

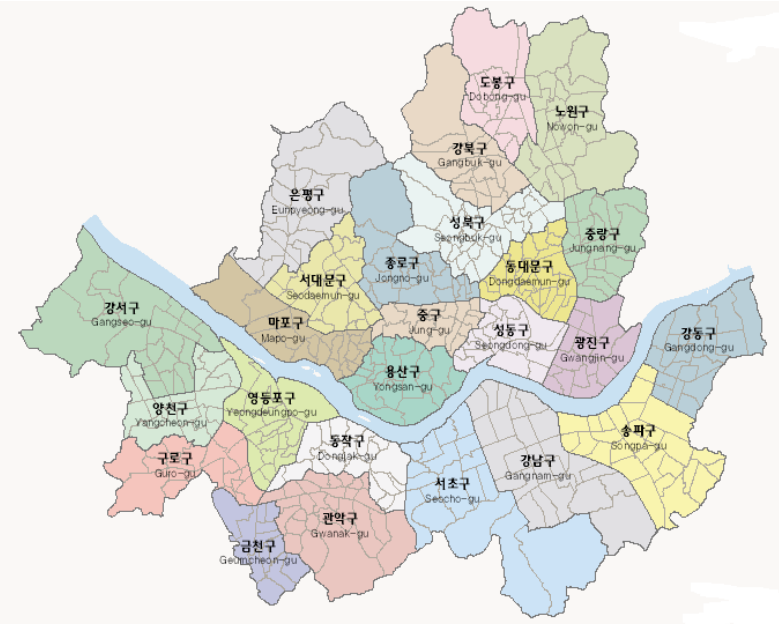
Introduction of Transit-Oriented Development Policies in some cities ~TOD in Seoul~



Group 6: Preesan Rakwatin
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Seoul

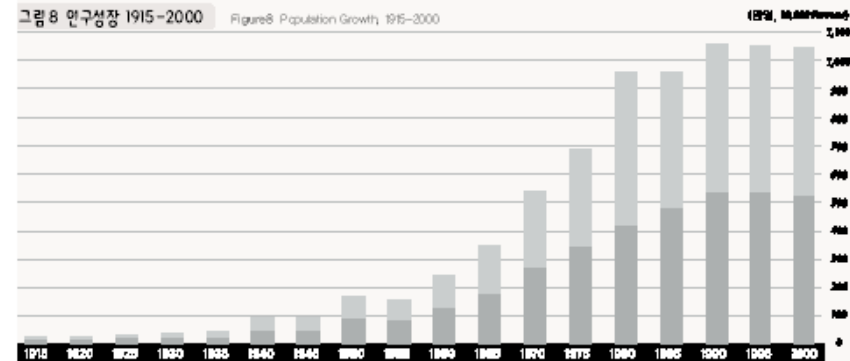
- Surface 605.77km²
- Population 10million (20million in Seoul metropolitan area[SMA])
- Population density 17,046(person/km²) →High
- GDP US\$ 605 billion
- Total passenger car 9 million cars



City planning in Seoul

History

- Before **1900** population: only 0.3million
- **1934 Korean urban district plan**
innovation of new land-use zoning laws
- **1950 the Korean war**
population concentration to Seoul
defective houses were built on the suburb hills
- **1962 city planning law** was established
4 kinds of zoning were set
deliberate development of urban districts
- **1971 revision of city planning law**
Green belt was set against
sprawling and the attack by the North
- **1974 1st subway line was built**
- **1976 urban renewal law** was established
to solve the problem of defective houses area
- **1981 basic city planning system**
a government-led large scale land development project design(20 years)
long-term vision
- **1980s** the population growth in the suburbs
a government-led large-scale land development project design began
five new town development in Green belt
→the problem is that access to city center is limited only by road network

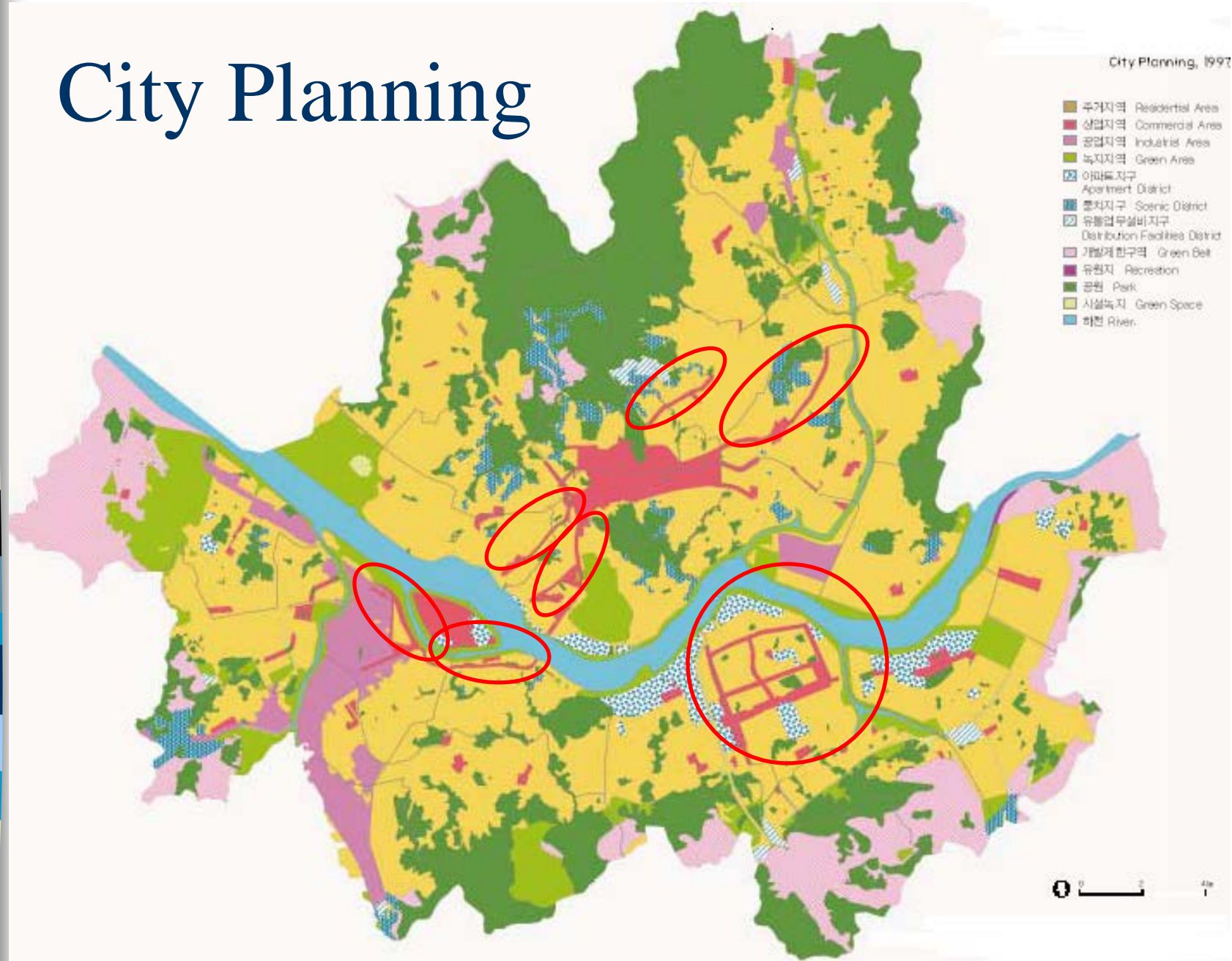


Population growth

City Planning

City Planning, 1997

- 주거지역 Residential Area
- 상업지역 Commercial Area
- 공업지역 Industrial Area
- 녹지지역 Green Area
- 아파트지구 Apartment District
- 문화지구 Cultural District
- 유통·무설비지구 Distribution Facilities District
- 기원계 한구역 Green Belt
- 유원지 Recreation
- 공원 Park
- 시설녹지 Green Space
- 하천 River



Road network

Some commercial areas are developing along the main roads.

→It's because main public transits are traditionally bus systems.

This is the example of roads' making the commercial areas.



City planning related project

■ City development

- land subdividing projects (extensively conducted in 1960s and 1970s)
- In the early 1980s, the civic sector leading project have proven limited
 - 4 regions(Sanggye,Godeok,Mokdong,and Suseo) have been changed from natural green areas to residential area.

■ City renewal project

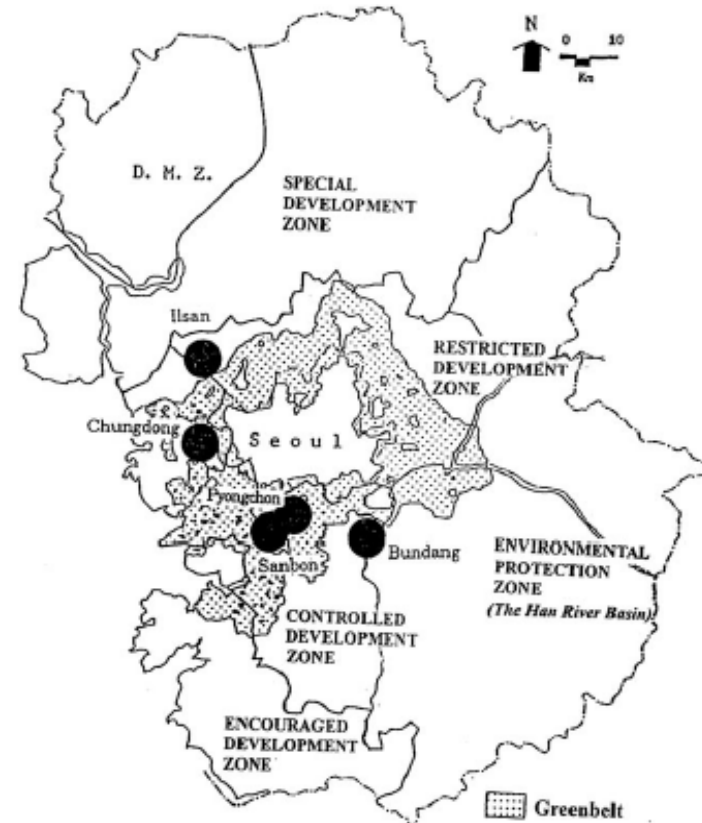
- downtown street rearrangements and strengthening its business function
- Housing renewal projects and housing environment improvement programs

■ New towns project

5 new towns were built in the Green belt(1989)

The purpose is to satisfy the shortage of housing in city center

Green belt and five new towns in Seoul Metropolitan region



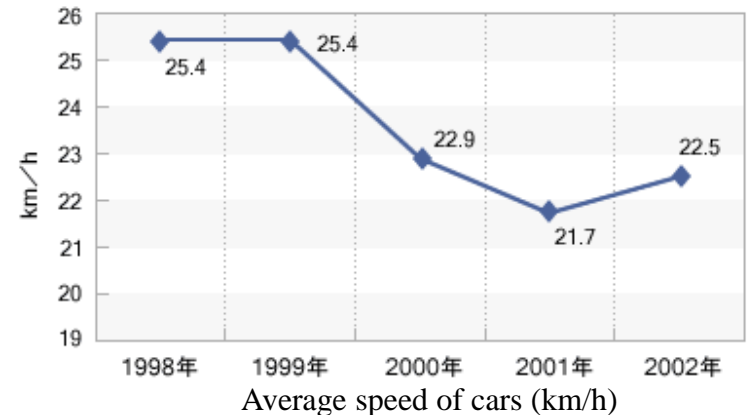
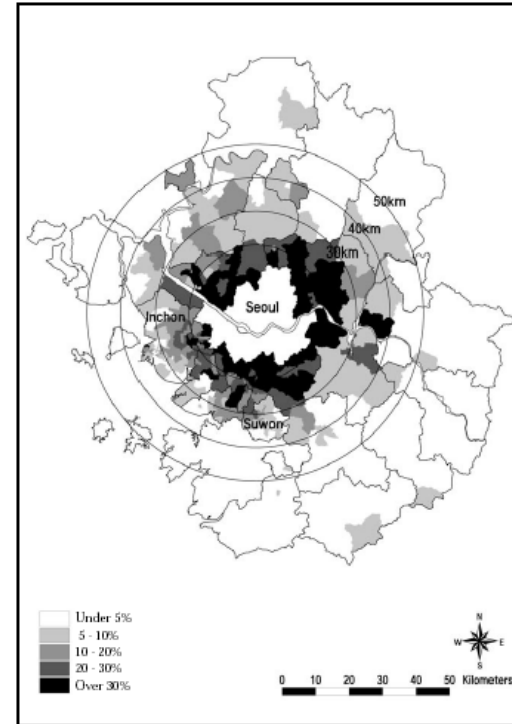
Recent situation of Seoul

- Increase of the population in suburbs
ex) five new town development in Green belt
→ increase demand of access from suburbs to city center
the problem is the shortage of public transit services
- Traffic congestion
- car holders are increasing



To solve the problem, Seoul try to improve the existed public transportation systems. (Railways and bus system)

Commuting ratio to Seoul by sub-regions ('97)



Transportation system(Bus)

Bus reform(BMS)

- Passenger traffic share: **30%**
- The trigger is change of the traffic flow by the Cheonggyecheon project
- The purpose is mitigation of the traffic jam and promotion of public transportation use
- operation
 - Reorganization of bus companies (into 4colors)
 - IT technology→make it easy for people to get the real time information
 - Bus only lane
 - transport in cooperation with subway line
 - In Korea managers of buses and subways are different
 - The cooperation is needed.
 - They still have the lines from suburbs to city center
 - The buses plays an important role as long-distant transports



Blue Bus (Main Line)
Rapid inter-regional transportation along main lines

· Three Digit Number: **1 0 1**

· Departure Zone + Arrival Zone + Consecutive Numbers (0-9)



Green Bus (Branch Line)
Linking main lines and subway trains inside a region

· Four Digit Number: **1 2 1 1**

· Departure Zone + Arrival Zone + Consecutive Numbers (11-99)



Red Bus (Wide Area Line)
Rapid transportation between metropolitan areas and cities in Gyeonggi Province

· Four Digit Number: **9 1 0 1**

· 9 (Wide Area Number) + Departure Zone + Consecutive Zone (00-99)



Yellow Bus (Circular Line)
Circular line transportation inside urban centers and metropolitan subcenters

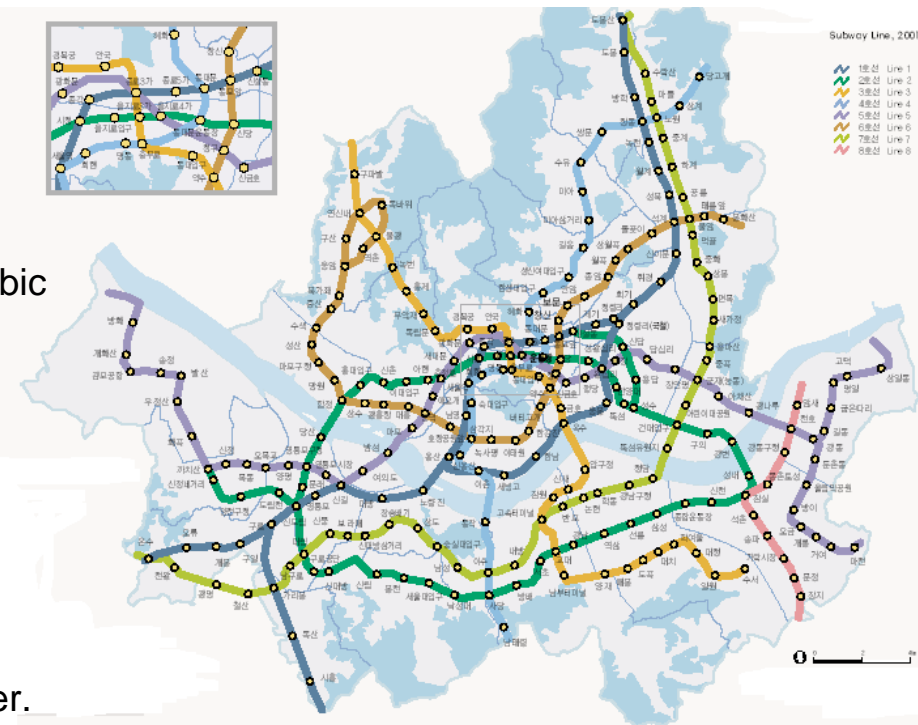
· Two Digit Number: **0 1**

· Zone Numbers (0-7) + Consecutive Numbers (1-9)



Transportation system(Railway)

- Passenger traffic share: **35%**
- History of railway system
 - 1971-1985 4 lines were built (118km)
 - 1989-1999 another 4 lines to extend the existed lines (160km)
 - 1999-2010 4 new lines are under construction(120km)
- The 9th line was managed by the private company (1st-8th lines were managed by public sectors)
 - goal** share:over 70%(with buses)
 - to solve the road congestion
 - to secure the access to suburbs
 - for ecology
- History of subways is relatively new
 - Historically the buses are heavily used as public transits in Seoul
- Most of the railways are subway and they don't have surface railways in the city center.



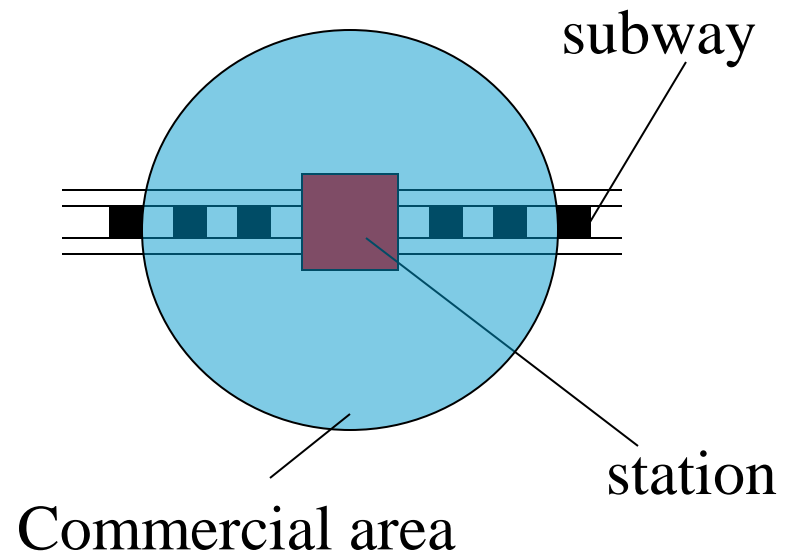
Recent TOD in Seoul

■ Redevelopment of the city center

- In Seoul, the bus systems are traditionally main public transits
→ the commercial areas were developed along the roads



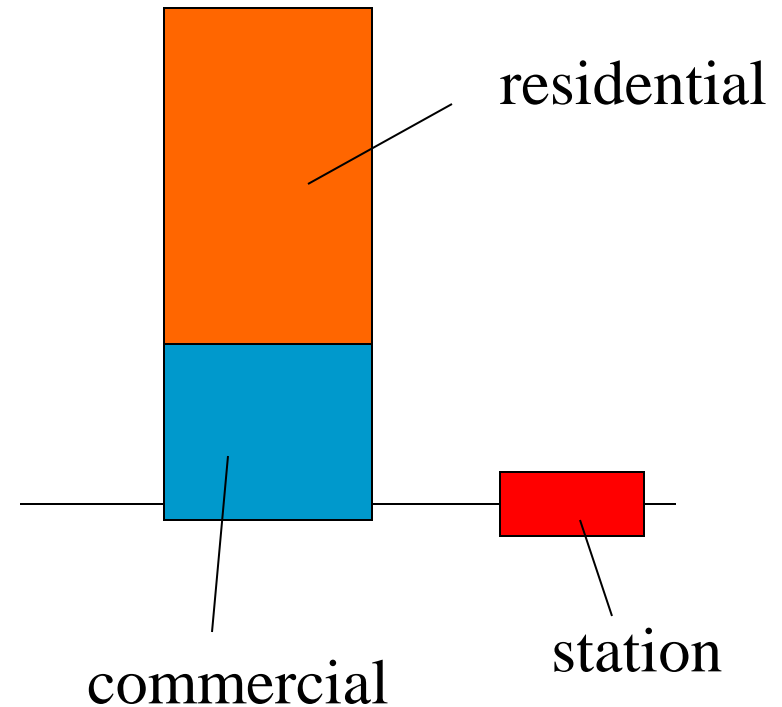
- Recently the subway are highly used
→ the commercial areas were developed around stations



Recent TOD in Seoul(2)

They need to redevelop around stations

- One new form of redevelopment around stations is the construction of buildings used for both commercial and residential uses
 - people can live near the station so they can go to station on foot
- Recently in Korea, this kind of apartments are very popular and the demands are increasing

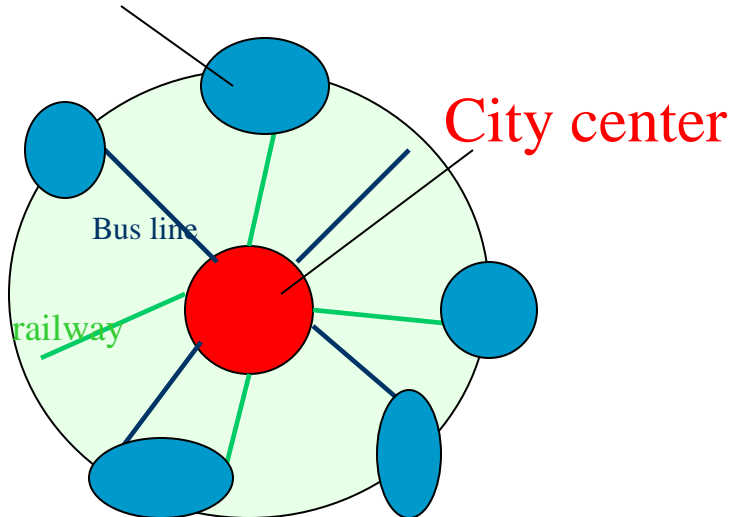


Recent TOD in Seoul(3)

- Suburb areas still have serious problems

ex) five new town development in Green belt

New town



1. Where the new towns were constructed **after** the public transits developed
→ The rate of public transit use is high
(successful case)

2. Where the new towns were constructed **before** the public transits developed
→ The rate of public transit use is low
(failure case)

Because people have already bought their own car to commute

In addition, to commute by cars is faster than by public transits

The cooperation between constructions of new towns and public transits is very important



Conclusion

- The characteristic of public transits in Seoul is that buses are traditionally used as main public transits and now the buses and subways are used together
- It is a very rare case to use buses as the long-distance transit (In Seoul, buses play a role like LRT)
- The relationship between land use and public transits is very important for achievement of TOD
→need the long-term vision
- When we construct the new towns, we need to consider the public transits and to secure the access to the center of the city

Introduction of Transit-Oriented Urban Development Policies in some cities



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What is **TOD** (Transit-Oriented Development)?

Excessive dependence on the use of cars increases the emission of CO₂ and is not good for environment.



We need to encourage the use of public transports

- **TOD** is a way to locate people near transit services and to decrease their dependence on driving.



The purposes of *TOD*

- To reduce the use of single-occupant vehicles by increasing the number of times people walk, bicycle, carpool, vanpool, or take a bus, streetcar or rail.

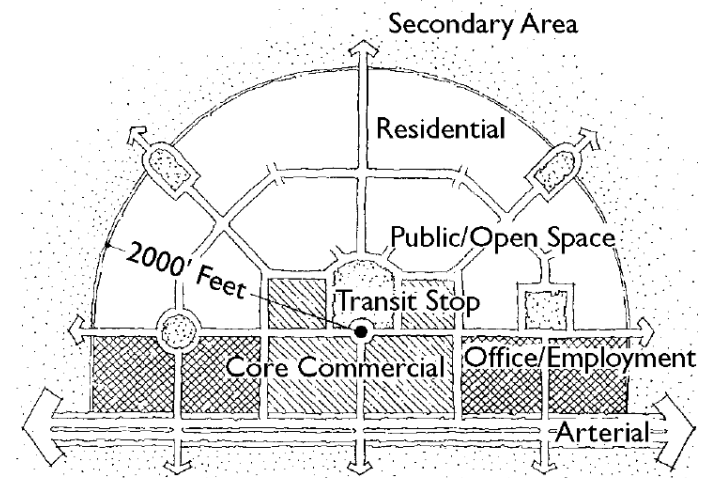


Necessity for TOD

- Good transit network
- Transit use supporting policy
- Land use system supporting transit use
- Amiable walking environment

Some characteristics of TOD

- A centrally located transit station or transit stop.
- A commercial area immediately adjacent to the station.
- A network of connected streets that branch out into the surrounding neighborhood(s).
- A variety of housing types, including multi-family.



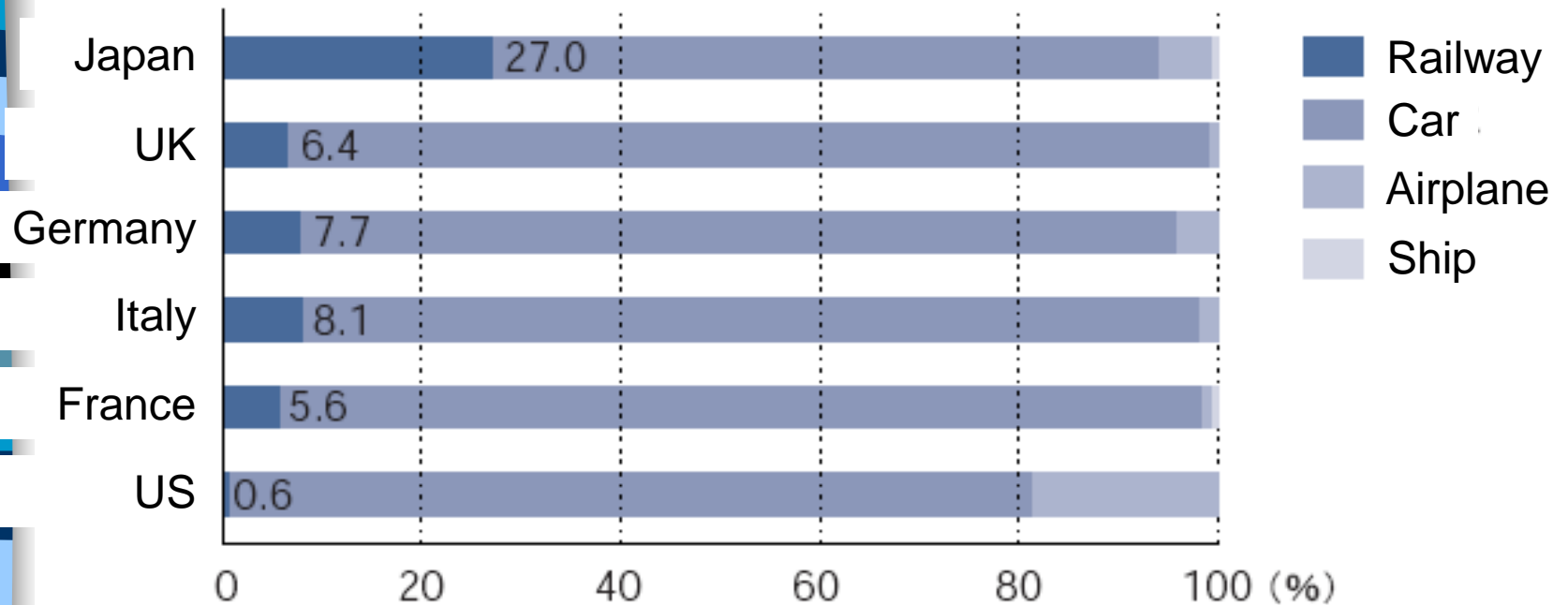


Why support TOD?

- Better use of land resources
- Reduced traffic congestion, and energy consumption
- Improved environmental quality
- Reduced parking requirements
- Reduced need for expensive investment (roads, bridges, and parking areas)
- Better community image
- Reduced stress from commuting by automobile
- Improved marketability of the location
- Better return on investment in transit infrastructure

TOD in Japan

Comparison of passenger traffic share



In Japan, Railway have a larger market share than other countries.

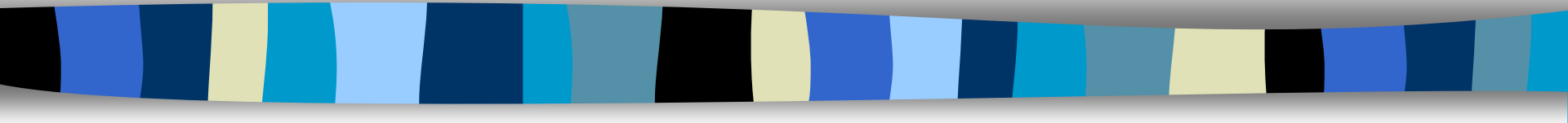


Problems and characteristics of Japan`s TOD

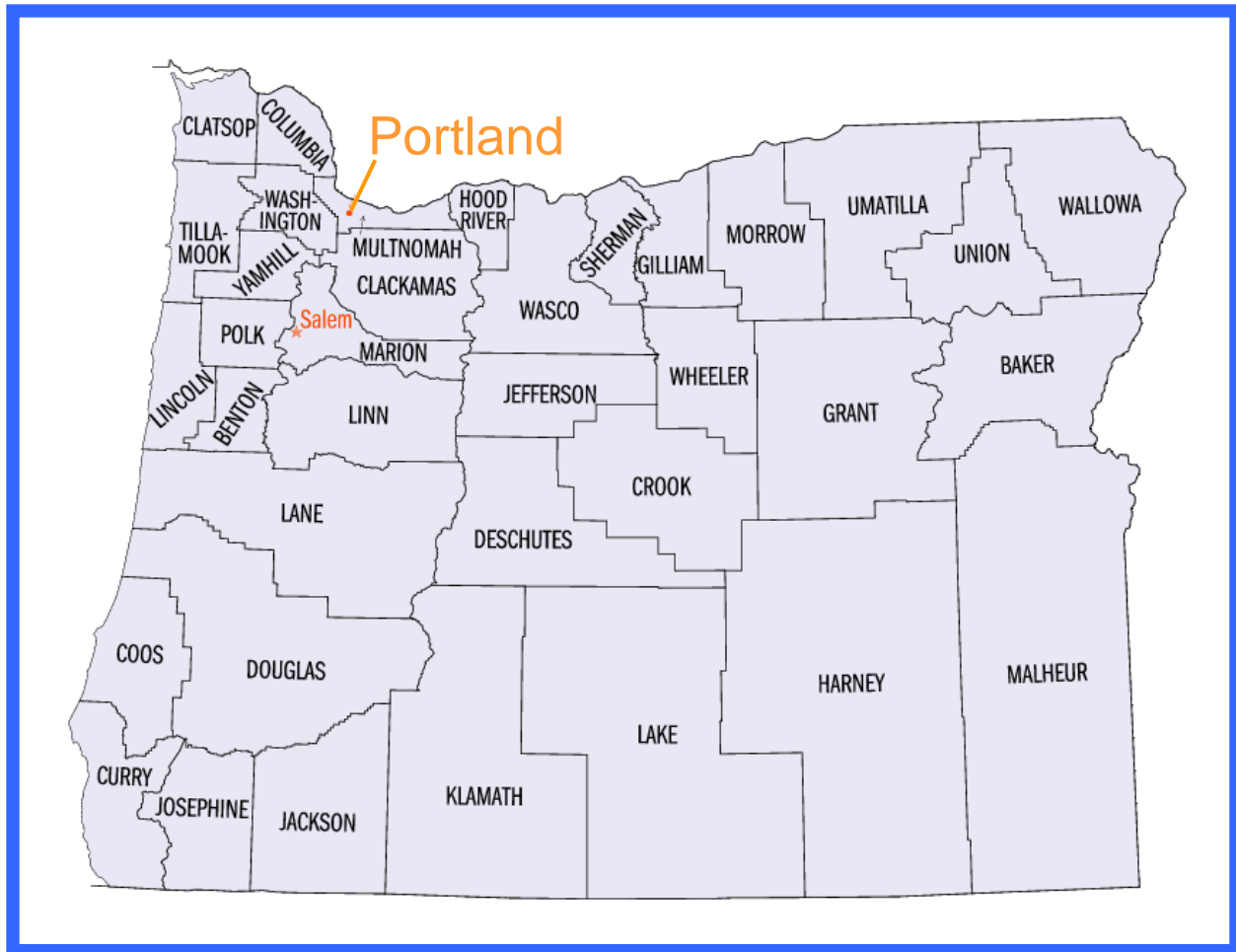
- Japanese TOD is mainly market-oriented TOD
 - By railway companies
- Japanese government don't have strong power to regulate land use and to control car use
 - This cause car congestion around stations and urban sprawl
- Japan have a small number of TOD systems
 - Railways are highly used
 - But bus and LRT were not well utilized

Let's study the example of other countries

Portland, Oregon, USA



Location of Portland



TOD in Portland

- Introduced in 1970s
- Living Quality deteriorated
 - Escalated traffic congestion
 - Environmental destruction
- Decline population in city center



Traffic Congestion



Shopping Center in Suburb

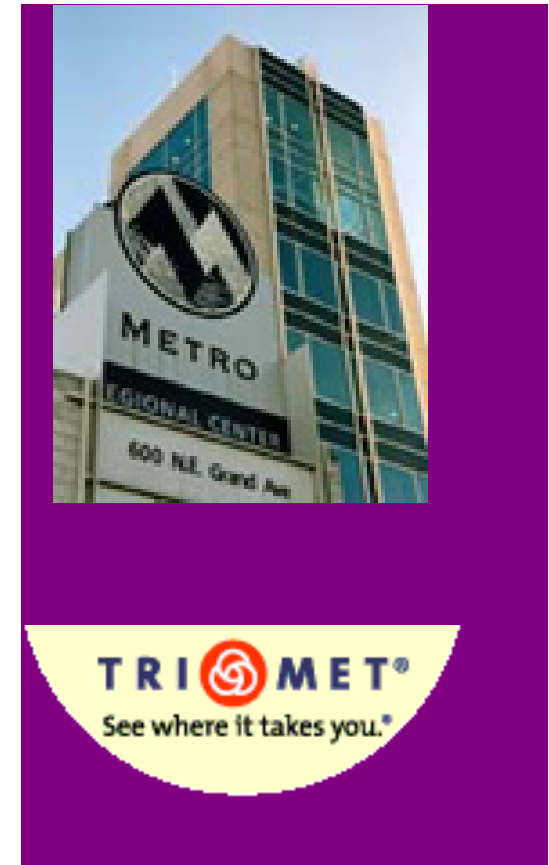
METRO and TRI-MET

■ METRO

- The regional government which has municipal home rule for city planning.
- 1.3 million people
- covers 24 cities, urban areas of 3 counties
- long-term land use and transport policy

■ TRI-MET

- Regional transportation authority
- Provide light rail and bus service and promote the development project with METRO.

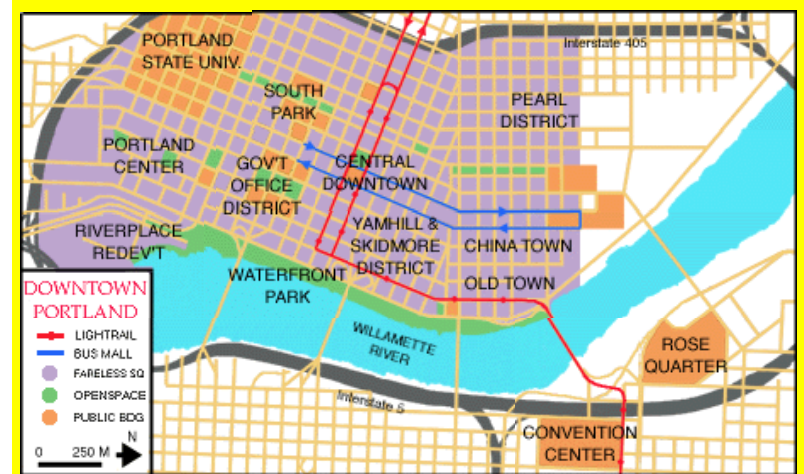


METRO area



Public transport system in Portland

- Budget relocation
 - From express way to Metropolitan Area Express (MAX) and parks
- Established
 - Transit malls
 - Free fare in city center
 - High Occupancy Vehicle (HOV) Lane
 - Park and ride system
 - Real-time bus location system with Geographical Information System (GIS)



City Center of Portland



MAX

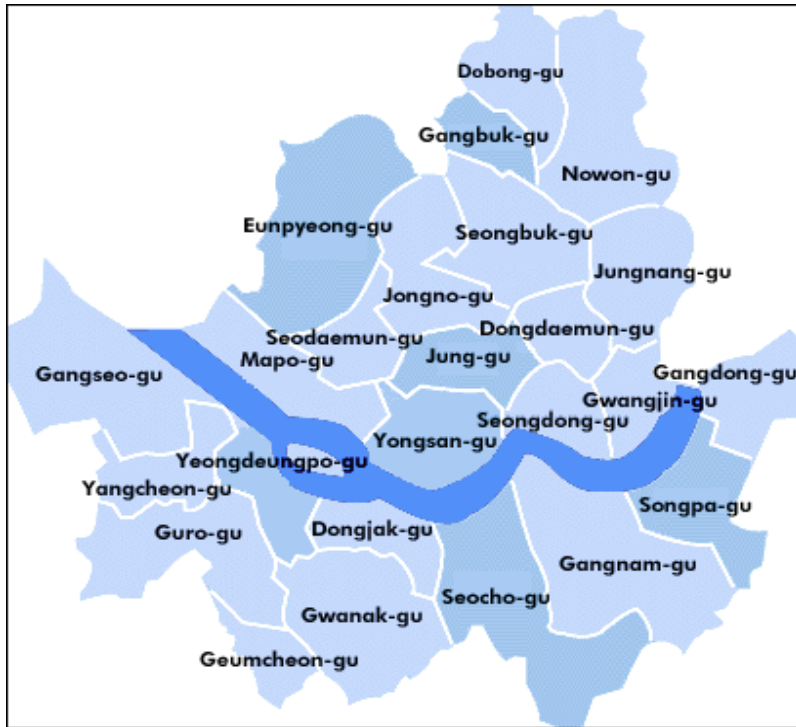


Bus Stop

Seoul, South Korea



Seoul`s quick look



- The total area 605.52 Km² , or 0.6% of the entire country.
- 25 "gu" or wards
- Total population of 10,276,968 or a quarter of the total national population
- Per capita is 8.5 million won, 23.7% of the GNP of 388 trillion won



Current Situation of Korea Transportation

- Rapid economic growth and increase in personal income have led to a sharp growth in the demand for transportation.
- Among cars that are used for various purposes, such as private, official or business, the increase rate of private passenger cars recorded the highest.



Car Ownership in Korea (unit: 1,000 cars)

Year	Passenger Car	Bus	Truck	Others	Total
1980	249	42	226	9	528
1990	2,074	383	924	11	3,395
2000	8,084	1,428	2,511	37	8,469
2001	8,889	1,257	2,511	37	12,694

Recent Situation on Sustainable Urban Transportation in Seoul City

Region	Population (1,000)			Car Ownership (1,000)		
	1996	2003	2003/1996	1996	2003	2003/1996
Seoul city	10,470	10,277	-1.8%	2,168	2,777	28.1%
SMA	21,065	23,240	10.3%	4,481	6,748	51.4%

- Car ownership increased 28.1% in Seoul city and 51.4% in **Seoul Metropolitan Area (SMA)**
- Bus speed is 19 km/hr slower than 20.2 km/hr of passenger car in city center



Bus reform

- Took effect on July 1, 2004
- New bus routes and bus-only lanes were introduced
- To encourage more people to use public transportation and ease congestion on the roads.

Bus types

- To reduce confusion and simplify passenger.



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Bus types and their stop signs



Bus-only lane





Result of bus reform

(**passenger**)

- For July and August, the passengers using either bus or subway had 11% increase compared to the corresponding months of the previous years.
- For July and August, bus passengers alone also experienced an average of 9.9 % increase over last year.



Result of bus reform (**Bus speed**)

- The average speed of the buses running in the median bus lanes escalated by
 - 85 %, increasing to 20.3km./hr on Dobong/Miara (Road) in northern Seoul
 - 72 % increasing to 22.5km./hr on Suseak/Seongsanno (Road) in northwestern Seoul
 - 32 % increasing to 17.2 km./hr on Gangnamdaero (Road) in southern Seoul
- The figure recorded in June when the new system was not yet introduced



Result of bus reform (Traffic vol.)

- Traffic volume decreased 5.9 % in October from September last year
 - Miaro recorded a 27.2 % drop
 - Gangnamdaero recorded a 26.3 % drop
 - Songsanno in Susaek recorded a 23.3 % drop
- Several factors
 - the implementation of the bus-exclusive median lane system
 - the oil price surge
 - encouraging drivers to not drive one day a week



Green parking 2006

- To calm down the traffic at the collector road in the residential area.
- By increasing the number of parking spaces in residential area.
- 25 sites were selected for the first year demonstration in 2004.
- 4,318 parking spaces on residential street by demolishing house wall of 3,120 households.

Residential area in Seoul city



The actual situation of collector roads in Seoul city, South Korea

Green parking idea



demolishing house wall



Why is TOD still daunting to developers?

- Construction costs of building add existing infrastructure and using valuable land for parking have also intimidated developer
- A shortage of promotion, standards, and systems about elements like appropriate densities have prevented developers and planners from building with confidence



Summery

- Public involvement.
 - The involvement of residents in plan work with the administration to promote TOD
- User`s friendly transportation system.
 - Easily and understandable informations (bus signs)

ありがとう (Thank you)

