Transit and Land Use Integration in Tokyo Metropolitan Area

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1. Introduction  
   – How are transit and land use integrated in Tokyo?
2. Urban Development History  
   – How Tokyo has evolved to its current structure?
3. Policy and project framework for urban development project
4. Case studies
5. Conclusion
Chapter 1

INTRODUCTION

HOW ARE TRANSIT AND LAND USE INTEGRATED IN TOKYO?
1. Introduction

Where is TOKYO?

- **Tokyo Metropolitan Government (TMG)** is one of 47 prefecture level government. It has a population of 13M in 2,190km\(^2\) (6,125 ppl/km\(^2\)). TMG has an elected Governor, an Assembly, and 167k staff.

- The area of TMG and surrounding 3 prefectures is often referred to as **Tokyo Region**. It has 36M people, 13,562 km\(^2\), 2,649 ppl/km\(^2\).

- Within the jurisdiction of TMG, there are 23 Wards in its center (9.2M people, 627 km\(^2\), 14,682 ppl/km\(^2\)), and 49 municipal level governments, all of which has elected Mayor and Assembly.
1. Introduction: Government system

Japan has a three-tier government system.

<table>
<thead>
<tr>
<th>National Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prime Minister</td>
</tr>
<tr>
<td>Cabinet and 11 Ministries</td>
</tr>
<tr>
<td>National Diet *</td>
</tr>
<tr>
<td>(House of Representatives and Councilors)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prefectures (47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governor *</td>
</tr>
<tr>
<td>Prefectural Assembly *</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Municipalities (1,741)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(790 Cities, 745 Townships, 183 Villages and Tokyo’s 23 Wards)</td>
</tr>
<tr>
<td>Mayor *</td>
</tr>
<tr>
<td>Municipal Assembly *</td>
</tr>
</tbody>
</table>

* Elected directly.
1. Introduction: High Public Transport Mode Share

Tokyo and its surrounding areas are highly reliant on public transport.

Modes of Commute Travel in Tokyo Metropolitan Area (2008 and 1998)

Even in the metropolitan area (34M population), more than 50% of commuters use railway. The mode share is about 80% within the wards of Tokyo (8M population).
1. Introduction: Subway network in Tokyo

Central part of Tokyo has highest railway density in the world.
1. Introduction: Railway Network in Tokyo

JR East, 2 major public, 9 major private, and many other minor railway operators serve the metropolitan area.
1. Introduction: Railway Catchment in Downtown Tokyo

Inside the Yamanote loop line (35km, 29 stations), everywhere is within walking distance from station.
1. Introduction: High mode share translates into high land price

Land price is high along railway lines.

Source: Tokyu Land Corporation
1. Introduction: Road Network in Tokyo

Tokyo’s road network is poor compared with other big cities in the world.

<table>
<thead>
<tr>
<th>City</th>
<th>Road Space / City Area (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Washington DC</td>
<td>25.0</td>
</tr>
<tr>
<td>Paris</td>
<td>20.0</td>
</tr>
<tr>
<td>London</td>
<td>18.6</td>
</tr>
<tr>
<td>Tokyo</td>
<td>15.3</td>
</tr>
<tr>
<td>Nagoya</td>
<td>17.1</td>
</tr>
<tr>
<td>Osaka</td>
<td>17.7</td>
</tr>
</tbody>
</table>

1. How are transit and land use integrated in Tokyo?
Chapter 2

URBAN DEVELOPMENT HISTORY

— HOW TOKYO HAS EVOLVED TO ITS CURRENT STRUCTURE?
Tokyo is relatively a new city internationally, becoming the capital in 1600.

2. History: Overview

‘Population Census’, Ministry of Internal Affairs and Communications,
Rapid expansion took place first before WWII, and then in 50s and 60s. Tokyo stabilized since, but the suburbs continued.

2. History: Population growth in Tokyo Region
2. History: Great Kanto Earthquake (1923)
While urban planning legislation was enacted in 1888, the earthquake was the first trigger to modernize legacy districts.

- The Magnitude 7.9 earthquake happened on September 1, 1923, right at the time people prepared lunch. The fire from cooking stoves quickly spread and burned down 450,000 buildings, killing 140,000 people.
- Reconstruction projects included: Land Readjustment (LR) projects for 3,119ha; arterial roads including Showa and Yasukuni Streets; parks; public apartments; bridges on Sumida River.

2. History: World War II (-1945)
An area of 41.2km$^2$ in Tokyo was destroyed by fire caused by bombing in 1945.
2. History: Reconstruction from WWII

Tokyo was among the 102 cities implemented major LR program for reconstruction.

<table>
<thead>
<tr>
<th>Year</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1947</td>
<td>9,917ha</td>
</tr>
<tr>
<td>1950</td>
<td>1,652ha</td>
</tr>
</tbody>
</table>

Legend

- **By Metropolitan Gov’t**
- **By Cooperatives**
- **Implementation Pending**
- **Implementation Canceled**
2. History: Transport

Edo City was one of the largest cities in 19c with a population of 1 million. Still, the main mode of transport was walking.

- People walked. No horse carriages. You can ride a palanquin, or ‘Kago’, if you can afford. Therefore, roads in Edo were narrow.

A picture of Nihonbashi around 1830.

Source: THE TOKYO METROPOLITAN EXPRESSWAY (1999)
“Easy to Understand Urban Transportation--1988.” Society for the Study of Urban Transportation
2. History: Human and horse powered modes in late 19th century
Rickshaws took over palanquins in late 19c as horse train also started operating in Tokyo.

- As the road became better, rickshaws took over palanquins by around 1870s.

- In 1882, horse train came to Tokyo to connect Nihonbashi and Shinbashi.


https://www.library.metro.tokyo.jp/Portals/0/edo/tokyo_library/modal/detail.html?d=54
2. History: Tram network’s expansion in the first half of 20c
Since the first tram came in 1903, the network expanded quickly to cover inside and outside the Yanomote circular line.

Private Railways/Trams by 1928

Tokyo’s Public Tram network in 1958


Source: Yajima and Ieda, 2014. Global City Tokyo Developed by Railway
2. History: Slow onset of motorization
Rapid expansion of rail network affected slow onset of motorization, and vice versa.

- While economic development happened before WWII, motorization didn’t really happen until 1960s because of relative expensiveness of cars, poor road condition, and availability of rail network.

Car Ownership in Japan (1946-1974)

2. History: Road congestion in mid-20c
As motorization picked up in 1960s, Tokyo’s roads got congested with cars, trams, and other modes.

Source: 50 Year’s History of the Metropolitan Government
2. History: Metropolitan Expressway

Following the onset of motorization, Metropolitan Expressway was constructed targeting the Olympic Games in 1964.

Metropolitan Expressway
Network opened 1964-1970

1st Opening in 1962

Construction of Circular Route (1967)

http://www.hido.or.jp/14gyousei_backnumber/2012data/1212/1212shutoko_50th.pdf
2. History: Fall of tram and rise of subway
Trams were quickly replaced by the subways in late 1960s to early 1970s.

- With congestion on roads, trams suffered from delays and increasing number of accidents that made the mode unpopular, especially in light of the expanding subway network.
- Trams had more than 200km of network at its peak, but now has only 17km in Tokyo. Existing lines run on dedicated tracks except for a few hundred meters of tracks on road.

Source: Yajima and Ieda, 2014. Global City Tokyo Developed by Railway
2. History: Business Model of Private Railways

Hankyu Railway undertook a combination of urban development along its suburban line construction in 1910s.

- 1910 Railway opened (25km + 4km)
- 1910 Ikeda Development (10ha, 200 units)
- 1911 Takarazuka Spa and Minoh Zoo
- 1914 Takarazuka Opera
- 1915 Umeda Terminal Department Store
2. History: Private Railway development
Private railways actively developed their network from early 1900s, following Hankyu’s business model.

Private Railway Companies in Tokyo

Tobu started operation in 1899 for 40km section. By the end of WWII, Tobu had more than 550km network. The network has popular tourist spots and hot springs on one end, and department store on the other end.

Seibu started in 1894 and developed 1,172ha of residential land by the end of WWII. It was a child company of one of the largest real estate developers in Japan.


2. History: Public railway sector
Trunk lines and subway network were developed and operated by public agencies.

**Japan National Railways (JNR)**
- JNR was a public corporation under Ministry of Transport.
- While JNR’s main business was long distance service, it completed the basic urban network in Tokyo before WWII and also made significant efforts to reduce congestion in 60s and 70s by adding tracks (quadrupling).
- JNR was privatized (corporatized) in 1987 by dividing into six regional companies (Japan Railways, such as JR East) and one freight rail company, when its accumulated debt reached JPY 37T (≈10% of GDP).

**Tokyo Metro**
- The first subway line was developed by a private company in 1927. Nearby department stores contributed the cost for the development of stations.
- In 1941, Teito (imperial capital) Rapid Transit Authority was established and took over all the existing lines and permits for future new lines.
- As a part of restructuring of national agencies, Teito was corporatized in 2004 to become Tokyo Metro, whose shares are held jointly by National and Tokyo Metropolitan Government at 53:47.
- Tokyo Metro has 9 lines, 195km, and carries 6.8M passenger/day.
Chapter 3

POLICY AND PROJECT FRAMEWORK FOR URBAN DEVELOPMENT PROJECT
3. Framework: Overview of planning framework
Coordinated plans in different levels govern the development and conservation of national land.
3. Framework: Capital Region Development Plan

Capital Region Development Act was enacted in 1956, and Plans have been developed every 10 years.

Objective:

- To address the excessive concentration of industry and population, and the degradation of environment thereof, in the wards of Tokyo.
- To develop industrial and residential cities in the surrounding areas, as well as to further develop important facilities in the capital.

<table>
<thead>
<tr>
<th>National Capital Region Development Plan</th>
<th>Formulation year</th>
<th>Target year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Plan</td>
<td>1958</td>
<td>1975</td>
</tr>
<tr>
<td>2nd Plan</td>
<td>1968</td>
<td>1975</td>
</tr>
<tr>
<td>3rd Plan</td>
<td>1976</td>
<td>1985</td>
</tr>
<tr>
<td>4th Plan</td>
<td>1986</td>
<td>2000</td>
</tr>
<tr>
<td>5th Plan</td>
<td>1999</td>
<td>2015</td>
</tr>
</tbody>
</table>
3. Framework: Capital Region Development Plan

3 areas irrespective of prefecture boundary were designated, and policy directions and support measures were provided.

**Urban Development Area**
- Develop industrial and residential cities

**Suburban Development and Redevelopment Area**
- Systematically develop and redevelop urban area, as well as to preserve green zone

**Build-up Area**
- Maintain urban functions while preventing excessive concentration

Maintain urban functions while preventing excessive concentration
3. Framework: Capital Region Development Plan

Through the Plans, various measures have been proposed and implemented to address the problem of concentration.

- **1st Plan (1958):** 1) Establish a 10km wide Green Belt; 2) Develop satellite cities for industry development; 3) Restrict new factories and universities in Tokyo wards. Green Belt didn’t happen.

- **2nd Plan (1968):** 1) Designate Suburban Development Area to control disorderly development and preserve green space. 2) Develop research and logistics cities in the outer area, Urban Development Area.

- **3rd Plan (1976), following the establishment of National Land Agency in 1974:** 1) Selective decentralization of central functions; 2) Strengthen business, education, and culture functions at core satellite cities.

- **4th Plan (1986):** 1) Correct monocentric dependence by developing a polycentric pattern through strengthening Business Core Cities; 2) Develop information industry and research and development functions.

![Diagram of Monocentric Region and Polycentric Region]
3. Framework: Capital Region Development Plan
Following the 4th Plan, Act for Forming Polycentric National Land was enacted in 1986.

Business Core City is a concept of the Act that can become recipients of business and other functions decentralized from Tokyo’s CBD.

- **Saitama City**
  - Government offices
  - Business facilities
- **Tama City**
  - Residential area
  - Educational facilities
- **Chiba City**
  - Convention complex
  - Business facilities
- **Tsukuba City**
  - R&D institutes
3. Framework: City planning framework

Coordination takes place through drafting of City Plan

Composition of City Plan

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Infrastructure/Facility</th>
<th>Development Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Area Division (Area to promote or control urbanization)</td>
<td>Road, Railway, Parking, Terminal</td>
<td>- Land Readjustment</td>
</tr>
<tr>
<td></td>
<td>Park, Green space, Cemetery</td>
<td>- Newtown Development</td>
</tr>
<tr>
<td></td>
<td>Sewerage, Water supply, Treatment plant</td>
<td>- Urban Redevelopment</td>
</tr>
<tr>
<td></td>
<td>River, Waterway</td>
<td>- Industrial Park Development</td>
</tr>
<tr>
<td></td>
<td>School, Library</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hospital, Daycare</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Market, Slaughterhouse</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apartment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Government office</td>
<td></td>
</tr>
</tbody>
</table>

Process to create/modify City Plan

1. Public hearing, community workshop etc.
2. Preparation of the draft plan
3. Public announcement
4. Public exhibition of draft
5. Submission of written opinion by concerned resident/party
6. Deliberation by **City Planning Council**
7. Approval by higher authority (if necessary)
8. Announcement of Determination

**City Planning Council** is a review panel set up by local government that gives an independent review of the proposal and submitted opinions.

(Example) Kunitachi City’s Council includes academics (<4), city assembly member (<5), representative from relevant government agency (<1), and residents (<3).
3. Framework: City planning framework

Once decided on City Plan, alterations to the shape and quality of land, and construction of buildings are restricted.

This new road #3.4.53 to access Tsuzuki Exit of the 3rd Keihin Expressway is proposed to reduce congestion of existing access roads. Once decided to be included in the City Plan, building activities on the land within the boundary of #3.4.53 are restricted.
Once decided on City Plan, alterations to the shape and quality of land, and construction of buildings are restricted.

This under-utilized land near Kashimada Station on a JR line was being included in the separately-proposed urban redevelopment project. To enable conversion of land use and high density, the zoning change was proposed for City Plan. Once the change is decided, industrial land use is prohibited, while commercial land use is permitted.

http://www.city.kawasaki.jp/500/page/0000003426.html
### 3. Framework: City planning framework

Rule: Higher FAR can be given if the area is close to stations with higher passenger use. FAR is a part of City Plan.

#### Applicable Base FARs For Commercial Zone in Tokyo:

<table>
<thead>
<tr>
<th>#</th>
<th>Characteristics of the area</th>
<th>Distance from Center</th>
<th>FAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Areas not appropriate for high density use</td>
<td>All</td>
<td>200–300%</td>
</tr>
<tr>
<td>2</td>
<td>Areas appropriate for high density use</td>
<td>All</td>
<td>400%</td>
</tr>
<tr>
<td>3</td>
<td>Outside Circular Road #7, facing 20+m wide road</td>
<td>&gt;10km radius</td>
<td>400–500%</td>
</tr>
<tr>
<td>4</td>
<td>Inside Circular Road #7, facing 20+m wide road</td>
<td>&lt;20km radius</td>
<td>500–600%</td>
</tr>
<tr>
<td>5</td>
<td>Near stations with 5M – 16M passenger use / yr</td>
<td>All</td>
<td>200–500%</td>
</tr>
<tr>
<td>6</td>
<td>Near stations with 16+M passenger use / yr</td>
<td>All</td>
<td>500–700%</td>
</tr>
<tr>
<td>7</td>
<td>Forming a Core area, through area development</td>
<td>&gt;20km radius</td>
<td>700–800%</td>
</tr>
<tr>
<td>8</td>
<td>In center. Core of Sub–Center or a new Core. Through area development or facing 25+m wide road.</td>
<td>&lt;10km radius</td>
<td>600–900%</td>
</tr>
<tr>
<td>9</td>
<td>In center. High level of infra available, such as surrounded by 4+ lane arterials or stations with multiple rail lines.</td>
<td>&lt;10km radius</td>
<td>1000–1300%</td>
</tr>
<tr>
<td>10</td>
<td>Near center, or Core of Sub–Center. For commercial area with large catchment, or facing 20+m road.</td>
<td>&lt;10km radius</td>
<td>500–700%</td>
</tr>
</tbody>
</table>

Three key project schemes are available to realize City Plan.

1. **New Urban Residential Area Development Project**
   - Objective: To develop good-quality urban residential area and provide substantial scale of residential land in areas with high demand for residence
   - Enacted: 1963 (1 project in Tokyo (2,217 ha))
   - Modality: All land in the project area will be acquired to be developed and sold.

2. **Land Readjustment Project**
   - Objective: To develop good-quality urban area
   - Enacted: 1954 (633 projects in Tokyo (23,000 ha))
   - Modality: All land plots in the project area will be readjusted and returned back to the original owner after taking out ‘contribution’ for infrastructure land and reserved land to fund project cost.

3. **Urban Redevelopment Project**
   - Objective: To promote reasonable and sound high density use and renew urban functions
   - Enacted: 1969 (183 projects in Tokyo (463 ha))
   - Modality: All land plots in the project area will be converted to ownership of a floor area of redevelopment building and a share of joint ownership of land.

3. Framework: Development Project Schemes

New Urban Residential Area Development Project supported new town development mainly in 1960s and 70s.

<table>
<thead>
<tr>
<th>Summary of New Urban Residential Area Development Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cities</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>Hokkaido</td>
</tr>
<tr>
<td>Tohoku</td>
</tr>
<tr>
<td>Kanto (incl. Tokyo)</td>
</tr>
<tr>
<td>Hokuriku</td>
</tr>
<tr>
<td>Chubu</td>
</tr>
<tr>
<td>Kinki (incl. Osaka)</td>
</tr>
<tr>
<td>Chugoku</td>
</tr>
<tr>
<td>Shikoku</td>
</tr>
<tr>
<td>Kyushu</td>
</tr>
<tr>
<td>Okinawa</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

The largest was Tama New Town of 2,217 ha for 282,000 planned population. Projects can be implemented by Prefectures, Municipalities, Housing Supply Public Corporations, and Urban Renaissance Agency (UR).
3. Framework: Development Project Schemes

Land owners receive smaller land in better shape and with infrastructure, making the land value the same or more.

- **A, A’**: Area
- **H, H’**: Land price

- Mr. A’s lot (replot) after readjustment
- The contributed portion of the lot
- Contribution to reserve land

- **Lot area decreases due to contribution**
- **Land price increases due to the improvement of urban facilities**

**Project costs**
- cost of relocation of building and compensation
- cost for constructing roads, parks, etc.
- survey and design costs
- administrative cost
- miscellaneous

**Resources**
- capital from disposition of reserve land
- municipal expenses
- national subsidy
- shared defrayment of public facilities by management authority
- miscellaneous
LR is definitely the instrumental project scheme that helps formed cities in Japan, including Tokyo.

3. Framework: Development Project Schemes

Developed about **1/3 of all urban area in Japan**
(1/4 of area in Tokyo’s Wards developed through LR)

Developed about **1/2 of all principal residential parks in Japan** (Parks amount to 14,000 ha)

Developed about **1/4 of roads designated in City Plans** (Roads amount to 11,000 km)

Developed about **1/3 of station plazas at major train stations*** in Japan (About 900 station plazas)

* Stations with more than 3,000 passengers per day
3. Framework: Development Project Schemes

Urban Redevelopment Project effectively redevelops built-up areas that are unsafe and having insufficient infrastructure.

- **Land Ownership**
- **Land Leasehold / Superficies**
- **Building Ownership / Floor Ownership**
- **Reserved Floor for Sale**

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**Kita-Shinjuku Project**

- **1998-2016**
- **4.7ha**
- **Tokyo Metropolitan Government**

3. Framework: Development Project Schemes

Land ownership pattern in Japan favored replotting and conversion schemes than those relies on acquisition.

Land Ownership Pattern in Tokyo

- 47%, Private
- 4%, Parks
- 2%, Water
- 8%, Municipalities
- 11%, Road/Rail/Port
- 4%, Tokyo Gov't
- 6%, National
- 17%, Others

Source:
2. Land Use in Tokyo, Tokyo Metropolitan Government (http://www.toshiseibi.metro.tokyo.jp/seisaku/tochi_c/index.html)

Note:
Share for Road/Rail/Port, Water, and Parks are derived from Source 2 by combining Report for Ward (2011) and Report for Tama and Island (2012). Share for Others is derived by deducting Road/Rail/Port, Water, and Parks from the Others category in Source 1.
Chapter 4

CASE STUDIES

INTEGRATED DEVELOPMENT WITH RAILWAYS

New Urban Residential Area Development Project supported new town development mainly in 1960s and 70s.

Planned at 25–40km northeast of Tokyo towards Narita Airport, **Chiba New Town** was built through the New Urban Residential Area Development Project scheme. The project area was 1,930ha for a planned population of 143,300. Started in 1969 and completed in 2014. Project cost was JPY 1190.3 Billion (USD 11B).


Hokuso line was established jointly by Keisei Railway and public entities.

- A 32.3 km section on a new line connecting Narita Airport and Keisei Ueno terminal.
- Hokuso Railway was established by:
  - Keisei Railway (50.0%)
  - Chiba Pref (22.3%)
  - Urban Renaissance Agency (UR) (17.3%)
  - Matsudo City (1.4%)
  - Shiroi City (1.0%)
- Due to the delay of the Chiba New Town development, the railway has suffered from low ridership.
4. Case Studies: Joint Development of Business Core City and Railway

National and local governments, and other beneficiaries contributed to the construction of new subway.

Minato Mirai Line Subway (Yokohama)

- A 4.1km new underground line connected directly with Tokyu Toyoko line.
- Construction cost was JPY 257B (USD 2.4B).
- Opened in 2004.
- Owned and operated by Yokohama High Speed Rail, which Yokohama City holds 63% share along with other public and private entities.
4. Case Studies: New town development by private railways

Tama Garden City Development is a half-century LR project of 5,000 ha forming the passenger base of Tokyu’s railway.

The development is located 15 to 35 km to the south west of downtown Tokyo and was undertaken while Tokyo went through rapid urbanization. The projects were done mostly through Land Readjustment project scheme.
What determines the catchment population in the transit-shed?

4. Case Studies: Measures to increase station catchment

- Density
- Land Use Regulation (FAR, Ground Coverage), Marketing
- Feeder infrastructure, Feeder service

Distance

- 400m (5 min walk)
- 800m (10 min walk)

Catchment Area Population
4. Case Studies: Station Access Improvement

Station access improvement measures can expand the passenger catchment area for TOD.

Shin-Yokohama

Gifu

Ageo

Kumamoto

http://fujitahideki.jugem.jp/?eid=14

4. Case Studies: Feeder network to enlarge station catchment
Tama Plaza development area has a vast network of roads only for pedestrians and bicycles.

Walkway network in Tama-Plaza.

- While bus serves those not in the area close to station, walking and bicycle are the major access modes for those in the station vicinity.
- Walkway network extends as far as 2km from the station and the station also has bicycle and motorcycle parking spaces.
4. Case Studies: Feeder network to enlarge station catchment

The feeder bus service increases the value of gap land between railways, which otherwise is unpopular to commuters.

- **Nijigaoka (Rainbow Hills) Apartment Complex**
  - 18 minutes bus ride to Tokyu Azamino Station
  - 410 units opened in 1978

- **Susukino Apartment Complex**
  - 19 minutes bus ride to Tokyu Azamino Station
  - 1940 units in 1974–80

Map: Tokyu Bus Corp. Web
4. Case Studies: Measures to increase station catchment

Higher FAR, high/middle density development remote from station, and better feeder increase station catchment.
4. Case Studies: Other measures to increase transit service

Direct through service dismisses the necessity of interchanges.

Railway companies in Tokyo are actively cooperating in expanding direct through service network, which enables trains of one company go directly onto the lines of other companies.

Example of Through Service:
(a) Tobu Isezaki Line (33 stations, 51.4km).
(b) Tokyo Metro Hanzomon Line (14 stations, 16.8km)
(c) Tokyu Denentoshi Line (27 stations, 31.5km)
A journey of 2hr27min, 99.7km without transiting!
4. Case Studies: Capacity support through public corporation

For complicated and large scale projects, Urban Renaissance Agency can implement on behalf of localities and landowners.

Urban Renaissance Agency, or UR, has implemented more than 300 LR projects that amount to around 30,000 ha.

Company Profile:
- Started in 1955 as Japan Housing Corporation. After several mergers, UR was established in 2004.
- Capital: JPY 1,058B (USD 8.8B)
- Full-time staff: 3,233
Chapter 5

CONCLUSION
5. Conclusion

TOD Japanese Style.

1. In early 20\textsuperscript{th} century, private railway companies developed residential land along new railway lines to cross subsidize the railway construction cost.

2. While the ideas were a little different from the TOD concept we have now (i.e., concentrate efforts within 800m, promote mixed use, etc), they are good TOD examples.

3. Those TODs aimed to develop residential towns fully served by the railway, thereby increasing the land value and creating a passenger base at the same time.
5. Conclusion

Takeaways

1. **Government needs to make efforts to develop railway themselves (JR, Teito(Tokyo Metro)) and to create favorable environment for private railways.** While Japan was lucky to have a late onset of motorization, the initiatives after motorization were also instrumental.

2. **Coordination between land use and transit takes place at various levels.** From policy level at the councils at the Ministry, to Capital Region Development Plan for the regional perspective, and then to City Plan at detailed level. The binding nature of the decisions is important.

3. **More options in development framework are useful.** Land Readjustment has been vastly used in Japan and gave flexibility in infrastructure design and provide opportunity to recoup spilled benefit.
5. Conclusion
Other lessons learned, from unsuccessful efforts and outcomes.

1. **Motorization and urbanization in the suburbs.** While central Tokyo and Tokyo in general is a great success story of transit and land use integration, motorization has prevailed in the outer suburbs and medium and small cities in Japan.

2. **Aging population, decaying community and shrinking city.** The infrastructure in some of the early new towns have become outdated and not fit for the current demand. Some of them has high rate of elderly population. Continuous efforts to renew and revitalize communities might have been helpful.

3. **Legacy project and infrastructure.** Projects started late have suffered from the downturn of economy and land price fall. Some have gone through major restructuring, requiring substantial government support.

4. **Green and open space.** Tokyo’s land area for green and open spaces are much less compared with other major cities in the world. Unfortunately, priorities were given to more compelling issues.
Thank you.

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