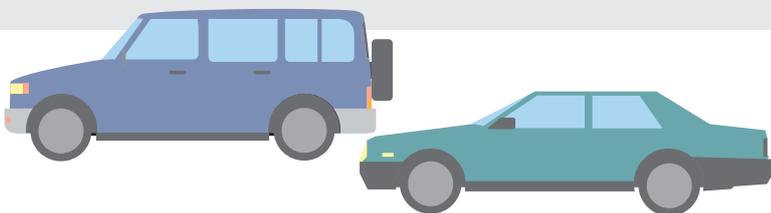
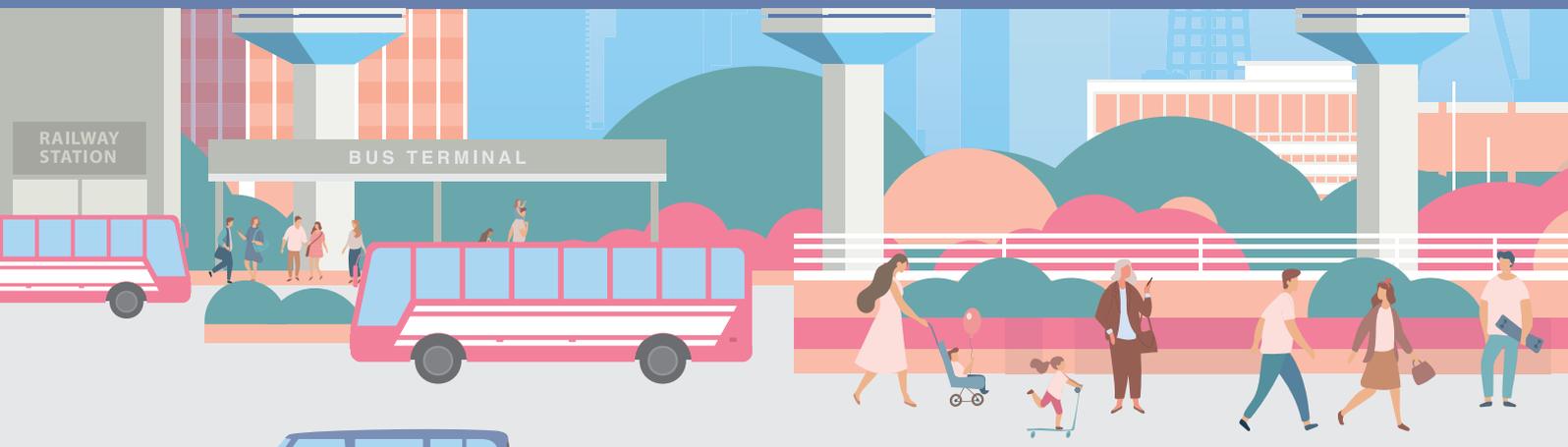


Japan's TOD

— Guidebook —



Introduction

Urbanization around the world is progressing at an unprecedented speed and scale. As the growing environmental burden and traffic congestion due to urbanization are being taken up as social issues, the shift from automobile-based to public transport-based urban structure is gaining momentum in numerous countries. To realize a sustainable city that is not overly dependent on automobiles for carbon neutrality, Transit Oriented Development (TOD) can be considered as an effective approach. Since TOD is one of the fields where Japan's experience and strengths can be utilized, the Government of Japan is putting efforts into its overseas project development.

Japan's history of urban development centered on railway lines and stations spans about 150 years since the opening of the first railway in 1872. When new railway lines were constructed, urban development projects along railway lines were planned and implemented under the initiative of private sector such as railway companies in metropolitan areas, suburban areas, and provincial cities. Also, in recent years, TOD has entered a further evolving phase, not only in terms of simple urban development, but also in terms of expansion of legislation, creation of added value of the region from a mid-to long-term perspective, etc. Due to the COVID-19 crisis, we are now required to consider "urban development to be fit for the New Normal." Under the circumstances, we would like to propose to share visions from various stakeholders including public and private sectors and combine the best methods when considering urban policy including TOD to enhance the value and sustainability of areas.

Japan's strengths lie in its comprehensive capabilities across stages from the initial project planning to town management after the development, and development variations that can take account of numerous regional characteristics, etc., all of which have been acquired through years of experience. By taking advantage of the Japanese know-how and customizing the expertise to meet the needs and challenges of your country, we believe that we can make a significant contribution to solving urban issues, realizing TOD and fostering economic growth.

This booklet outlines the methods and notable features of the representative TOD cases in Japan, and concludes with a list of support tools from the Government of Japan for overseas project development. We hope that our readers will deepen their understanding of and interest in Japan's TOD through this booklet.

March 2021

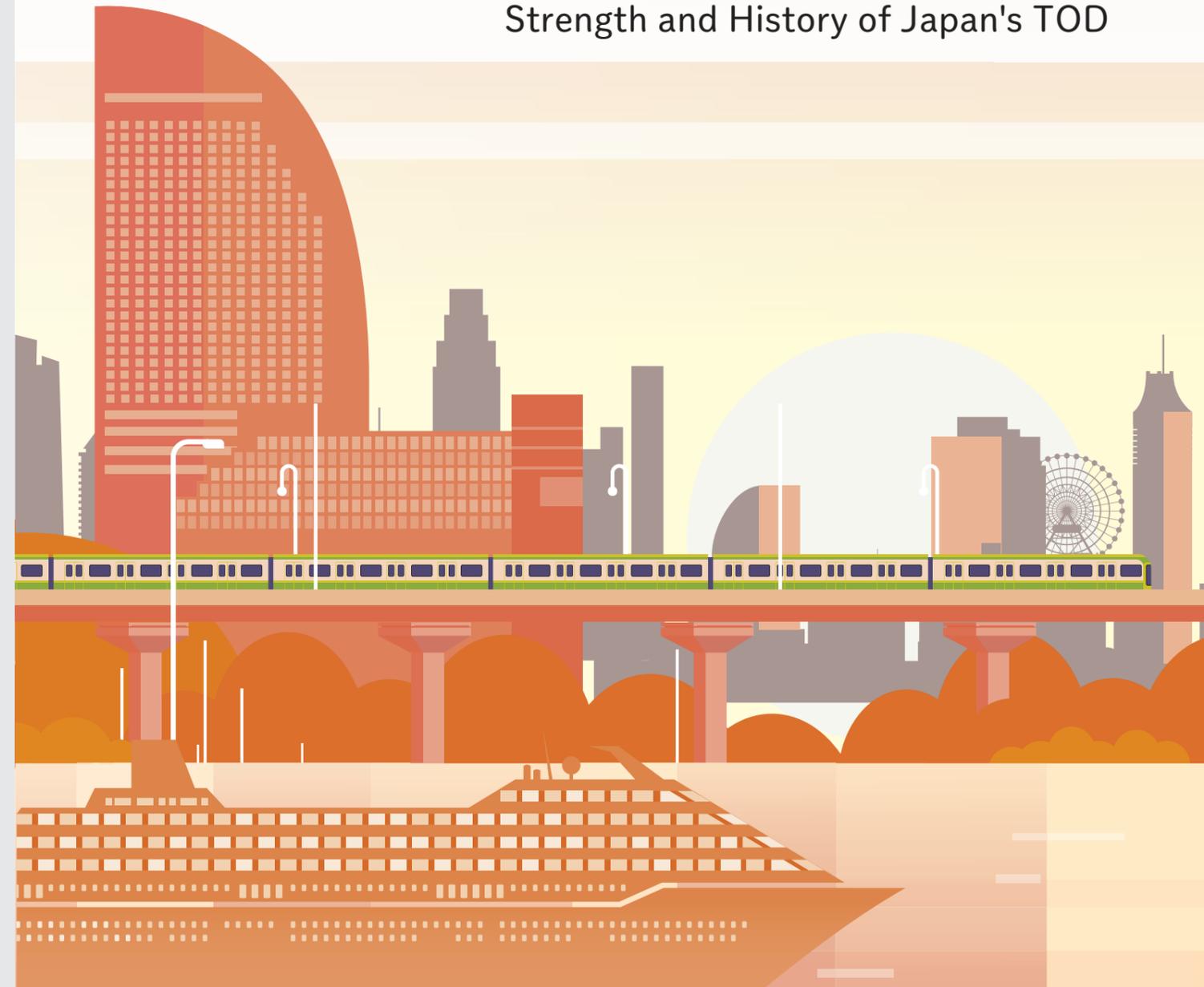
SAKAKI Shinichi
Director General, City Bureau
Ministry of Land, Infrastructure, Transport and Tourism



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Chapter 1 Strength and History of Japan's TOD



What is TOD

Transit Oriented Development (TOD) is a public-transport-based development model to respond to urbanization. The model includes a terminal station development in city center and an integrated development of a railway and suburban areas along the railway line.

TOD has been implemented in Japan together with the railway network development, and as a result has formed the current structure of cities.

The concept of TOD has become widespread since an American urban planner named Peter Calthorpe advocated public-transport-oriented urban development aiming for a society away from automobiles in 1993.

Since the first railway opening in Japan in 1872, urban development based on

1. Solving urban issues with TOD

Promoting urban development by TOD is effective in solving urban issues in the following ways.

Ease the concentration of population in urban areas

Reduce traffic congestions by modal shift to public transport

Reduce air pollution and other environmental impacts through reduction of the use of automobiles

Improve the work and housing environment through formation of an urban structure and systematic arrangement of urban functions

2. Two models of Japan's TOD

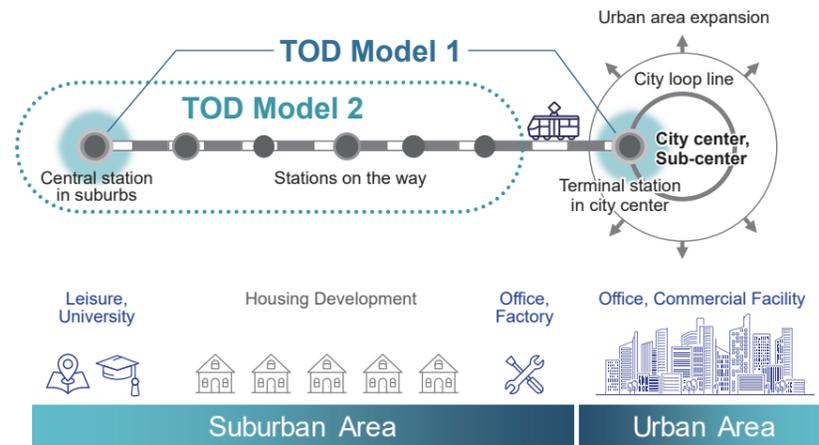
Japan's TOD forms an urban structure along the railway networks through two development models (stated below). Solving urban issues and enhancing the value along the railway lines (as shown in 1) is possible by planning according to the conditions of the development area such as demographic composition, market economy, regional characteristics, and urban policies.

Model 1 – Urban TOD

High-level usage of areas around terminal stations in urban areas and central stations in suburban areas and mixed-use development integrating stations and cities.

Model 2 – Suburban TOD

Integrated development of suburban railways and areas along railway lines (mainly for housing)

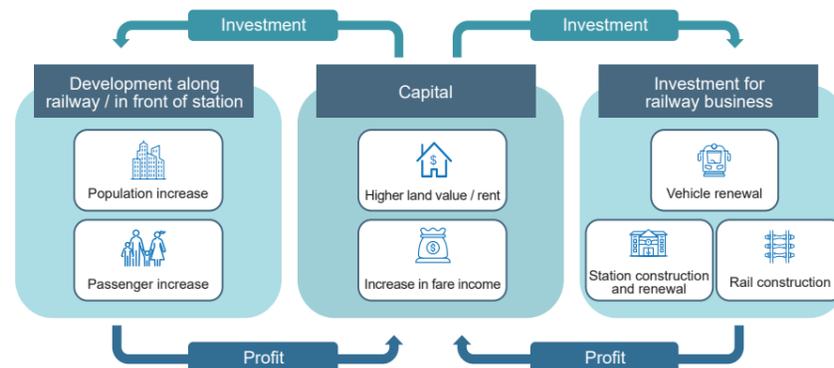


(1) The two models of TOD

3. Characteristics of Japan's TOD: Mechanism of virtuous cycle of railway capital

The numbers of residents and passengers increase due to TOD, resulting in an increase in profits from real estate business and railway fares. Investing these profits in railway constructions and development around station areas and along railway lines can improve the brand power and real estate value, leading to a further increase in the number of residents.

Creating such a virtuous cycle of investment and profits is an important aspect of TOD, contributing to the efficiency of railway operations and the strengthening of management and financial foundations of railway companies in Japan.



(2) The cycle of investment from profit

Two models of Japan's TOD in detail

Model 1: Urban TOD

Urban TOD is a development model for urban terminal stations and central stations in suburban areas that further enhances the value of the station area through high utilization of the area and development of complexes with multiple functions.

It is important to create “the face of the city” by developing complexes of offices and commercial facilities and landmark facilities in the station area, as it will enhance the value of the station area and the entire areas along the railway line.

Also, integrated development of a station, bus terminals, complex facilities, etc. as a seamless transport hub can improve accessibility, and the synergy of the increase in passengers and customer attraction effect of commercial facilities contributes to the creation of liveliness in the entire city.



(3) Aerial view of the Shibuya station development (above) and future image of the area around Shibuya Station East Exit Urban Core (below)



(4) Shinjuku Station area development and bus terminal

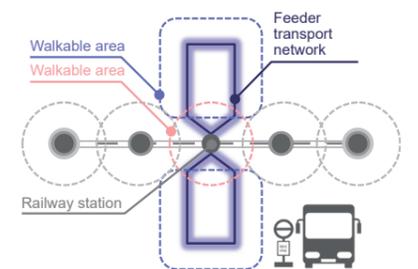
Images (3) are the courtesy of Shibuya Scramble Square and Shibuya Station Block Joint Buildings Operator
Image (4) is the courtesy of East Japan Railway Company

Model 2: Suburban TOD

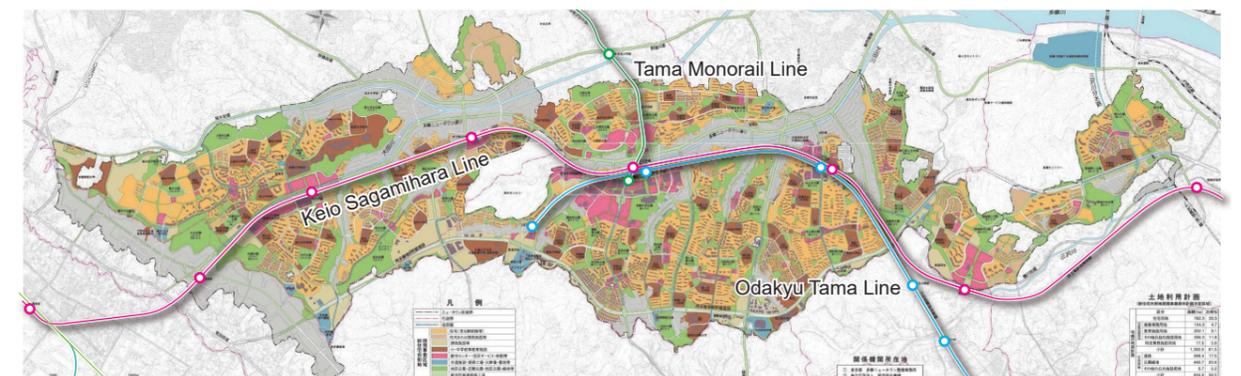
Suburban TOD is a development model to ease excessive population concentration in urban areas and integrally develop railways and areas along the railway line in the suburban areas.

The point is to cover the enormous railway capital expenditure required for the development along railway lines through securing profits from railway business and urban development by increasing the number of residents and passengers. To achieve this goal, it is important to form the structure of the city through implementation of land readjustment projects and infrastructure development in the station area and along the railway line, and appropriately allocate the urban functions for creating a comfortable living environment.

Also, it is important to expand walkable areas from the station to remote areas by forming a feeder transport network such as buses and monorails around stations.



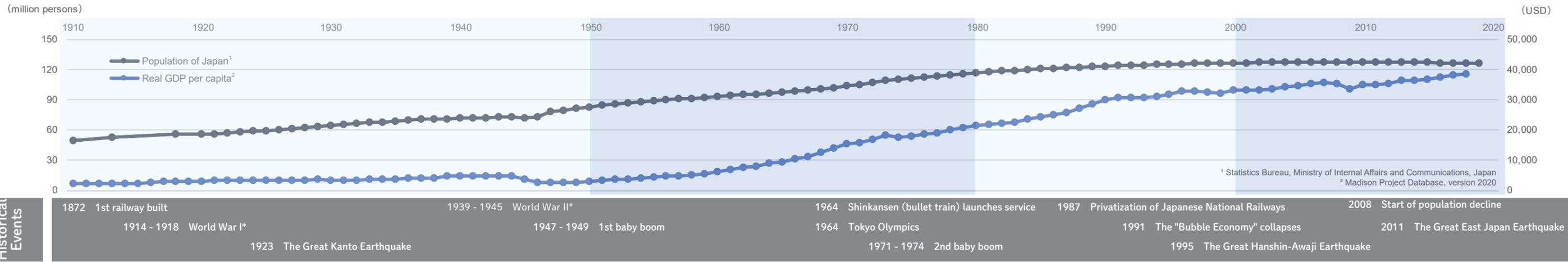
(5) Expansion of walkable area through feeder transport network



(6) Railway network and urban development in Tama New Town

Image (6) is edited based on the image courtesy of Urban Renaissance Agency

History of Japan's TOD



1910 - 1950 The Beginning of TOD

Population growth in large cities and shift of urban transport to railways



(1) Tokyo after the Great Kanto Earthquake

(2) Hankyu Department Store connected to Umeda Station

1950 - 1980 New Town Development and TOD Projects

Rapid urban expansion and huge demand for housing due to rapid economic growth



(3) Crowded train station

(4) Tama Den-en-toshi Area

1980 - 2000 TOD's Development Along Railway Lines

Correction of the structure of unipolar dependence on the city center and formation of Business Core Cities



(5) Minato Mirai 21 District

(6) Atré Ebisu (Utilization of land for commercial development)

2000 - 2020 TOD for a New Era

Formation of smart cities and compact cities that respond to diverse social environment changes



(7) Public space of Compact City, Toyama

(8) Kashiwa-no-ha Smart City

Background

As industrialization progressed through the Russo-Japanese War and World War I, the urban population grew rapidly. By the end of 1918, the population in the six major cities of Tokyo, Yokohama, Nagoya, Kyoto, Osaka, and Kobe accounted for about 12% of the total population in Japan. The Great Kanto Earthquake struck the Tokyo metropolitan area in 1923, devastating the urban areas of Tokyo and Yokohama, but the cities were rebuilt through capital reconstruction projects.

The high economic growth in the post-war period led by heavy and chemical industries brought about a massive influx of population from regional areas to metropolitan areas. As a result, urban functions were decentralized from the city center to the suburban area, and the urban area was increasingly spreading. For urbanization of these metropolitan suburban areas, legislations such as land readjustment project were established.

Due to the population growth in cities, there was a growing need to solve urban issues, such as shortage of housings and long commute between office and home. To solve these issues, Business Core Cities were selected from the city surrounding areas to serve as the sub-center of the city. Self-sustaining urban areas were planned to be developed around these Business Core Cities.

As the era of population increase and economic growth transition to an era of maturity, an unprecedented variety of changes occur, such as population decline, aging society, declining birth rates, advancement of information technology, internationalization, increased need for environmental initiatives, and increased activities by individuals based on diverse values.

TOD History

Streetcars used to be the main mode of urban transport, but these could not meet the increasing traffic demand and new railways were constructed instead. In 1910, the founder of the Minoh-Arima Electric Railway Company (now Hankyu Corporation), KOBAYASHI Ichizo, constructed a railway line and developed areas along the line to increase railway passengers, which can be said as "TOD project." He also developed a business model of locating department stores at terminal stations, targeting residents who live in suburban areas and commute by train to the city center.

Responding to increasing demand for housing due to the massive influx of population into major cities, large-scale residential development projects (new town) were carried out by both the public and private sectors. For the development of new towns, railway is a key means of transport for residents. Therefore, there were cases of new town development that also constructed its own railway for access, like Tama Den-en-toshi Area.
(○ Tama Den-en-toshi Area > see below)

In addition to business functions, Business Core Cities were designed to have cultural and recreational facilities, a center for welfare, healthcare, and medical services, and lifestyle-related functions. Within the Business Core Cities, areas that were deemed appropriate for the concentration of business facilities, such as areas around major stations in the suburban area and the area where Minato Mirai 21 District is located in Yokohama, were designated as Business Facility Concentration Area, and were targets for large-scale development. Also, with the privatization of Japanese National Railways in 1987, there was a growing trend for railway companies to promote non-railway businesses such as real estate and retail, and utilization of idle land.

Urban development concepts such as smart city and compact city have become popular. Also, area management and data-driven initiatives have become actively incorporated to create urban liveliness and improve convenience. Development around stations has also begun to incorporate these concepts and approaches. In this way, next-generation TODs that respond to the new era are being developed in various places, combining knowledge from the experience of TOD projects with the information technology that will shape the society.

TOD case study from 1950-1980: Tama Den-en-toshi Area



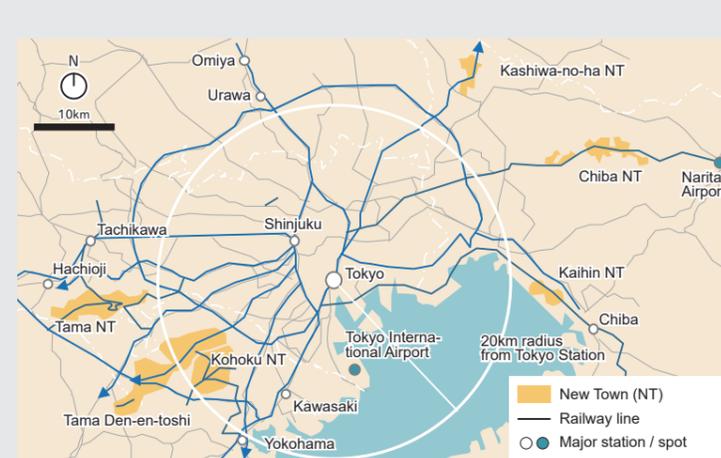
Tama Den-en-toshi Area along Tokyu Den-en-toshi Line

Tama Den-en-toshi has been developed since the 1960s by integrated development of residential areas and railways. The population along the line was initially planned at 400,000, but, as of March 2020, it is home to 633,000 people, making it one of the largest urban development projects by a private sector in Japan.

Many of the areas along the railway line were developed through land readjustment projects, and the railway company, Tokyo Kyuko Dentetsu Kabushiki Kaisha (now Tokyu Corporation and Tokyu Railways Co., Ltd.), was responsible for fund-raising and operations related to the implementation of the project. In addition to building necessary public facilities around major stations, such as the opening of hospitals and other infrastructure necessary for daily life, and the opening of universities and other educational facilities, thereby improving the convenience of the area along the line.

As a result of these efforts, Tama Den-en-toshi continues to develop as an attractive city and has succeeded in continuously increasing the population along the railway line.

New Towns spreading along railway lines

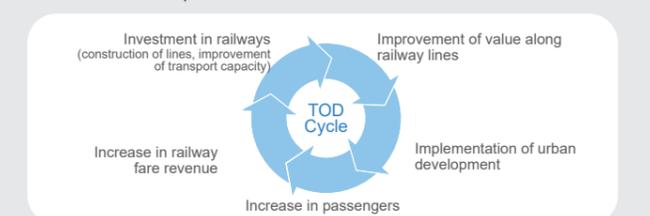


New towns (NT) spreading along railway lines in the Tokyo metropolitan area

With the enormous demand for housing caused by the urbanization in the Tokyo metropolitan area, railway and residential land were developed in an integrated manner, resulting in the development of several New Towns (NT) in the suburbs along railway lines.

TOD Cycle

To develop TOD projects successfully, it is essential to incorporate virtuous cycle of development. Development of railway line and attractive facilities such as station building lead to adding value to the land along the line. Then real estate development along the line contributes to passenger increase of the railway line. With the increased fare revenue, further railway investment and real estate investments become possible.



Conceptual diagram of the cycle of investing development profits in railway development

Images (1)(4) are the courtesy of Tokyu Corporation, (2) Hankyu Corporation, (5) the City of Yokohama, (7) Toyama City, (8) Mitsui Fudosan Co., Ltd.

Strength of Japan's TOD

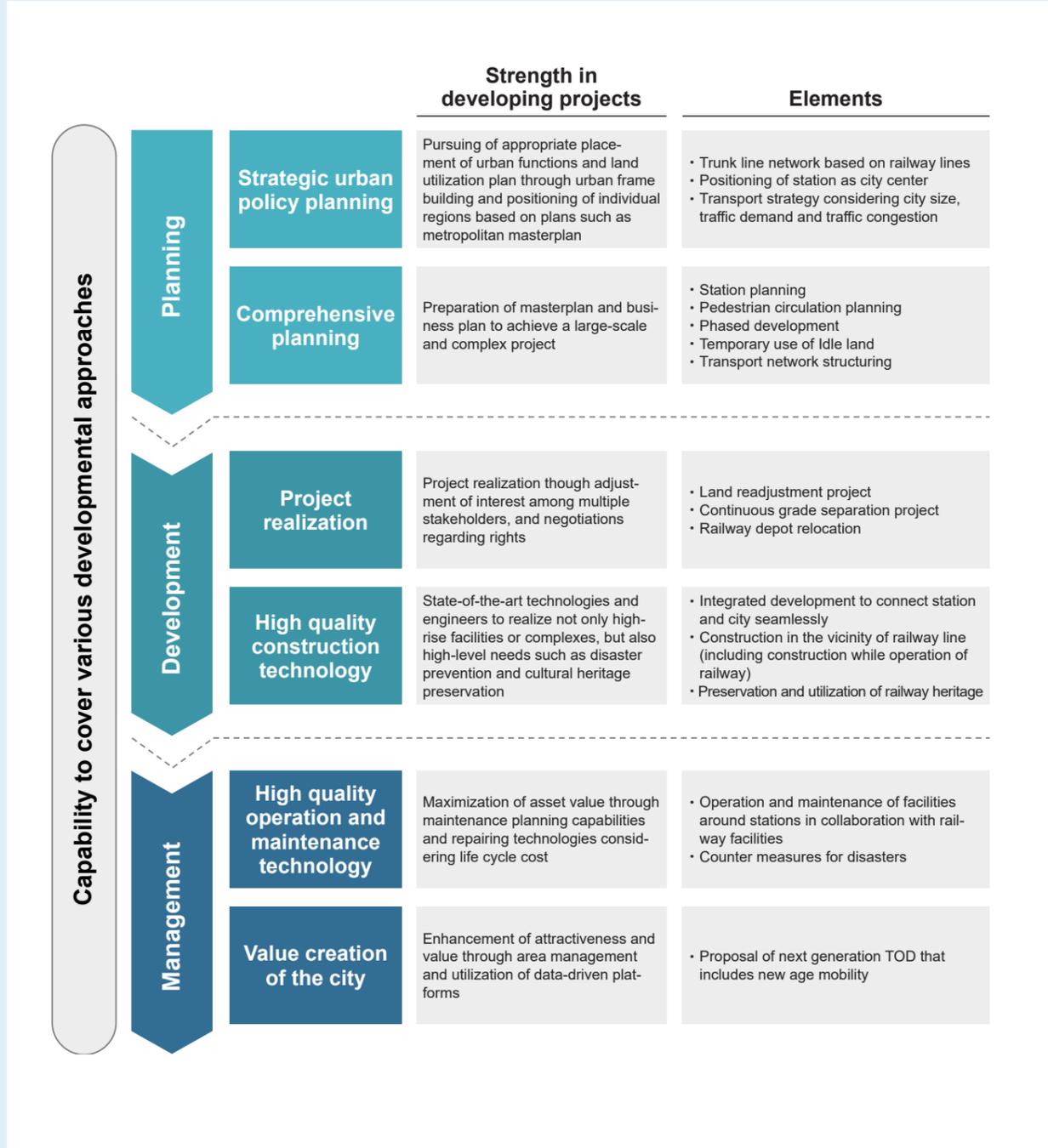
As described in the previous section, Japan has been engaged in urban development centered on railway lines and stations for about 150 years since the first opening of the railway line in 1872, reflecting social issues and people's needs in each city in each era through a wide variety of TODs.

Through years of development experience in TOD, while various mechanisms such as legislative acts and financing methods have been established, technologies and schemes have been also developed to achieve complex projects that involve various stakeholders. Furthermore, know-how on sustainable development from a long-term perspective has been accumulated

while creating new values for cities.

This page describes the prominent strengths of Japan among the TOD know-hows accumulated in local governments, institutions, private companies including railway companies, etc.

We are confident that these strengths can be greatly utilized even in overseas cities facing diverse urban issues and having regional characteristics.



Chapter 2 Case Studies of Japan's TOD



Column: Voice from Urban Renaissance Agency

UR supporting the development of Japan's TOD as a public institution
- Delivering Japanese experience to the world -



NAKAJIMA Masahiro
President of Urban Renaissance Agency



The Urban Renaissance Agency (UR) is a policy implementation organization whose predecessor was originally established in 1955 to solve urban issues in Japan. Since the period of high economic growth, UR has been leading the way in sustainable urban development to respond to the challenges of each era by leveraging our extensive experience, and our fair and neutral position as a public institution to collaborate with numerous parties such as government agencies and private companies.

TOD in Japan has enriched the lives of the Japanese people by creating diverse interactions and urban activities that have enhanced the attractiveness of cities and deepened the bonds between families and local communities. TOD is generally a large and complex project which takes long time, but it also is a creative collaboration realized through the cooperation of many stakeholders across the public and private sectors.

The method of realizing a long-term project in collaboration with various stakeholders is one of the characteristics of urban development in Japan including TOD. As a public institution, UR utilizes its extensive experience and knowledge of urban development to promote public-private partnerships, and plays wide range of roles, such as management of stakeholder meetings, formulation of development plans, development of project

implementation procedures, infrastructure development, and promotion of participation by private sector. As for the domestic cases presented in this chapter, we have been involved in the Osaka Station area (p.16), the Takanawa Gateway Station area (p.14), and the Minato Mirai 21 district (p.18) and have contributed to their realization together with the private sector.

COVID-19 is transforming the way we work and live, and the way our communities are organized. Under these circumstances, TOD continues to be important for ensuring the attractiveness and sustainability of cities, and we hope to create a new TOD model while introducing new technologies.

UR has been involved in urban development in Japan for a long time but the Act on Overseas Infrastructure Development, which came into effect in August 2018, has made it possible for UR to support overseas urban development projects. While building relationships with government agencies and private companies overseas, we will also work with agencies of the Government of Japan and Japanese private companies to support the enhancement of quality of life through solving issues related to urban development.

We hope that COVID-19 will end soon and that our readers living overseas will be able to see the TOD cases in Japan directly.

The Cases Introduced in this Booklet

This booklet takes a close look at various TOD cases in Japan from the perspective of 4 categories (Large scale station, Idle land utilization, Development along railway, Provincial city) and describes 2 to 3 characteristics as project excellence for readers' reference in understanding TOD. A total of 20 points related to the strengths of Japan's TOD shown in the previous section are summarized in the table below. Please refer to the table from the perspective of which points are likely to lead to a solution that will solve the issues that your city is facing.

List of the cases and their characteristics

Case	Point 1	Point 2	Point 3	Type of TOD
Tokyo Station Area	Cultural heritage preservation	Development of pedestrian station square	Development of the underground commercial facilities	Large scale station Idle land utilization
Takanawa Gateway Area	Effective land use through reallocation of railway facilities	Integration of station and urban space	Development of international business base	Idle land utilization
Osaka Station Area	Phased development process considering land preparation	Integrated development by multiple companies	Area management through BID	Large scale station Idle land utilization
Minato Mirai 21 District and Minatomirai Line	Collaboration with various stakeholders	Integrated construction of station and commercial facility	Temporary use of land	Idle land utilization Development along railway
Tsukuba Express, Kashiwa-no-ha Campus Sta. Area	Integrated development of railway and residential area	Area management and data linkage platform		Development along railway
Sapporo Station Area	Development of a landmark	Development of underground network	Contribution of real estate business revenue to railway business	Provincial city
Toyama Station Area	Renewal of station square and construction of walkway	Enhancement and revitalization of regional transport network	Financial support to attract residential land development and residents	Provincial city

The courtesy information of the images is described on the pages of each case

Location of the cases introduced in this booklet



Map of Japan

Map of Tokyo and surrounding area

*The maps above are simplified maps and thus do not show all the territories of Japan

Ideal Metropolitan Station Where Culture and Activities are Integrated

Tokyo Station Area



(1) Marunouchi exit, Tokyo Station



(2) Marunouchi exit, Tokyo Station before restoration



(3) Location map of the Tokyo Station

Basic Information

Location	Chiyoda Ward, Tokyo
Passenger/day*	approx. 1,362 thousand passengers
Number of railway companies	3 companies
Number of platforms	30

*Passenger/day refers to a number of passengers getting on and off trains. For a railway company disclosing the number of passengers getting on trains, the number of passengers is doubled to reflect the numbers of passengers getting off. (As of 2018)

Overview of the Tokyo Station Area

In the latter half of the 19th century, Japan began to develop as a modern nation, actively implementing Western ideas in various social spheres including politics, economy, and education. The wave of modernization also swept the field of transport. During this time when the latest technologies from the United Kingdom and the United States were actively introduced, the Tokyo Station has adopted a layout plan by German engineer Franz Baltzer, while the Japanese architect Tatsuno Kingo took charge of the architectural design planning.

Before the mid-19th century, the site of Tokyo Station was an area filled with daimyo residences (residences of feudal lord), but in 1872, the Great Ginza Fire burnt down the wooden buildings. As a recovery plan, it was decided that a Western-style township with fireproof buildings would be built. Marunouchi area, located on the west of Tokyo Station, was decided to be reconstructed as a business district, and in 1914, Tokyo Station was built as a symbol of Japan's central station. From its opening to the present, Tokyo Station has been playing an important role as a key station to support the metropolitan transport network.

At the beginning, Tokyo Station opened with a freight yard set up on the east, with potential conversion into other functions in the future. Tokyo Station then expanded in scale, as the outer moat around the imperial palace got filled with land after ending its role as a freight canal. The next page focuses on the three aspects that characterize the growth of Tokyo Station in the recent years and explains the characteristics of the station that support the transport network of the metropolitan Tokyo.

Overview of the Project Excellence

1. Utilization of technologies to preserve and enhance cultural heritage buildings while maintaining its function as a railway station
2. Improvement of the congested condition around the station
3. The know-how on the commercialization of station spaces that contribute to the integrated development of a station and city

1. Preservation and restoration of cultural heritage

The design plan for the Tokyo Station building on the Marunouchi side was completed in 1910 as a Western-style building that symbolizes the modernization of Japan. The station building experienced severe damages with the third floor being torn down by air raids during World War II. Although the collapsed floor was not restored for a long time due to the shortage of materials in the post-war period, Tokyo Station had been long loved as a two-story station building through the years. In the post-war period, plans to newly construct the station building were discussed, but in response to

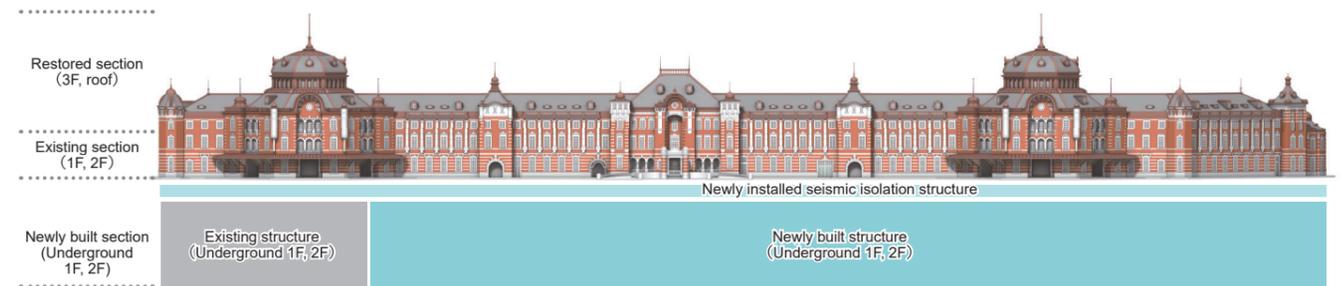
the growing interest for the preservation of historical buildings and requests for preservation of the station building, it was decided to keep and utilize the station as a "Living Heritage."

To restore the original design of the station, Japan's state-of-the-art technologies such as restoration of red bricks on the facade based on detailed investigation, preservation and utilization of the original steel frame, and implementation of seismic isolation technology were utilized. The restoration was completed in 2012.

This project is the first case to adopt Exceptional

Floor Area Ratio District Regulation for financing the restoration project. The project was financed by selling the air right (the unused volume above the station building) to the surrounding office buildings in the district. In this way, the project has achieved both the restoration of the cultural heritage and the upgrade and functional renewal of the surrounding office buildings.

(○ Air right > P.30)



(4) Details of the Tokyo Station restoration

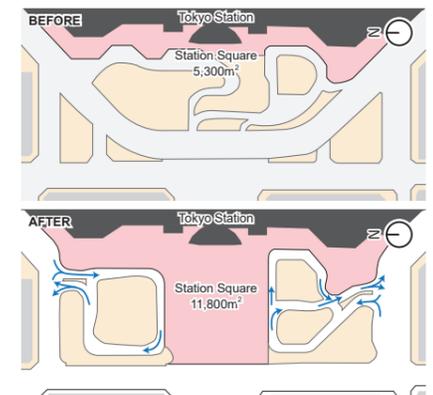
2. Improvement of the station square

At the time of completion of construction, the Marunouchi exit of Tokyo Station was designed to be a symbolic and lucid space with the Imperial Palace on its front axis, considering the use by the imperial family. As the general use of the station has since become more popular, the station square has become flooded with buses and taxis, causing difficulties for pedestrians to move around the area. In response to this situation, a three-and-a-half-year-long redevelopment took place to create a cityscape enriched by the cultural heritage and the zelkova trees, enhance urban tourism around Tokyo Station, and improve the functionality and the landscape of the pedestrian square.

As a result, transport squares have been placed in the north and the south squares, together with bus stops, taxi stands, taxi pools and underground exits

and entrances. In addition, the pedestrian space within the station square including the central square in front of the station has more than doubled in size (from 5,300m² to 11,800m²) with new planting designs. Maintaining the spatial plan that draws an axis leading to the Imperial Palace, the station square transformed into a new space where one can enjoy various events and the symbolic station building with the restored red bricks.

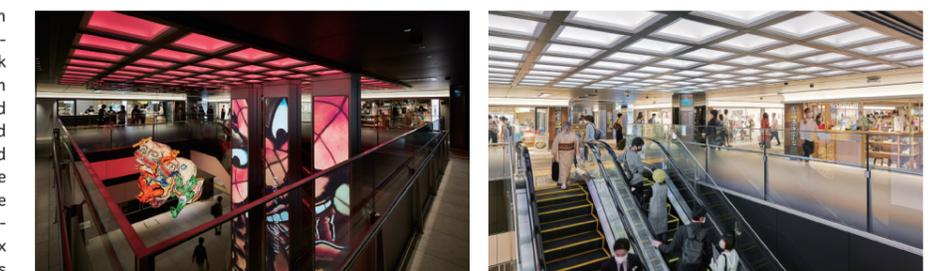
Sorting out the station square congested with cars and pedestrians while realizing dignified landscape suitable for the central station of the capital Tokyo, the station square of Tokyo Station reflects one of the solutions for large-scale station area development in urban space.



(5) Comparison between the station squares

3. Efficient usage of the station underground space as commercial facilities

Inside Tokyo Station, there are commercial facilities totaling 17,600m², while outside the station there is an extensive underground network of commercial facilities and pedestrian space. One can walk comfortably from the station to their destination without being affected by the weather condition, and the space is fulfilled with a wide variety of stores and restaurants that are popular among domestic and foreign tourists as well as office workers around the area. The commercial success of Tokyo Station is the result of Japanese railway companies' continuing exploration for profitable business to utilize the annex commercial facilities around station buildings. This shows the importance of managing profitable business in addition to the conventional railway business in achieving a successful TOD.



(6) Commercial area inside Tokyo Station

Image (6) is the courtesy of East Japan Railway Company

Effective Land Use in the City Center through Reallocation of Railway Facilities

Takanawa Gateway Station Area



(1) Takanawa Gateway Area after the development (rendered image)



(2) Takanawa Gateway Area after the development (East side, rendered image)



(3) Station and building around Takanawa Gateway Station (rendered image)



(4) Takanawa Gateway Station area under development



(5) Site map of Takanawa Gateway Station

Basic Information

Location	Minato Ward, Tokyo
Passengers / day*	46 thousand passengers (Temporary opening in 2020) 246 thousand passengers (Grand opening in 2024)
Number of railway companies	1 company
Number of platforms	4

*Passenger/day refers to a number of passengers getting on and off trains. For a railway company disclosing the number of passengers getting on trains, the number of passengers is doubled to reflect the numbers of passengers getting off.
Passengers / day is estimation and does not reflect the influence of COVID-19

Overview of the Takanawa Gateway Station Area

Takanawa Gateway Station is a new station that opened tentatively in 2020 as a new station on the Yamanote Line, a circular line that runs in central Tokyo, and the Keihin Tohoku Line, which runs from north to south across Tokyo. Full operation with all the gates and pedestrian spaces is scheduled to begin in FY 2024, together with the opening of the buildings around the station.

(○ Pedestrian flow around the Takanawa Gateway Station area > P.15)

Overview of the Shinagawa Development Project (phase I)

The area centered on the site of the Shinagawa Depot is being developed under the concept of Global Gateway to realize an international business exchange base where leading companies and talents gather from all over the world. The backgrounds for this development are the needs for strengthening the international competitiveness of the city, convenient access from Haneda Airport, and the opening of the Linear Chuo Shinkansen (maglev train) in the latter half of the 2020s.

Based on this concept, the Shinagawa Development Project (phase I) has a plan to construct a new station, the Takanawa Gateway Station that opened tentatively in 2020, on the site of the Shinagawa Depot located between Shinagawa Station and Tamachi Station. Its surrounding areas will see development through the building of offices, commercial facilities, hotels, residences, etc. across the four districts. On the business side, this area is planned to function as a base to support collaboration between companies, while on the cultural side, it will function as a place for the demonstration of experiments.

Overview of the Project Excellence

1. Large scale development by realizing effective land use through reinforcement of railway functions and reallocation of railway facilities
2. A smooth transition from the station to the city and the installation of continuous pedestrian network
3. Foreigner-friendly station interior and surrounding design and installation of residential and accommodation facilities with incentives to form the international business base

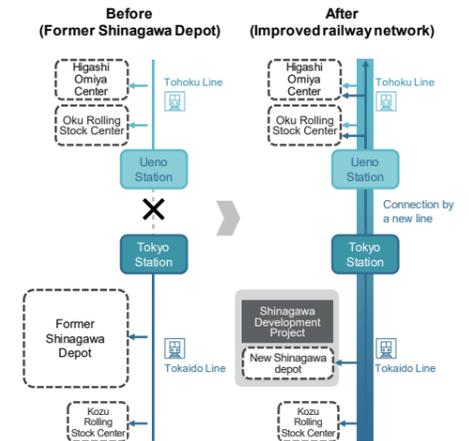
1. Effective land use in the city center through reallocation of railway facilities

In the Shinagawa area, major transport projects have been carried out since the 2000s, including the extension of the station for the Tokaido Shinkansen (bullet train) network, the development of an airport rail link to Haneda Airport (Keikyu Line), the internationalization of Haneda Airport, and the Linear Chuo Shinkansen which is currently under construction. The area is now recognized as a traffic node for domestic and international travel in Tokyo. At the same time, the Shinagawa railway yard and freight station located on the east side of Shinagawa station were abolished and was turned into a new business district. With such a background, business-related demands from both domestic and international sides are expanding in this area, leading to an urgent need for the enhancement of the urban functions.

While traffic demand in Tokyo is expanding due to commuting demands and so on, a plan to improve the railway network was launched to enhance accessibility and reduce congestion in the city center. The plan was

to construct a new line that connects Ueno Station and Tokyo Station, specifically by merging the operation of the Tokaido Line, which runs south of Tokyo Station, and the Tohoku Line, which runs north of Ueno Station. The realization of this plan made it possible to relocate part of the former Shinagawa Depot function to Oku Rolling Stock Center, the Higashi Omiya Center, etc.

By reorganizing the functions of the large-scale depot together with the surrounding depots while taking into account the circumstances that emerge from various vehicles and transport systems, effective use of the land became possible. Consequently, a large-scale redevelopment project on the site of the former Shinagawa Depot became possible. Large-scale construction work, including the relocation of the railway lines (Yamanote Line and Keihin Tohoku Line), was a big challenge, but this was made possible due to the high engineering capabilities of the Japanese railway companies.

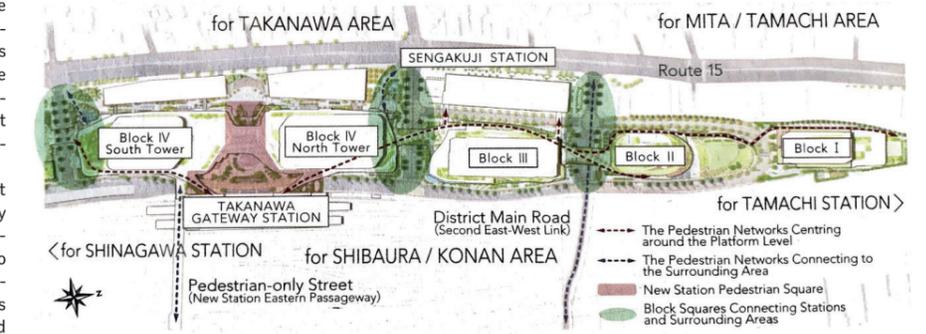


(6) Relocation of Shinagawa Depot functions

2. Integration of a station and urban spaces through installation of a new station and pedestrian network

Takanawa Gateway Station is designed with the intention of integrating the station and the surrounding cities. To achieve this, the station has a large glass surface designed on the east and west sides of the station building. It also has a large atrium on the concourse floor and a pedestrian plaza installed in front of the station entrance as a gateway to the surrounding cities.

The 1.6km long and slender-shaped development area that extends from north to south is connected by a spacious pedestrian deck that not only safely separates pedestrians and vehicles but is also expected to develop a spacious pedestrian network. This pedestrian network comprises and is connected to plazas and parks to generate connectivity with the city and community, creating a space where diverse people can gather and interact in various ways.



(7) Pedestrian flow around the Takanawa Gateway Station area

3. Development of station buildings, square and surrounding development suitable for international business exchange bases

While improving international competitiveness in the world has become an important strategy for Tokyo, it is a challenge to further incorporate the knowledge and experience of foreigners. Taking advantage of its proximity to the airport, etc., this area has been planned as an international business exchange base where leading companies and talents from all over the world gather.

The station building is designed to bring out Japanese essence with the motif of traditional Japanese origami, assuming use not only by the Japanese but also by foreigners. In order to make the station building easy to use even for foreigners who are new to Japan, the station building adopts an open space design, and has been planned so that the city can be seen from inside the station building, while the station is visible from the surrounding cities.

The pedestrian square in front of the station is planned to be equipped with facilities such as information hubs, interaction space and event space (utilization example: temporary marché, etc.) to function

as the face of an international business exchange base. It is planned to bring together various companies and talents to form an ecosystem that enables sustainable business creation and information dissemination. To reflect the latest trends, demonstration experiments using robots and the introduction of new personal mobility are planned to be conducted.

In addition, national programs such as Special Urban Renaissance Districts, National Strategic Special Zone and National Strategic Urban Housing Development Project are applied to allow the development with expanded floor area ratio and flexible volume arrangement. In accordance with these programs, livelihood support facilities such as residences, accommodations, international schools, etc. that meet the needs of expats are reflected in the development.

(○ Special Urban Renaissance Districts > P.28)
(○ National Strategic Urban Housing Development Project > P.28)



(8) Rendering of the planned station square

Images (1)(2)(3)(4)(7)(8) are the courtesy of East Japan Railway Company

Phased Area Development for Risk Mitigation and Customized Bidding Process to Realize the Integrity of the Development

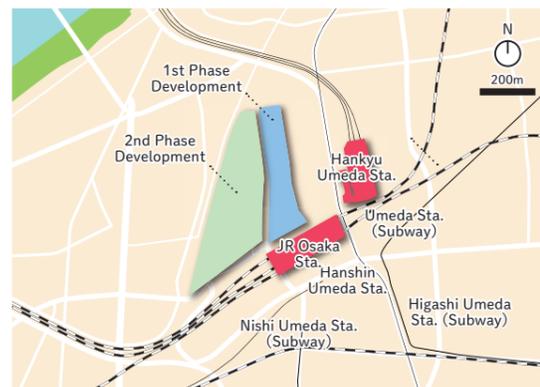
Osaka Station Area



(1) Rendering image of Umekita Project (scheduled to complete in 2027), from the proposal of the developer as of May 2018



(2) The site of Umekita Project before the construction



(3) Site map of Umekita Project

Basic Information

Location	Osaka City, Osaka
Passenger/day*	2,376 thousand passengers (6 stations)
Number of railway companies	4 companies
Number of platforms	30

The basic information is for Osaka Station, Hankyu Umeda Station, Hanshin Umeda Station, Subway Umeda Station, Higashi-Umeda Station, and Nishi-Umeda Station (As of 2018)

*Passenger/day refers to a number of passengers getting on and off trains. For a railway company disclosing the number of passengers getting on trains, the number of passengers is doubled to reflect the numbers of passengers getting off.

Overview of the Osaka Station Area

Osaka Station is located at the center of Umeda area, the largest downtown and business district in Osaka City, and is the terminal station with the largest number of passengers in western Japan. In 2011, the station was largely renovated, including the construction of the North Gate Building connected to the Osaka Station, the free passage connecting the northern and southern buildings, and the large dome-shaped roof. In the spring of 2023, its current terminal function to connect major railways in the Kansai region will be reinforced with the opening of the new station where the airport rail link will come. In particular, the access to Kansai International Airport and Shin-Osaka Station is expected to improve dramatically to play an important role in supporting transport within the prefecture. The development is becoming increasingly active, with another new station building scheduled to open in 2024.

Overview of the Umekita Project

The Umekita Project located on the north side of Osaka Station covers approximately 24ha of the former Umeda Freight Station, which was shut down in 2013. The purpose of this project is to turn this area into an internationally competitive intellectual city through industry-academia-government collaboration. In 2013, the first-phase development of approximately 7ha opened, with a connection path to the North Gate Building opened in 2011. The other 17ha land is currently under development as a second-phase development. Both development phases include commercial facilities, offices, residences and city parks and are scheduled to fully open in 2027.



Overview of the Project Excellence

1. A realistic development process through phased development considering freight station relocation schedule
2. An integrated overall development by multiple private companies
3. Integrated maintenance and operation of public and private spaces through Business Improvement District (BID)

1. Realization of phased development in accordance with depot relocation

The development of Umekita Project has been carried out in two phases. This is due to the circumstance that the area had been previously used as Umeda Freight Station and that the relocation of the freight station to generate spaces for Umekita Project was carried out in stages.

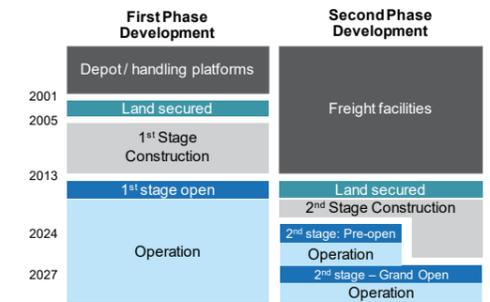
Umeda Freight Station was one of the assets that was considered for sale as part of the measures to eliminate the deficits of Japan National Railways (JNR), when it was privatized in 1987. At the same time, the nearby Nishi-Umeda Freight Station was also sold, which then was developed mainly for office buildings. At Umeda Freight Station, its vehicle parking zone and vehicle handling platforms were closed, while its freight-related facilities were relocated to Suita Freight Terminal and Kudara

Freight Terminal for the continuing operation.

The first-phase development of 7ha took place at the site of the former vehicle parking zone and vehicle handling platforms since they were ready for redevelopment in advance. In April of 2013, a commercial complex Grand Front Osaka was opened on this land.

As for the second-phase development of 17ha on the former freight station site, the relocation of the facilities was completed in 2013 and is currently under construction as of 2021.

In this way, this large-scale project was carried out by phasing the process into number of stages considering the land acquisition status and business feasibility to realize the integrated development of station and city.



(4) Phased development process in the Umekita Project

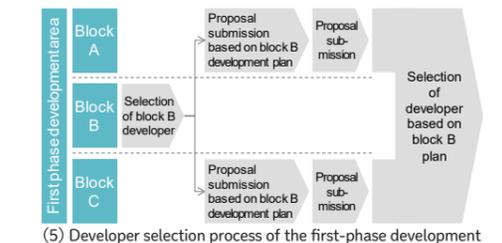
2. Developer selection process for the realization of unified large scale area development

In the Umekita Project, the landowners* set the development conditions for both the first-phase area and the second-phase area, and the requests for proposals were issued. (The first-phase area: Urban Renaissance Agency (UR) and Japan Railway Construction, Transport and Technology Agency, the second phase area: UR)

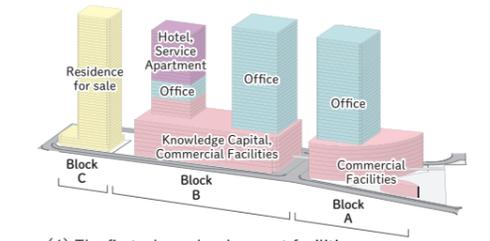
To achieve the superior plan "Basic Plan for Development of the North Sector of the Osaka Station Area," established by the City of Osaka, and an integrated large-scale development, the two landowners of the first-phase area jointly called for proposals, while they had divided the development site into three blocks (A, B, C block). First, the developer for the B block (owned by UR) was selected. B block was intended to be a base for accumulating the intellectual wisdom of western Japan and play a role as an industry-academia exchange function to boost business in the area. Then, the request for proposals for blocks A and C followed, focusing on the integrity of the plan with block B, especially for the points such as the spatial characteristics of the plan and the connectivity of

pedestrian flows in line with block B. As a result, 12 private companies were selected to carry out the first-phase development, and in 2013, a complex with commercial facilities, offices, hotels, and residences opened.

Regarding the second-phase area, the request for proposals (first bid) was released in 2013, requesting for the ideas for development size, implementing functions, area management etc. to realize "green" space and formulate a superior plan for the area development. As a result, proposals of 20 private companies/groups were selected. After this process, landowners and the selected bidders had discussions to grasp the details and feasibility of the proposals and reflect the ideas into the superior plan. "Urban Development Policy for the Second Development Zone in the Umekita Area" was authorized in 2015 which has become the basic conditions of the request for proposals (second bid) for the second-phase area conducted in 2017 and 2018. 9 private companies were selected, and the development is currently underway.



(5) Developer selection process of the first-phase development



(6) The first-phase development facilities

3. Sustainable financing for the integrated maintenance and operation of the development area

One of the purposes of the town development is to incorporate the entire development area into a unified plan. This is because practicing unified block planning, operations and measures in a community as a whole are essential to achieve a sense of liveliness in the town and the overall value enhancement of the area. The issue was to systematize the process to make this sustainable.

Generally, in Japan, real estate owners maintain and operate their own development premises with their own funds, while the roads and parks nearby are managed by the public sector with its budget.

With such a background, in the Umekita Project, Grand Front Osaka TMO was established by the real estate owners as an independent organization responsible for the integrated operation and management of the town, adopting the Business Improvement District (BID) method for areal operation and maintenance (O&M). With this method, BID organization is working to vitalize the city by utilizing public spaces in the form of sidewalk cafes, advertising businesses etc. The community development organization (BID organization), independent of the real estate owners, carries out

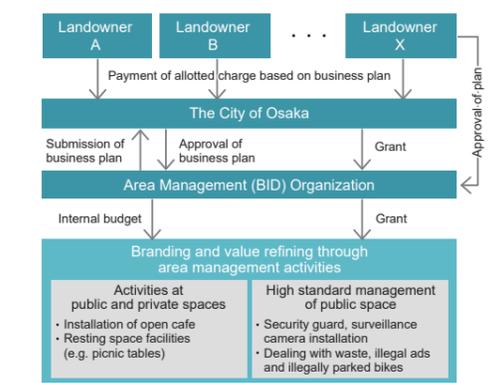
the O&M work, previously carried out separately by the real estate owners and the public sector. In this scheme, the BID organization funds itself with the allotted charge paid to the City of Osaka by the real estate owner. The public sector is responsible for authorizing the plans formulated by BID organization and granting the funds collected from real estate owners to BID organization. This makes it possible to ensure appropriate business plans for the community management and the collection of funds.

With this system, (1) BID organization is able to formulate O&M policy for the entire area from real estate owners' and a public sector's point of view, realizing the interests for both the real estate owners and the public sector, and (2) BID activities can be more stable with the sustainable funds collected and granted by the public sector with their public authority. In this way, private funding allows the public sector to reduce road management budgets, while it makes it easier for the private sector to comment on public sector's O&M policies on roads, etc.

In the first-phase development, high-grade maintenance and utilization of sidewalk, including

the installation of streetlights and benches, and vitalization through utilization of the road spaces have been achieved while it was difficult for the private sector to intervene in the conventional system.

(O Business Improvement District (BID) > P.30)



(7) The scheme for Osaka BID

Images (1)(2)(6) are the courtesy of the Umekita Project second phase developer

Effective Phased Development with Integrated Railway Construction and Urban Development

Minato Mirai 21 District / Minatomirai Line



(1) View of MM21 District from the sea



(2) MM21 District in 1980 before the development



(3) MM21 District in 2020

Basic Information of Minatomirai Line

Location	Yokohama City, Kanagawa
Passenger/day*	approx. 440 thousand passengers
Number of railway companies	1 company
Number of train services / day	approx. 300

*Passenger/day refers to a number of passengers getting on and off trains. (As of 2019)

Overview of the Minato Mirai 21 District (MM21 District)

Since the port's opening in 1859, the Kannai / Isezakicho District has prospered as the center of Yokohama and a place where people, cultures, and goods from all over the world interact. When Japan was experiencing a high economic growth, the area around Yokohama Station became the other center of Yokohama as the station developed into the railway hub connecting suburban areas. The two city centers had a shipyard, a wharf, a freight yard, etc. at the coastal area in between, which had separated the two city centers.

The MM21 District is a waterfront area that covers about 186ha between Yokohama station and the Kannai / Isezakicho District. It is considered as an area that is responsible for a part of the capital functions concentrated in Tokyo, with offices, cultural, and commercial facilities, etc., which has created employment and induced liveliness.

Overview of the Minatomirai Line (MM Line)

The MM Line is a 4.1km-long subway, with 6 stations that connects Yokohama Station through the MM21 District to the Kannai / Isezakicho district, at a minimum of 6 minutes, and has been operated by a public-private joint venture (third sector) since its opening in 2004. As MM Line and Tokyu Toyoko Line have the direct train operation connecting MM21 District and central Tokyo, trains transport people to the MM21 District and enhance the ease of getting around within it.



(4) Map of MM21 District

Overview of the Project Excellence

1. Developed MM21 District and MM Line in an integrated manner through collaboration of various public and private stakeholders
2. Cost reduction and functionality improvement by integrating construction of stations with private facilities
3. Included temporary use of land as a method to successfully conduct phased development for large scale development

1. Developing MM21 District and MM Line through collaboration of various stakeholders

The development of the MM21 District is a core project to integrate and strengthen the divided city centers of Yokohama City. Based on the concept announced by the city, the national government, Kanagawa Prefecture, the city, etc. jointly formulated an urban plan. After the relocation of the shipyard and other facilities, the city reclaimed the port area, the national government and the city renewed the port, and the Urban Renaissance Agency carried out the land readjustment project. In the land readjustment project, the entire MM21 District was made pole-free in consideration of the town's landscape and safety in the event of a disaster with

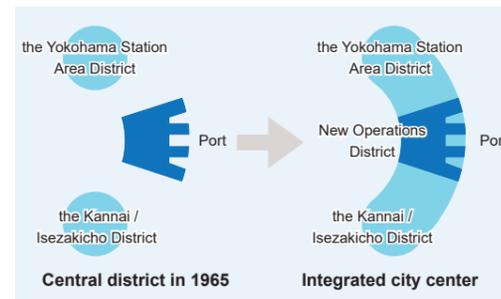
utility tunnel (one of the largest in Japan at the time) under the district's main roads to accommodate pipes and cables for power, gas, communications, etc. Also, pedestrian decks have been constructed as part of the pedestrian network to separate pedestrians and vehicles, thereby ensuring safety of pedestrians and continuity of the streetscape. In addition, the city is actively inviting companies through public solicitation of city-owned land and provision of the incentives such as subsidies and special exceptions to corporate inhabitant tax.

For the construction of the MM Line, the large-scale landowners in the MM21 District, who would

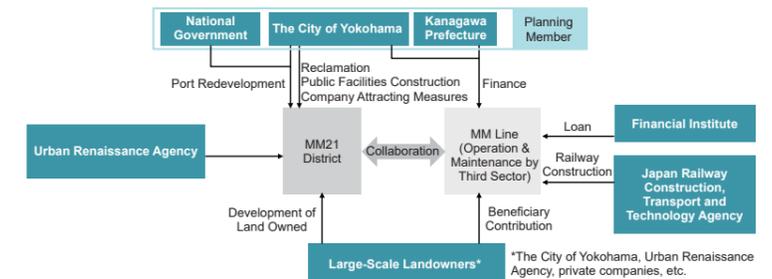
benefit significantly from the construction of the MM Line, contributed 50 billion yen, or a quarter of the MM Line construction cost, in the form of beneficiary contributions, which were used for the construction of the railway.

Through these collaborations of various stakeholders, the Yokohama Station Area District, MM21 District, and the Kannai / Isezakicho District have unified and formed the city center of Yokohama, attracting headquarters and R&D centers of multiple global companies.

(○ Land readjustment project > P.28)
(○ Beneficiary's contribution > P.30)



(5) Conceptual diagram of unification of two city centers



(6) Roles in development of MM21 District and MM Line

2. Integrated development of railway station and complex

The location of Minatomirai Station in the middle of MM21 District was decided after reviewing the alignment of MM Line from the point of convenience and design, and the plan to lay it under a large-scale high-rise complex (Queen's Square Yokohama) opened in 1997 was adopted.

The integrated construction of the station and the complex reduced the overall construction cost by sharing temporary structures, etc. The atrium of the building integrated the platform of the station and the complex. The integration has not only improved user convenience, but also enabled dynamic space design for everyone to feel the connection between the station and the city. The design has also allowed the passengers at the station to feel natural light on

a platform 23m underground, and customers at the complex to see the incoming train. The characteristic skyline of the high-rise part of the complex evokes openness of the sky over Yokohama. Sea front and the wide view of the underground to the sea and the sky contribute to the brand improvement of the port city.

Furthermore, with better accessibility and ease of getting around between the station and the complex, the railway company (and its affiliates), one of the investors of the complex that directly connects its line to the MM Line, is creating circulation of the railway and real estate business.



(7) Atrium above Minatomirai Station

3. Creating a lively city through temporary use of land

Since the MM21 District was expected to be used for a wide variety of purposes in the vast project area and has a lengthy development period, it was essential to maintain the quality of the city and prevent it from becoming obsolete. The basic agreement signed among landowners to promote better urban development actively positions temporary use of land as one of the methods to create liveliness of the city and attract full-scale development, in addition to standards for land use zoning, building, etc.

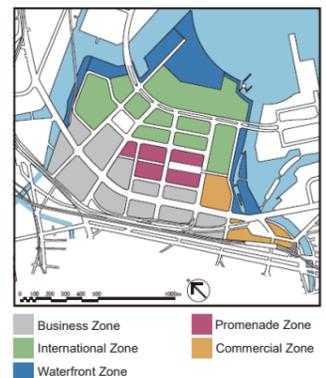
In MM21 District, up to 10 years of temporary use of land before full-scale development is permitted. "GENTO YOKOHAMA" is an example of temporary use of city-owned land and was open from the end of 2004 to 2015 as an entertainment facility with a cinema complex and live performance house. After the temporary use, the city-owned land was sold through a tender, and an office centered complex is

expected to come up at this site.

Such temporary land use also has an aspect of collecting visitor segmentation data of the district or creating an image for the next development.



(8) Facility under temporary use of land (GENTO YOKOHAMA)



(9) Land use zoning image

Integrated Development of Railway and City, and Smart City Management

Tsukuba Express, Kashiwa-no-ha Campus Station Area



(1) Kashiwa-no-ha Station



(2) Kashiwa-no-ha Campus before the development



(3) Kashiwa-no-ha Campus area in 2020



(4) Railway network of TX

Basic Information

Location	Kashiwa City, Chiba
Passenger/day*	approx. 36 thousand passengers
Number of railway companies	1 company
Number of platforms	2

*Passenger/day refers to a number of passengers getting on and off trains. For a railway company disclosing the number of passengers getting on trains, the number of passengers is doubled to reflect the numbers of passengers getting off. (As of 2019)

Overview of Tsukuba Express (TX)

TX is a suburban railway with a total length of 58.3km, 20 stations, and a maximum speed of 130km/h. It was developed in cooperation with residential land development, connecting Akihabara to Tsukuba Science City, an IT hub to a hub for cutting-edge technology development at a minimum of 45 minutes. Since the start of railway operation in 2005, TX has been operated by a public-private joint venture (third sector) established by local governments along the railway line, etc. as its major shareholders.

Overview of the Kashiwa-no-ha Campus Area Development

Kashiwa-no-ha Campus Station is the 13th station from Akihabara station (about 30km) on TX, and the area around the station is highly convenient and full of liveliness with universities, large commercial facilities, hospitals, high-rise apartments, etc.

The area has been developed as the next-generation town that solves social issues with three themes: "Symbiosis with the environment," "Health and longevity," and "New industry creation" under the concept of "The town that creates the New Vision for the Cities of Tomorrow." The town has been developed around two structures, Kashiwa-no-ha Urban Design Center (UDCK), which is not a traditional government organization but an organization where public entities, private companies and academia collaborate, and "Kashiwa-no-ha International Campus Town Initiative," which indicates the direction of the community development measures.

"Kashiwa-no-ha Smart City Model Project" started in 2019 as the priority measure of the "Kashiwa-no-ha International Town Initiative," with "Try the Future - a town that continues to evolve" as its theme. To achieve "A smart compact city centered around stations," the town is collaborating with multiple companies to work on various initiatives and projects in the fields such as "Energy," "Mobility," "Public Space," and "Wellness."

Overview of the Project Excellence

1. Achieved early railway construction and reduced construction cost by securing the railway land early through integrated development of railway and residential area
2. Suggested next-generation TOD and created an environment in which new cultures and industries flourish through public-private-academia partnerships such as the area management and the data linkage platform

1. Reduction of cost and construction period through an integrated development

TX was constructed to create a bypass railway line to improve the congestion in the existing railway network in the northern part of Tokyo, construct housings for new commuters of the bypass railway line, and improve the industrial infrastructures and form Business Core Cities in the areas along the railway line.

The Act on Special Measures concerning Comprehensive Advancement of Housing Development and Railway Construction in Metropolitan Areas was enacted. To smoothly secure railway land, the act enabled local governments, government agencies and the railway company to relocate and consolidate pre-

purchased plots of land and convert them to railway land, helping to reduce the time and cost of railway construction. The land conversion by the act has also allowed smooth construction of public facilities around the stations.

The operator of TX started its operation in 2005, booked its first ordinary income in the FY 2009 and first cumulative profit in the FY 2017.

(○ Integrated development project of residential land and railway > P.29)



2. Developing the next-generation town through area management and data utilization

Kashiwa-no-ha Campus is located along the TX line which was constructed to solve issues on population increase in Tokyo metropolitan area and traffic congestion. Its development project is a model for a greenfield development, as the area used to be golf courses, agricultural land in the suburbs, etc. To ensure the continuous development of the town and increase the loyalty of its residents in the future, the entire community is working together to create a next-generation international academic town. It aims to solve social issues through actively conducting research in cutting-edge fields and implementing new concepts to the town by public-private-academia partnership making use of local academic and research institutions as resources. It aspires to be a self-directed town where residents support each other for generations, sustaining and enhancing the life and vitality of the area. The two symbolic initiatives among these efforts are "area management" and "smart city."

As for area management, public events and educational programs are being held, with parts being funded by landowners and developers. These area management programs are creating liveliness and communication opportunities among residents, fostering awareness for the prevention of crimes, disasters, etc., which leads to the cultivation of civic

pride. Also, a system named "Living Lab" has been set up, which allows residents themselves to express and exchange opinions on how to develop the town in the future and those opinions are used in creating an ideal town where everyone can live in comfort.

As for the smart city, a data-driven platform service for public-private-academia collaboration started in November 2020. With privacy in consideration, the data platform will allow safe and secure distribution of residents' personal data, which will be managed in a decentralized manner together with the data of participating companies and research institutes, as well as the data of public institutions which addition is under consideration. By making it possible to link each data, participating companies and research institutes in various fields can conduct research and development projects, enhance the value of existing services, develop new services, etc.

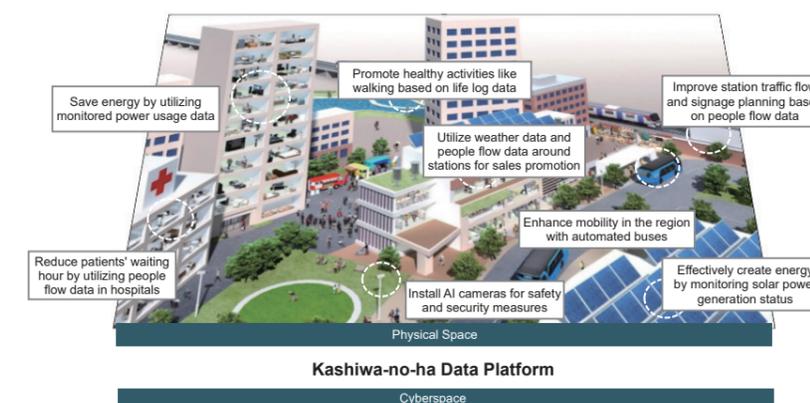
With "the Smart City Implementation Plan" formulated in 2020, the town focuses on four fields, "Energy," "Mobility," "Public Space" and "Wellness" to solve issues rooted in daily life, and enhance the value of the town with smart solutions.

As an example, in the mobility field, self-driven busses are being experimented to improve the convenience of movement within the area centered

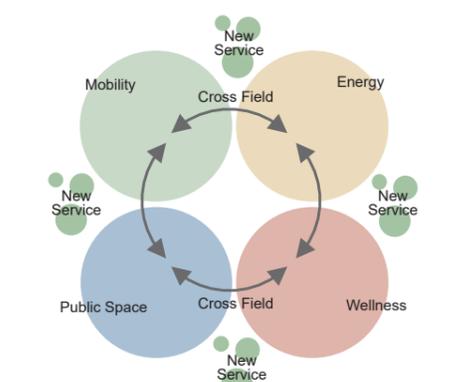
around the station. In the public space field, the town is aiming to provide safe and secure services using AI cameras and sensors in the town, with the goal of creating urban space where people can move around comfortably. Furthermore, by utilizing and analyzing data retrieved from these services, the town is trying to come up with a new urban design that optimizes land use depending on whether it is within walking distance from the station. Through such initiatives, hints for the next-generation TOD can be found from this town.



(6) The vehicle used in the self-driven bus experiment



(7) Conceptual diagram of the city that utilizes data



(8) The relationship of Kashiwa-no-ha smart city's four fields

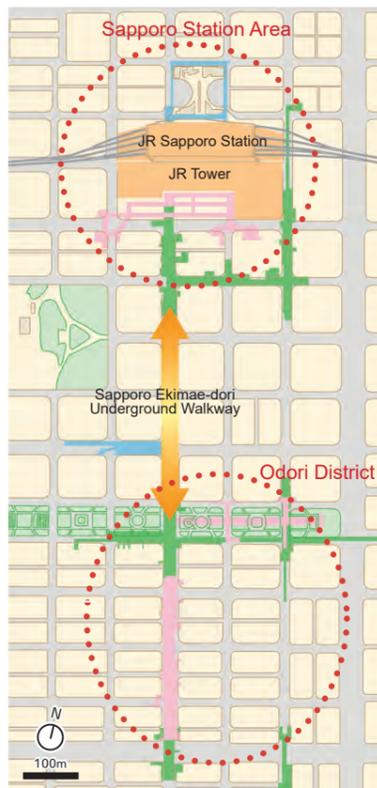
Images (1)(2)(3)(6) are the courtesy of Kashiwa City, (7)(8) Mitsui Fudosan Co., Ltd.

New City Center Creation Triggered by the Development of a Station Building

Sapporo Station Area



(1) Sapporo Station



(2) Map of Sapporo Station, Sapporo Ekimae-dori Underground Walkway, and Odori District

Basic Information

Location	Sapporo City, Hokkaido
Passenger/day*	approx. 384 thousand passengers
Number of railway companies	2 companies
Number of platforms	14

*Passenger/day refers to a number of passengers getting on and off trains. For a railway company disclosing the number of passengers getting on trains, the number of passengers is doubled to reflect the numbers of passengers getting off. (As of 2018)

Overview of the Sapporo Station

Sapporo Station is JR Hokkaido's busiest station, with commuter trains, limited express trains connecting to various parts of Hokkaido, and an airport rail link to New Chitose Airport. It is set to become the terminal station for Shinkansen (bullet train), after the extension of the Hokkaido Shinkansen in FY 2030.



(3) Sapporo Station before fourth rebuild (1962)

Overview of the Sapporo Station Area Development

Although Hokkaido has the largest land area among all prefectures in Japan, the population has been concentrated in the Sapporo metropolitan area. Since JR Hokkaido operates its railway network throughout Hokkaido, its railway revenue was decreasing.

Therefore, JR Hokkaido is investing in multiple non-transport businesses, such as the real estate business. It is investing in commercial and accommodation facilities, including the development around the Sapporo Station, such as the JR Tower (the building in the center of the photo of (1) Sapporo Station). With the synergistic effect from the underground walkway development project, the number of visitors to both the Sapporo Station and the Odori district (traditional commercial area of Sapporo City) has increased, achieving a balanced development of the city.

Overview of the Project Excellence

1. Facility plan with attractions capable of becoming the symbol of the city
2. Construction of a lively underground passage that enhances ease of getting around by connecting the station and the city center
3. Contribution of station buildings and development around stations to the profits of the railway company

1. Development of landmarks to be the center of the city

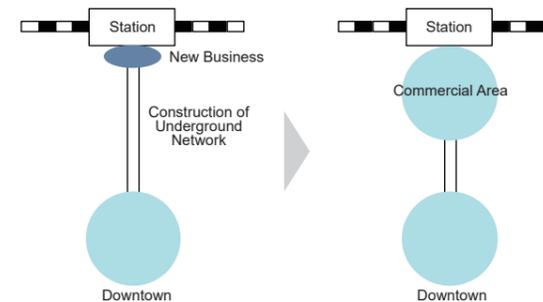
The Sapporo Station building has been rebuilt four times. To reduce the cost burden for the railway company at the third rebuild, part of the construction cost was financed by private sector, and that investor, in turn, got a permit to operate a commercial facility in the station.

The redevelopment plan of the area around the station triggered by the elevation of Sapporo Station in 1988 was authorized considering the deterioration

of the commercial facilities. In 2003, a station-connected complex named JR Tower opened, and as of 2020, JR Tower is the highest building in Hokkaido at 173m, with an observation room on the top floor overlooking the city area of Sapporo. The night view of Sapporo City has been named as one of the New Three Major Night Views of Japan and has enhanced the tourism value of Sapporo. Within the floor area of approximately 276,000m², facilities such as

the station building, commercial/accommodation facilities, offices, parking lots are located. Together with the adjacent department store, they comprise one of the largest shopping districts in Hokkaido. As a result, it has succeeded in creating a new city center in front of the Sapporo Station.

(○ Public-Private Joint-Financed Station "Minshu-eki" > P.30)



(4) Concept of the city center merging (Adapted from USUI Yukihiko (2003) "Architectural Research")



(5) Night view of Sapporo City from JR Tower's observation room

2. Ease of getting around created by the construction of the underground walkway

Since Sapporo City is under snow for half of the year, people tend to avoid walking outdoors during winter.

To create a comfortable walking space and increase the number of pedestrians, the City of Sapporo developed the "Sapporo Ekimae-dori Underground Walkway" in 2011, connecting Sapporo Station and

the Odori district (traditional commercial area of Sapporo). In addition to enhancing the ease of getting around between the two areas, the surrounding office buildings cooperated to enlarge space by connecting to the pass underground, which has created a lively atmosphere. Also, part of the walkway is used as an event space, leading to a virtuous cycle of increased

pedestrian traffic and increased income from the event space rental.

In five years since its inception, the walkway traffic has increased by 2.3 times on the weekdays, and 2.9 times on holidays. The walkway attracts similar number of pedestrians to that of central Tokyo, merging the two city centers of Sapporo.



(6) "Sapporo Ekimae-dori Underground Walkway" connecting Sapporo Station and Odori Station



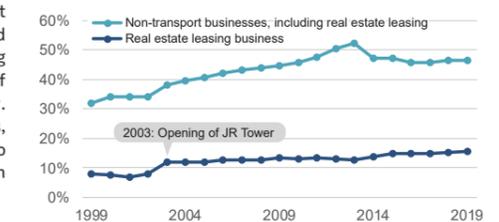
(7) Event space being utilized

3. Real estate leasing businesses' contribution to the overall profit and further development around the station

Due to the concentration of the population in Sapporo, many of JR Hokkaido lines operating throughout Hokkaido have low average daily transport density, and the profitability is limited. As a result, JR Hokkaido Group operates multiple non-transport businesses, accounting for about 46% of the sales of JR Hokkaido Group in FY 2019.

Among the non-transport businesses, the real estate leasing business is the most profitable, so new investments are being made actively. Near

the Sapporo Station, the urban redevelopment association established by the City of Sapporo and the four companies of JR Hokkaido group is planning to construct a new complex with a total floor area of approximately 420,000m² expected to open in 2029. Bus terminals, commercial facilities, offices, hotels, etc., are planned to be in this complex connected to the station and become one of the largest buildings in Hokkaido when completed.



(8) The sales ratio of the non-transport business in JR Hokkaido Group

Compact City Development along the Public Transport

Toyama Station Area



(1) Toyama Station

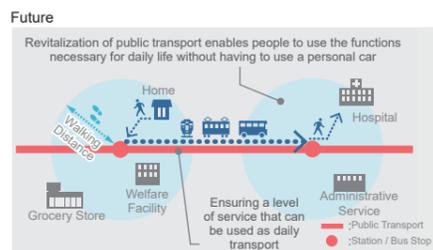
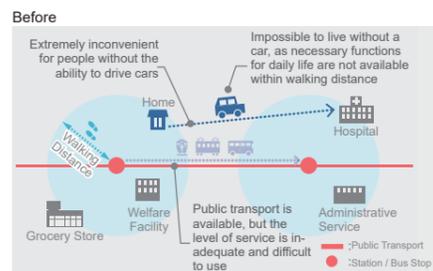


(2) Toyama Station before the redevelopment

Basic Information

Location	Toyama City, Toyama
Passenger/day*	approx. 53 thousand passengers
Number of railway companies	4 companies
Number of platforms	15

*Passenger/day refers to a number of passengers getting on and off trains. (As of 2019)



(3) The basic concept of compact city development by "Ball and Chain"

Overview of the Toyama Station

Toyama Station is a transport hub of Toyama City, home to about 420,000 people, and is a stop for the Hokuriku Shinkansen (bullet train) as well as intercity lines. Also, there is a stop for the LRT extending north and south of the Toyama Station, a bus stop, and taxi stands at the station. These characteristics make Toyama Station one of the two centers of Toyama City.

Overview of the Toyama City Urban Development Projects

Toyama Prefecture has the second-highest number of automobiles per household in Japan, and with the progress of motorization, spaces in front of the Toyama Station were full of parking lots and platforms for general vehicles. Also, as residential areas expanded from the city center to the suburbs, the management cost of infrastructure increased, while the number of people without the ability to drive cars on their own also increased due to aging. Furthermore, it has been feared that these issues would be exacerbated by the expected population decline and super-aging population.

Regarding these issues, the city implemented a compact city development concept of "Ball and Chain," which views public transport as "Chain" and the centralized residential area within walking distance from the station as "Ball." To revitalize public transport, it was important to redevelop the Toyama Station and its surrounding areas as the local transport hub of the city. Triggered by the introduction of the Hokuriku Shinkansen, which can reach Tokyo Station in about two hours, the city redeveloped the Toyama Station area as the new face of Toyama to create a transport hub with a pleasant transferring experience to various public transports. In addition to the project, the city has continuously propelled compact city development for nearly 20 years by enhancing the ease of getting around through accessibility improvement of the existing public transport, and inducement policies for more citizens to live along the public transport.

As a result, even though the population is decreasing in Japan, the population in the city center of Toyama has increased, and the passengers of public transport have also increased.

Overview of the Project Excellence

1. Redeveloped the station square and constructed a walkway, with consideration for functionality and design to enhance the attractiveness of the city center
2. Formed a highly convenient LRT network in conjunction with the opening of the Shinkansen and the elevation of the track for the conventional lines
3. Provided financial support to attract residents to the city center and area along the public transport lines, along with the enhancement of public transport

1. Improve the attractiveness of the city center by redeveloping the area around the station

Taking the opportunity of the continuous grade separation project started in 2005, a land readjustment project was undertaken over an area of about 10.4ha around the Toyama Station. In addition to the reorganization of the residential area, a wide free walkway (about 25m in width) with commercial space for both passengers and non-railway users was constructed at station square and space underneath the elevated railways. The transport hub function has also been improved by limiting the access of station squares on the north and south of the station to only public transport, such as buses and taxis, and moving the platforms for general vehicles to the new square on the west of the station under the elevated railway lines. In addition, the size of the station square has increased from 15,560m² to 27,100m², securing a versatile and spacious pedestrian space that creates a lively atmosphere in front of the station.

The free walkway on the ground floor allows pedestrians to move between station squares on the north and south of the station without going into underpass, which makes it easier to move between north and south urban areas.

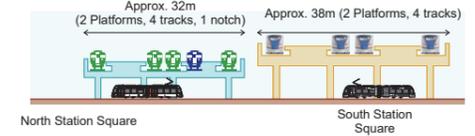
The station square and walkway have been improved with consideration for design and landscape, and these pedestrian spaces are also used for various events, such as the introduction and sales of local products, tourism advertisements, and concerts.

Toyama Station is now recognized as a place for information dissemination and liveliness, and is used by many people, which has not only enhanced the ease of getting around in urban area, but also enhanced the attractiveness of the station as a key location of the city center.

- (○) Continuous grade separation project > P.29
- (○) Land readjustment project > P.28



(5) An event at the station square



(4) Cross section of the elevated station



(6) Before and after the land readjustment project in the Toyama Station area

2. Enhancement and revitalization of public transport network

Among provincial cities, Toyama city had a relatively extensive public transport network such as railways, tramways, and buses. On the other hand, since the number of JR Toyama-ko Line's passengers had been decreasing over the years, there was a discussion on whether to maintain or abolish the line when the Shinkansen and the continuous grade separation project were planned.

In the end, the Toyama-ko Line was kept alive. In addition, the line was extended and connected under the elevated Toyama Station to the tram line running on the other side of the station, which enhanced the functionality of the station area. Also, a light rail transit system was adopted for more seamless transfer at the station.

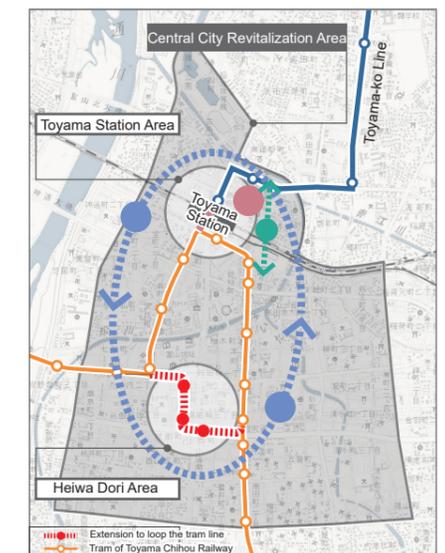
For Toyama-ko Line, a public-private partnership was applied, where Toyama City bears the construction and maintenance costs, while the newly established public-private joint venture (third sector) operates with income from the fare. With its plan, the operation frequency increased, the operation intervals during rush hours decreased, and two new stations and three new stops were installed in addition to the installation of light rail vehicles. Next, to improve the ease of getting around the city centers, Toyama Station and the downtown area to the south of the

Toyama Station (Heiwa Dori Area), and have them to cooperate, the track was extended by 900 meters to create a tram loop line.

To make the tram operation sustainable, the vertical separation method was adopted for the extended line, where the city constructs and owns the facilities, while the railway company operates the line.

In 2020, the north-south connection project between the Tram of Toyama Chihou Railway on the south of Toyama Station and the Toyama-ko Line on the north of the station was completed. Since the opening of Toyama Station in 1908, the north and south of Toyama Station, which had been divided by railways for over 100 years, have been connected by the opening of the Hokuriku Shinkansen and the elevation of conventional railway lines, forming a highly convenient LRT network of about 15.2km centered around Toyama Station. Now, Toyama Station acts as a convenient transport hub, where train passengers can smoothly transfer to a tram on a flat surface after exiting the ticket gates of the Shinkansen or conventional railway lines. As a result, the number of tram passengers, especially of the elderly, increased.

(○) Vertical separation method > P.29



(7) The transport network in the city center area

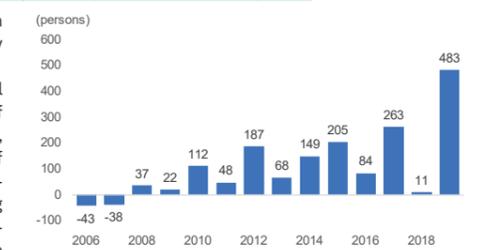
3. Promotion of residential land development and residence along the public transport

Along with the revitalization of public transport, the city has been promoting to increase residence in the city center and along public transport lines. As part of this initiative, the city provides subsidies to companies and citizens who construct high-quality housings in the city center area (about 436ha) and the "Transport line housing promotion zone" (about 3,441ha).

Subsidies are set in detail and multi-layer. For example, at the city center, subsidies of 500,000 yen per unit are provided to individuals purchasing new houses, and 700,000 yen per plot is provided to those developing residential land above a certain level in the district. Similar subsidies are provided in the

"Transport line housing promotion zone," although the amount and content of the subsidies are slightly different.

Through these initiatives, the direct effects as well as the social, economic, and environmental effects of the project have been widely recognized. For example, private investments, such as the redevelopment of the city center, have been undertaken. Also, population along the public transport has seen an increasing trend. This is an extremely rare example of good practice in a provincial city in Japan, most of which are suffering from a declining population.



(8) Population increase/decrease in the city center

Images (1)(2)(3)(4)(5)(6)(7) are the courtesy of Toyama City

Column: Voice from the Mayor of Toyama City

Urban management based on the Compact City strategy - To continue being a sustainable provincial city for the future -



MORI Masashi
Mayor of Toyama City

With the decreasing birthrate, super-aging society, and the declining population in Japan, there are concerns that the burden on the working generation will increase in the shape of a shrinking economy due to the decline of working-age population and the increase in social security costs which cover medical and nursing care, etc. Provincial cities, in particular, may face a severe population drop as a result of the population outflow.

Toyama City is characterized by a large area of inhabitable land and high road development rate, which led to the widespread use of private vehicles. The change to the urban structure premised on the use of automobiles has caused various issues, such as the decline of public transport including fixed-route buses, the hollowing out of the city center as a result of the scattering of commercial facilities to the suburbs, and the increase in administrative management costs due to the extension of roads, water supply, and sewerage systems.

Based on the belief that it is necessary to lay the groundwork for addressing these issues within the next 30 to 40 years in view, Toyama City has been working on creating "Compact City featuring Renovated Public Transport." This policy aims to build a living environment in which citizens who are unable to use cars can access services necessary for daily life within walkable area by concentrating urban functions, such as residence, commerce, medical care, welfare, and culture, along public transport routes. Various projects were conducted based on the three pillars of the policy: 1) revitalization of public transport including the LRT development projects; 2) revitalization of city centers; and, 3) guiding residence in areas along public transport routes. (Reference: p.24-25)

Since gaining the understanding of citizens is of the utmost importance in the implementation of the projects, we visited various places in the city and held numerous meetings with the citizens. Since persuasion was the goal, not the explanation, we focused on presenting data and evidence at these meetings.

Another important factor in gaining the trust of the citizens was the consistency of our efforts from a long-term perspective, without being influenced by short-term results.

In parallel with the construction of the Hokuriku Shinkansen (bullet train), we started a continuous grade separation project with Toyama Prefecture to elevate conventional railway lines entering Toyama Station. Also, since we recognized that public transport is a public good of citizens, Toyama City has been making active investments on public transports. For example, Toyama City is responsible for the infrastructure

portion in the extension project of the LRT line utilizing the government's subsidy, although the public transport in Toyama City is operated by private transport operators and a public-private joint venture (third sector). Furthermore, to integrate the urban area on the north and south of the Toyama Station, we have conducted a land readjustment project around Toyama Station, and developed a commercial space utilizing the area under the elevated railway lines and a multi-purpose square to create lively atmosphere. In March 2020, we realized the connection of the north and south tram lines under the elevated railway lines of Toyama Station, with the coordination and cooperation of various stakeholders. Since the opening of Toyama Station in 1908, the city had been faced with the issue of an urban structure being divided into north and south by railway lines, but after 100 years, our dream has now come true.

As a result of propelling the Compact City strategy over the years, the connectivity to city centers and ease of getting around have improved drastically, which has brought about multifaceted effects in civil life and economic activities, such as the creation of liveliness in the urban areas, revitalization of commercial activities, and extension of healthy life expectancy as a result of increased opportunities for the elderly to go out.

In light of these efforts, Toyama city has been receiving high appraisal both domestically and internationally, such as being selected in the national projects as one of the SDGs Future Cities and Eco-Model Cities. The city has also been selected as one of the cities improving energy efficiency in the United Nations Sustainable Energy for All (SE4ALL), as the "100 Resilient Cities" by the Rockefeller Foundation, and as a case study for the Organization for Economic Cooperation and Development's (OECD) Compact City Policies. We also feel that civic pride has been fostered among the citizens, who now wish to continue living in this city, and to be involved and improve the community themselves.

We strongly believe that Toyama city's initiatives will be a leading model for provincial cities around the world and we will continue to disseminate our efforts both domestically and internationally. At the same time, by deepening these policies while incorporating new measures that make full use of cutting-edge technologies, we will further enhance the quality of life of our citizens and the attractiveness of our city thereby create a vibrant city for the future.



Chapter 3 Legislations and Finance

Legislations

Land Readjustment Project

- Governing law: Land Readjustment Act
- Case: Minato Mirai 21 District / Minatomirai Line > P.18-19 Toyama Station Area > P.24-25

To realize comprehensive and integrated development of residential land and public facilities such as roads, parks, rivers, the land readjustment project makes alterations to the shape and quality of land and newly construct or improve the existing public facilities.

To construct new public facilities based on the project plan, landowners provide a small amount of land (known as contribution of land) depending on the area and location of their land. This land is then either used to build more public facilities or sold as reserved land which revenue is used to fund part of the project

cost. As a result of the project, public facilities will be upgraded and improved, and the residential land will be reallocated or rezoned to match the public facilities. In this process, the residential land will be smaller than before, but as the public facilities are improved and the land is plotted, the assessed value of the land per unit area will improve and the assessed value of the owned land will not change.

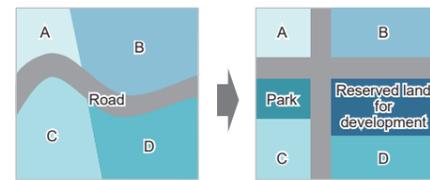


Image of land readjustment project

Special Urban Renaissance Districts

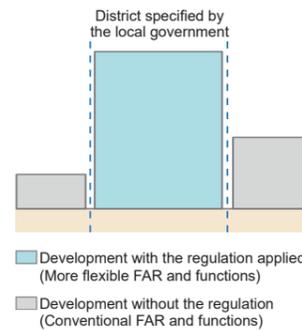
- Governing law: Act on Special Measures concerning Urban Reconstruction
- Case: Takanawa Gateway Station Area > P.14-15

Special Urban Renaissance District regulation allows flexible real estate planning by relaxing the regulations on land use and floor area ratio that is regulated by the local government. To utilize this regulation, a developer must include specific functions in its development area designated by the local government.

Application to this regulation allows the following items to be set without being bound by the existing regulations such as use districts: Use to be installed (only when exceptions to use districts are required), and limitation of minimum and maximum floor-area ratio (400% or more for maximum FAR), maximum building coverage ratio, minimum building area, maximum building height, restrictions on locations of walls, etc.



Areas in Tokyo where the regulation can be applied



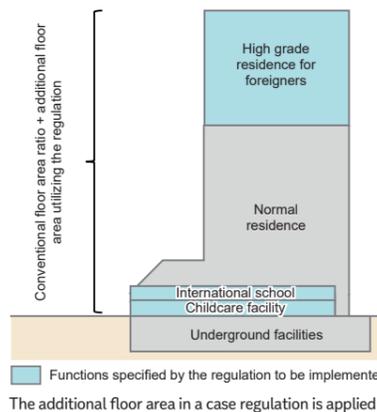
Floor-area bonus in the specified district

National Strategic Urban Housing Development Project

- Governing law: Act on National Strategic Special Zones
- Case: Takanawa Gateway Station Area > P.14-15

The purpose of this regulation is to strengthen the international competitiveness of industries and create bases for international economic activities in the target area, by promoting the development of housing suitable for foreign residents that is close to the offices of global companies. To realize such aim, relaxation is applied to the existing regulations such as floor area ratio.

The conventional regulation on floor area ratio is relaxed by installing facilities in the area that support businesses and everyday lives of foreigners, such as multilingual concierges, information dissemination facilities, and childcare support facilities.



Continuous Grade Separation Project

- Governing law: Guidelines for Continuous Grade Separation of Roads and Railways in Cities
- Case: Toyama Station Area > P.24-25

It is an urban planning project which removes multiple railway crossings of existing roads and creates overpass or underpass for newly built roads by elevating or undergrounding a certain distance of the railway line in urban areas.

Removing railway crossings will contribute to solving traffic congestion caused by the railway crossing blockage, improving railway safety, increasing transport capacity, reducing cost for railway crossings, and solving railway crossing accident issues. Also, the newly created space under the elevated railway tracks or over the undergrounded tracks can be used for a variety of purposes, such as bicycle parking, parks, and small

commercial facilities. There are multiple cases of urban renewal and revitalization through comprehensive urban planning by implementing urban redevelopment projects and land readjustment projects in conjunction with this project.

In the implementation of this project, prefectures, municipalities and railway operators cooperate with each other. Prefectures oversee the project as a project leader to ensure the smooth implementation of the project, while municipalities develop service roads that contribute to local community development, and railway operators construct the railway to make sure the safety of railway operation.

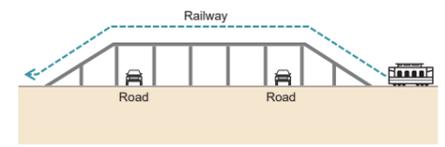


Image of continuous grade separation project

Integrated Development Project of Residential Land and Railway

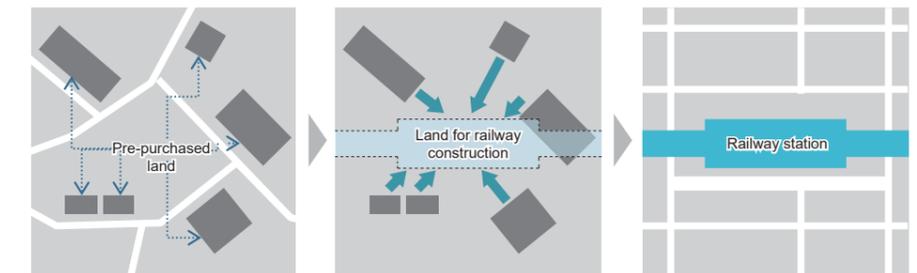
- Governing law: Railway and Redevelopment Act
- Case: Tsukuba Express, Kashiwa-no-ha Campus Station Area > P.20-21

Act on Special Measures concerning Comprehensive Advancement of Housing Development and Railway Construction in Metropolitan Areas Act (Railway and Redevelopment Act) promotes the integrated development of railway and urban development along the railway line where a large number of housings are expected to be supplied with the construction of the new railway.

First, local governments formulate basic plan that shows the planned route, location of stations, areas where residential land is expected to increase due to the construction of the railway, priority development areas, the target date for completion of the railway construction, etc. Then, to secure land for railway facilities based on the basic plan, local governments and a railway company acquire land in the development district in advance and relocate and consolidate

the land by conducting the land readjustment project. In the area where the land readjustment project is carried out, public facilities will be built around

the new station, which will induce the development of residential areas and commercial facilities. As a result, development around new stations progresses.



Steps to secure, relocate and consolidate land for railway construction

Vertical Separation Method

- Governing law: Railway Business Act, Act on Revitalization and Rehabilitation of Local Public Transportation Systems
- Case: Toyama Station Area > P.24-25

Vertical separation method is one of the implementation schemes of the railway business. It separates the management of infrastructures (tracks, stations, signaling equipment, etc.) and superstructures related to railway operating business. This method of passenger and freight railway operators utilizing railway tracks owned by others is widely used in Japan for Shinkansen (bullet train), urban railways, regional railways, and freight railways.

The features of the vertical separation method are as follows.

- ① It is possible to promote railway development while ensuring coordination and consistency with urban development.
- ② It is possible to open infrastructures to private railway operators and release or reduce the burden of excessive capital costs and construction risks associated with infrastructure development.
- ③ It is possible to create opportunities for private railway operators with efficient management know-how to enter operation business, which enables to promote competitiveness of operation business, especially in the case of new railway construction.

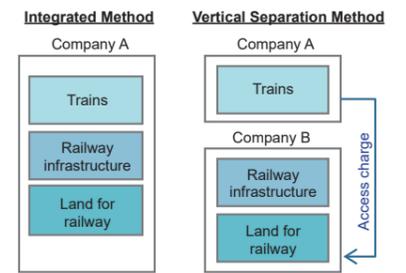


Image of difference between integrated (conventional) method and vertical separation method

Finance

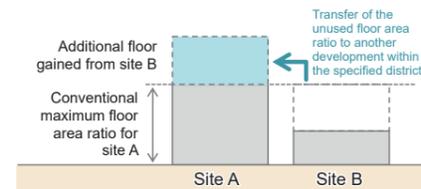
Air Right

- Governing Law: Exceptional Floor Area Ratio District Regulation
- Case: Tokyo Station Area > P.12-13

Air right allows a part of the designated floor area ratio of a building site to be transferred to multiple sites within the specified district.

Exceptional Floor Area Ratio District is one of the zones specified by urban planning to promote the high-level usage of land by utilizing building floor area deemed unused. Under this regulation, transfers of floor area ratio are permitted between non-adjacent building sites within the district. This mechanism makes it possible to buy and sell "air right" within the

zone. When designating the district, criteria for specifying exceptional floor area ratio and maximum height limit of the buildings, etc. are set in principle.



Exceptional Floor Area Ratio District Regulation

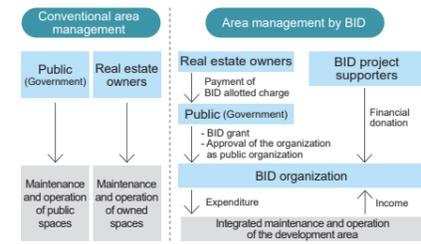
Business Improvement District (BID)

- Case: Osaka Station Area > P.16-17

Area management in Japan refers to the proactive efforts made by real estate owners and residents to maintain and enhance the favorable environment and the value of the area. Parallely, the government maintains and operates the surrounding public spaces. However, it is difficult to comprehensively manage the quality of the space, because real estate owners and the government maintain and operate each space separately.

To solve such issues, the BID system is being used in Osaka City. In general, BID refers to the integrated

maintenance and operation by BID organization, covering the areas which were conventionally carried out separately by the government and real estate owners. The government collects allotted charge from real estate owners, and grants the revenue to BID organizations that has been certified by the local government. In cooperation with real estate owners, BID organization carries out maintenance and promotion of the entire area considering the needs of both the government and the private sector.



Role allocation among relevant stakeholders in BID

Beneficiary's Contribution

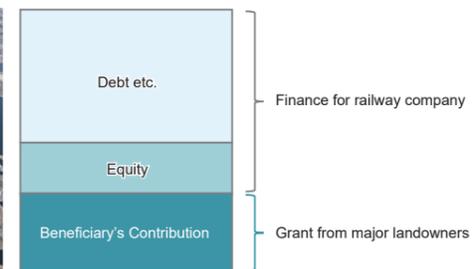
- Case: Minato Mirai 21 District / Minatomirai Line > P.18-19

Beneficiary's contribution is a fee imposed in advance by a local government on those who will directly benefit from public investment (beneficiaries).

Since the construction of railways requires a large amount of investments, landowners and developers along the railway line who are expected to enjoy a certain level of benefits are asked to contribute to a portion of the capital expenditure. The scope of beneficiaries and the method of calculating the amount of contribution vary by the nature of the project but it is allocated based on the benefits to be received by the landowners and developers.



Minato Mirai 21 District (Photo: the City of Yokohama)



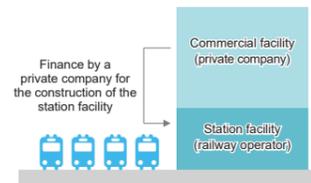
Financing model for railway construction

Public-Private Joint-Financed Station "Minshu-eki"

- Case: Sapporo Station Area > P.22-23

In Japan after World War II, because Japanese National Railways (JNR) could not afford the rehabilitation cost of some of its stations, it rebuilt the entire station building, including the railway portion, with funds from third parties such as the private sector that intended to use the station building for commercial purposes. This scheme is called the Public-

Private Joint-Financed Station. While it is beneficial for private sector to conduct commercial activities in station buildings targeting railway passengers, it is also beneficial for a railway operator as the station building can be enlarged and upgraded using third parties' funds, which in turn lead to the use of railways by the customers of large-scale commercial facilities.

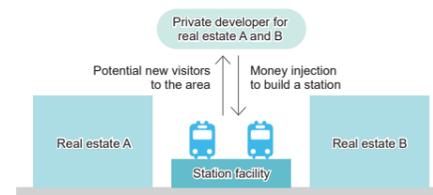


Finance by a private company to station facility

Privately Requested Station "Seigan-eki"

Privately requested station is a station that is built based on financing of private companies willing to use the station. Especially for real estate companies that develop commercial facilities and residential area along railway lines, a new station installment is beneficial as it improves accessibility to their facilities, which attracts more customers. Therefore, it is acceptable for them to bear the financial burden

to gain benefit from the TOD effects. Although the construction of a new station is a challenge for railway operators because it may lead to complications in railway operation, comprehensive consideration takes place from the perspectives of the need for public transport in the region, economic impact, and an increase in the number of railway passengers.



Construction of a new station financed by a private company

Chapter 4 Support from the Government of Japan



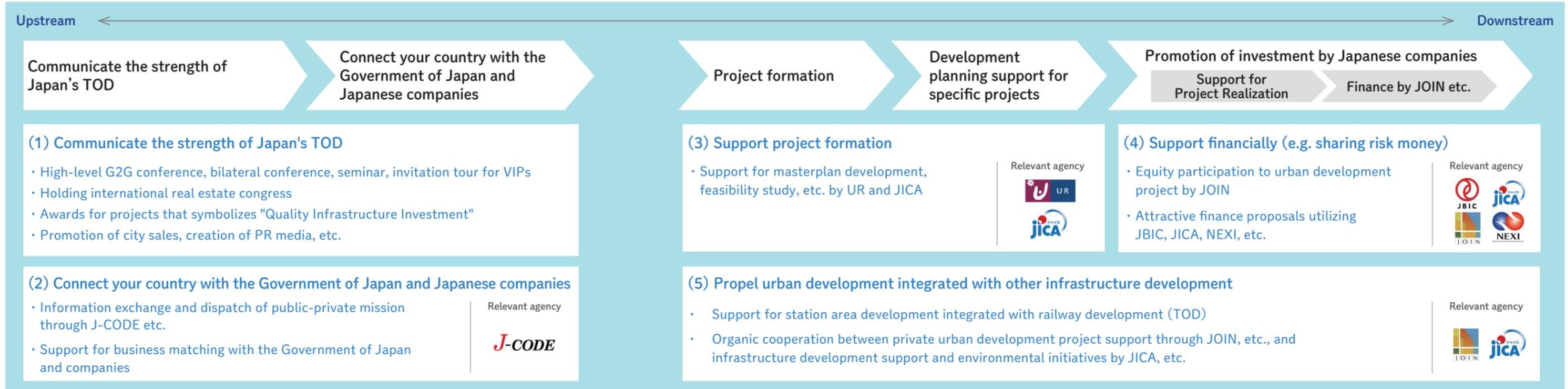
Support from the Government of Japan

TOD Support Framework

The TOD projects shared in this booklet have been realized by the experience, know-how, and technical capabilities accumulated in Japan. The Government of Japan and Japanese companies will collaboratively and flexibly support materialization of TOD projects in your country as a partner. We would like to be of your help to move forward the TOD projects through the support tools shown below and contribute to the further development of your country.



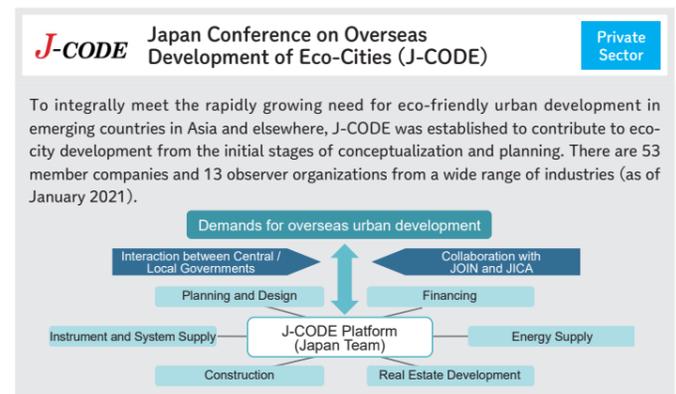
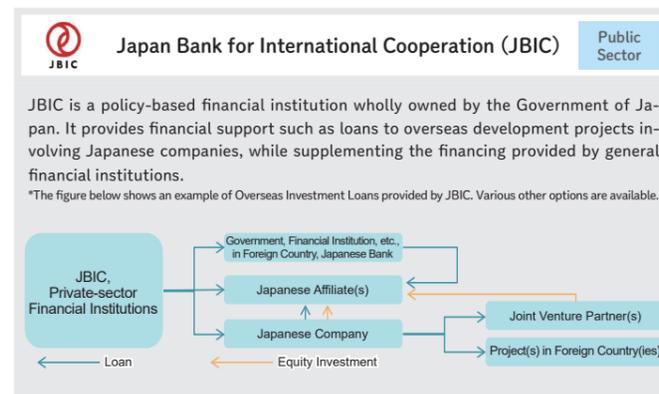
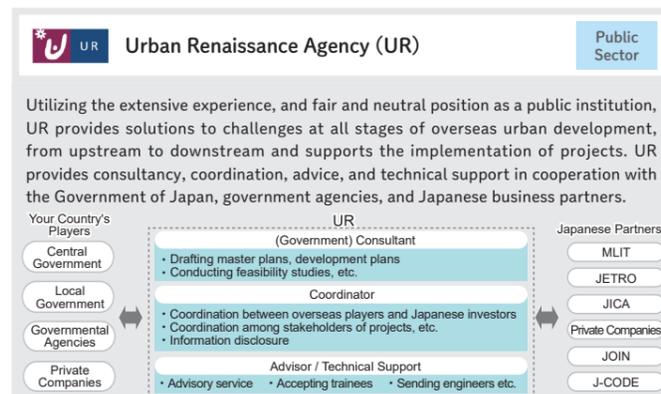
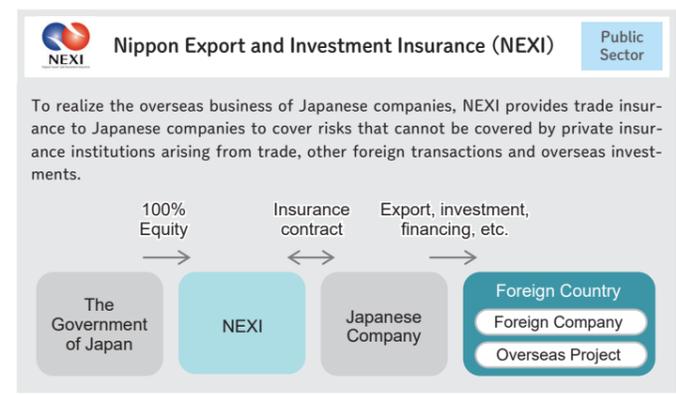
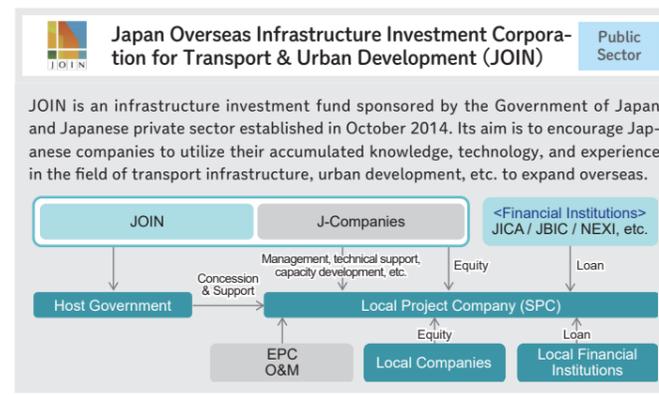
Examples of Support

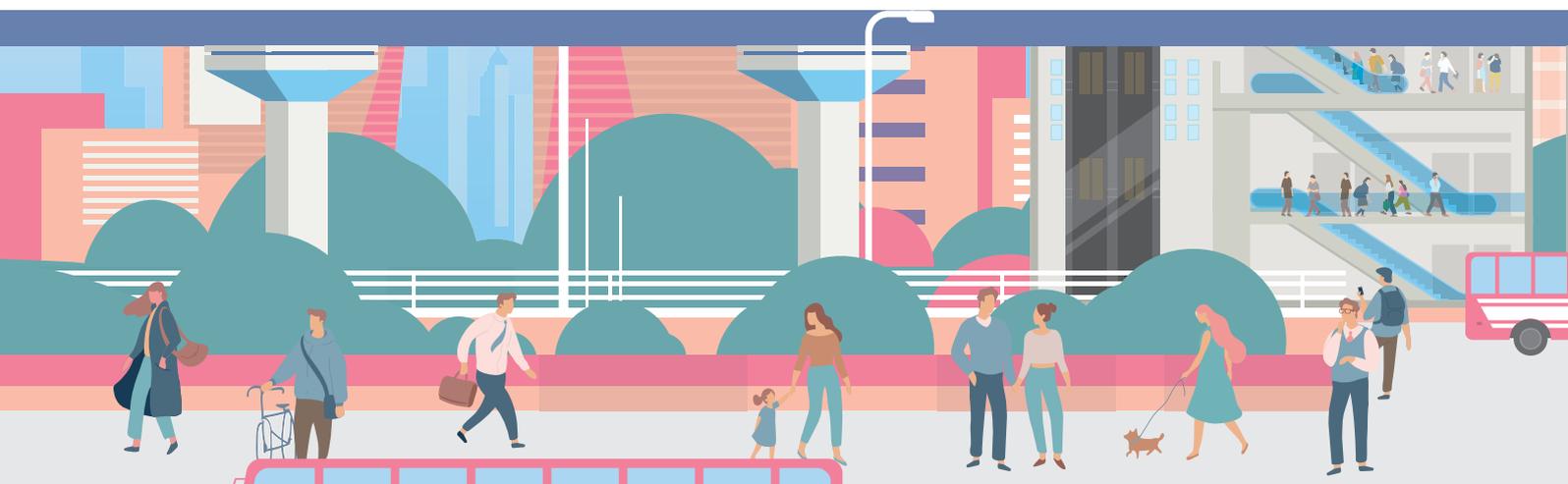
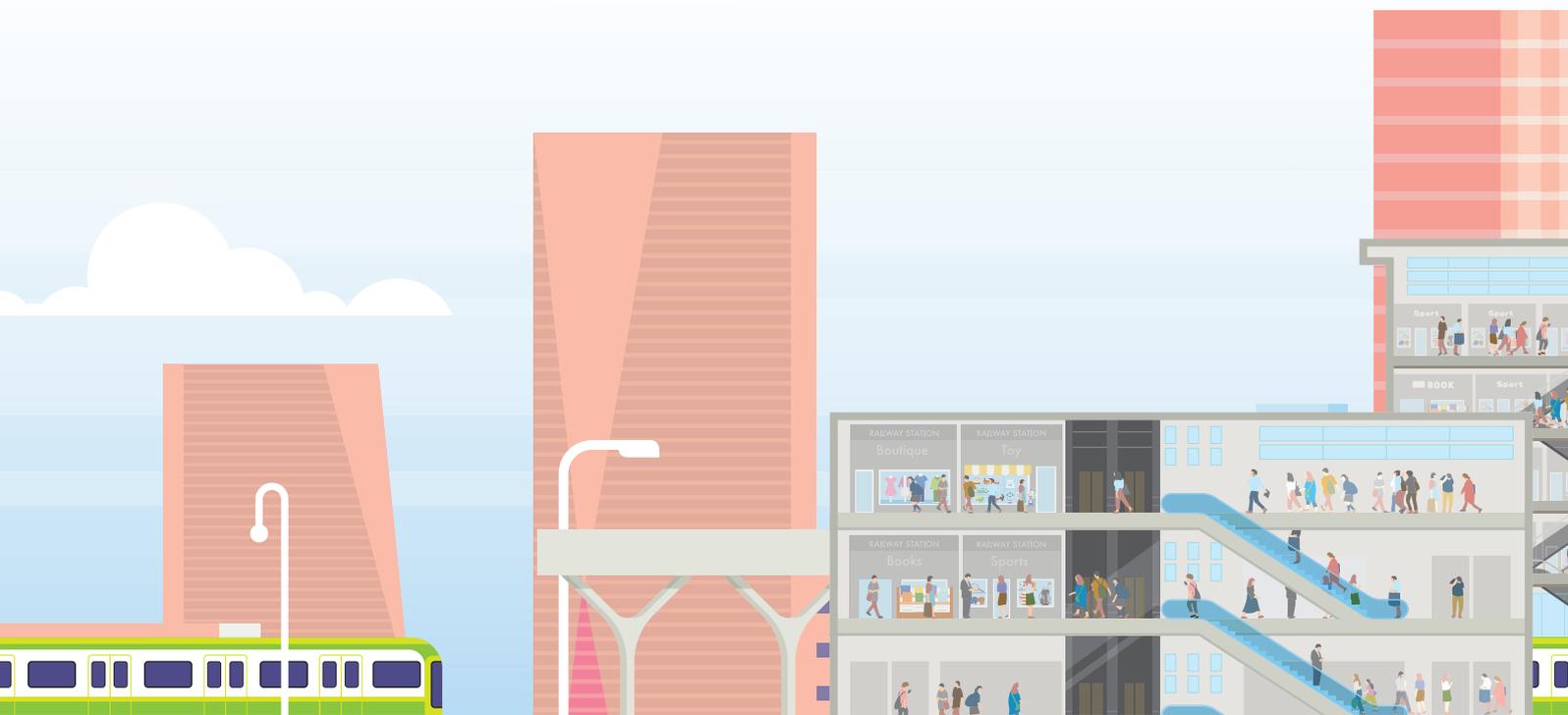


Project Promotion by Relevant Agencies

In Japan, various government and private agencies, as shown on the right, have the relevant experience and provide generous assistance such as knowledge sharing, relationship building support, project preparation support, investment and financing, etc. at each stage from upstream to downstream.

To implement a TOD project, the Government of Japan will steadily and firmly contribute to the project realization, coordinating with private companies as well as related agencies.





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