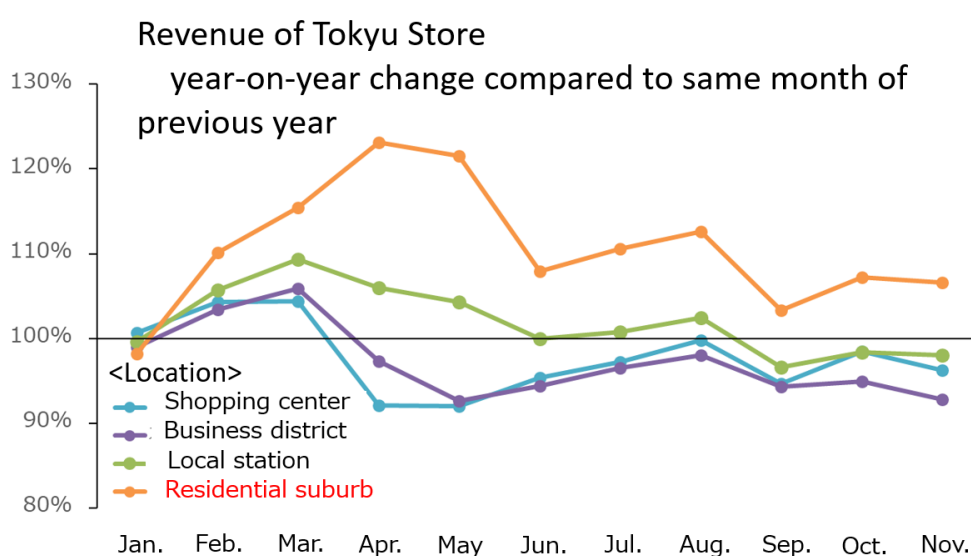


Figure 6: Revenue of Tokyu Corporation from commercial properties before and after the pandemic (2020 and 2021) compared with the same month of last year

Source: Presentation of Mr. Noriaki Nakayama on July 15, 2022.

■ A TOD Improvement Strategy Was Launched in Response to the Challenges Brought about by the Pandemic

The figure below (Figure 7) can help us better understand the impact of the pandemic on urban commercial spaces along rail lines. Due to practical factors such as travel restrictions and telecommuting, the position of downtown Tokyo as the city's absolute urban core has been shaken, and the flow of people and business has decreased significantly. Residents have changed their way of life from living in the suburbs and commuting to the city for work and shopping

to stations and commercial services that are closer to residential areas. Previously highly concentrated urban center functions have shifted towards the suburbs, forming new and relatively scattered small suburban commercial centers.

Tokyu Corporation believes that the city of the future will gradually shift towards this new **autonomous and decentralized city structure**. Under such an urban structure, private rail companies will shift their focus from strengthening and expanding urban and regional cores along subway lines to adding new functions and services around stations where residential areas are concentrated. In order to deal with the residual effects of the pandemic and seize more business opportunities, private rail companies will construct suburban community centers that integrate day-to-day economy, life, and communication to drive suburban development.

Tokyu Corporation has adopted a diverse business strategy that revolves around strengthening the investment, planning, and construction of “midpoint stations” to form new complexes that integrate the functions of hospitals, parks, facilities, and community centers based on subway stations in non-traditional core areas. Tokyu Corporation aims to lead new regional developments through this new business strategy. Tokyu Corporation also plans to relocate a portion of its commercial functions from the core area of Tokyo into these new complexes, further leaning into the development trend of decentralized urban spaces.

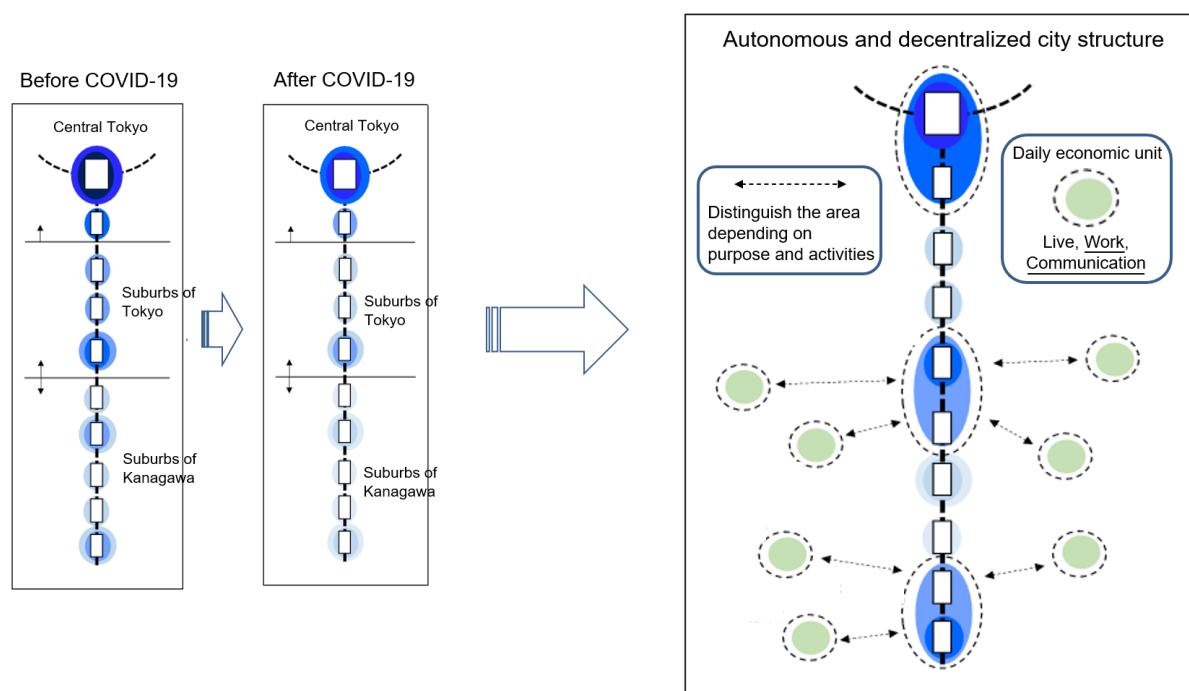


Figure 7: City structure transformation based on subway stations before and after the pandemic
Source: Presentation of Mr. Noriaki Nakayama on July 15, 2022.

■ Case Study: An Operational Blueprint for Intangible Community Activities — Nexus Challenge Park

Nexus Challenge Park is a demonstration area in which Tokyu Corporation has reached an agreement with the cities of Yokohama and Kawasaki for urban development cooperation along the subway lines operated by the company. The purpose is to create a livable and work-friendly community around the subway that is play-based, learning-oriented, participatory, full of possibilities, and based on residential needs. Nexus Challenge Park emphasizes the concept of the “nexus.” It holds the idea that a good community should be able to connect residents of different age groups to form a sustainable community of friendly neighbors, help residents connect and enrich their lives through nature and connect stakeholders in mutually beneficial ways. In order to realize these concepts, Tokyu Corporation and its partners have eschewed traditional TOD and urban construction concepts by placing further emphasis on intangible community activities in addition to physical construction.

At present, Tokyu Corporation has constructed a park according to this concept in Asao Ward, Kawasaki, where it has built a series of community facilities which focus more on operation than construction in green spaces near the residential community. These facilities include the Forest of Creatures, where residents can interact with and take care of small animals; the Nexus Lab, where partner companies can discuss future collaboration; the Niji Farm-IoT Share Farm, where paying members can sow and harvest together; and the Fireplace picnic camp, where residents can camp and cook with a fire. Tokyu Corporation hopes that these experiences and shared facilities seamlessly integrated with nature will serve to create a suburban community that is play-based, learning-oriented, participatory, and full of possibilities.

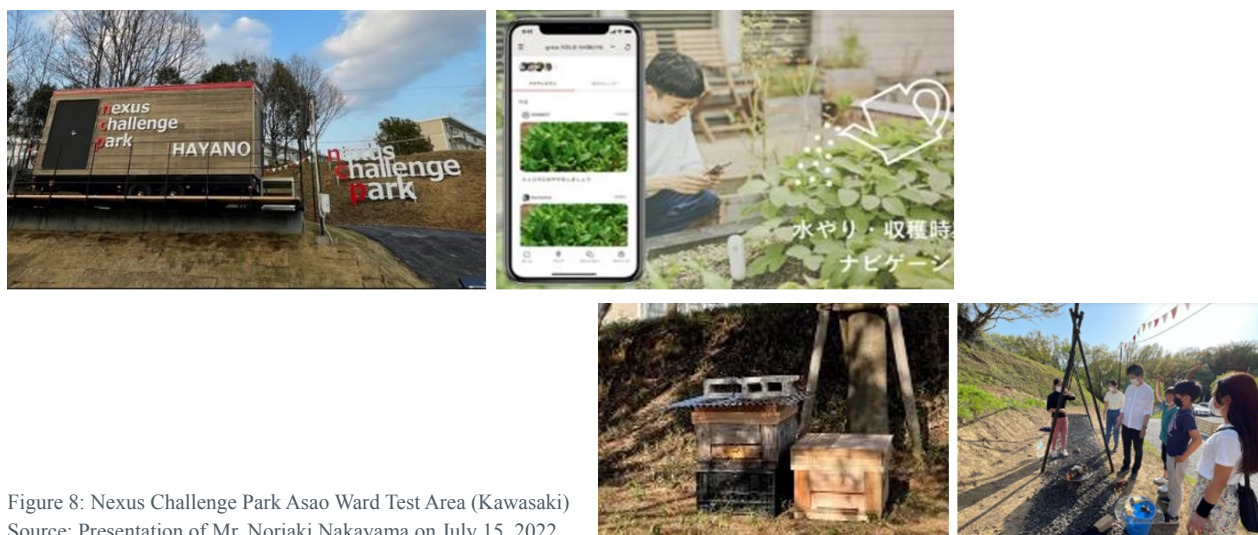


Figure 8: Nexus Challenge Park Asao Ward Test Area (Kawasaki)
Source: Presentation of Mr. Noriaki Nakayama on July 15, 2022.

Tokyu Corporation and its partners have also planned 5 parks near subway lines similar to the Asao Ward Test Area, along with 5 other parks further away from subway lines to further expand the influence of this concept. Tokyu Corporation is also planning to integrate the theme of sustainability into these parks such as sustainable agriculture and food, low-carbon and optimized energy structures, vibrant residents and communities, modern healthy lifestyles, and education that is closely linked with community development. The company also hopes to create a resource recycling society (resource utilization, zero waste, and harmony with nature) based on local communities and residents.

The planning and practice of the Nexus Challenge Park fully reflects the changes in Tokyu Corporation's development strategy along subway lines in response to shifts in the urban spatial structure and residential habits as a result of the pandemic. In other words, Tokyu Corporation pays more attention to the non-core areas and the construction and operation of suburban community centers with complex functions. Of note is that Tokyu Corporation is also cooperating with Yokohama in "Next-Generation Suburban Community Development Project" based on the abovementioned principles. The cooperation focus on creating an innovative suburban community center that serves children, seniors, and other age groups in both space and functions. Tokyu Corporation embraces technological developments, takes advantage of its foundation and leading position in transit services, and applies the concept of Mobility as a Service (MaaS) to provide integrated and comprehensive transit services. The company uses technical and customized methods to provide residents with convenience in terms of life, work, and study to narrow the gap between public and commercial services provided in suburban areas and the Tokyo city center and maximize the value of its services.

■ Conclusion

The COVID-19 pandemic has greatly transformed the living habits of urban residents and created new trends in urban spatial structures, driving urban subway transit services and operators to implement innovative practices in the TOD strategies that they have followed for decades. With its leading global position in TOD expertise, innovations in Japan are important references for China on TOD planning and construction in a post-COVID world. From another point of view, the TOD strategies of Tokyu Corporation (including both the mature model used before the pandemic and the innovative model used after the pandemic) have always been based on the fundamental needs of urban rail transit users. TOD and urban construction in China have entered a stage in which quality is more important than quantity. As such, in addition to learning from the TOD strategies, methods, and innovations of Tokyu Corporation, we should keep in mind the fundamental principle of design is people-oriented.

Upcoming TOD Related Events

The 19th Urban Rail Transit Development Forum

October 21-22, 2022, Hefei, Anhui

(Relevant Link)

Beijing-Qingdao International Metro Transit Exhibition & Forum, the 1st China Urban Rail Transit High-Tech Achievements Fair

October 26-28, 2022, Qingdao, Shandong

(Relevant Link)

RT Forum 2022 7th China Smart Rail Transit Conference, the 4th Urban and Suburban Railway Development Conference

October 21-23, Chongqing

(Relevant Link)

Annual Meeting of the TOD Academy of Beijing Jiaotong University and 2022 Land and Transport Summit

November 12, 2022, Beijing

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