

Urban Transportation Policy for Sustainable Transportation in Korea

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Ministry of Construction and Transportation, Republic of Korea

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- **Sustainable urban transportation**
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- **Silver urban transportation**

I. Facts & Figures of Urban Transport

- Small area: 99,538 km²
- High urbanization rate: 89%
- High population density: 492person/km²

- ❖ But
 - High increasing rate in cars
 - Decrease in public transportation uses

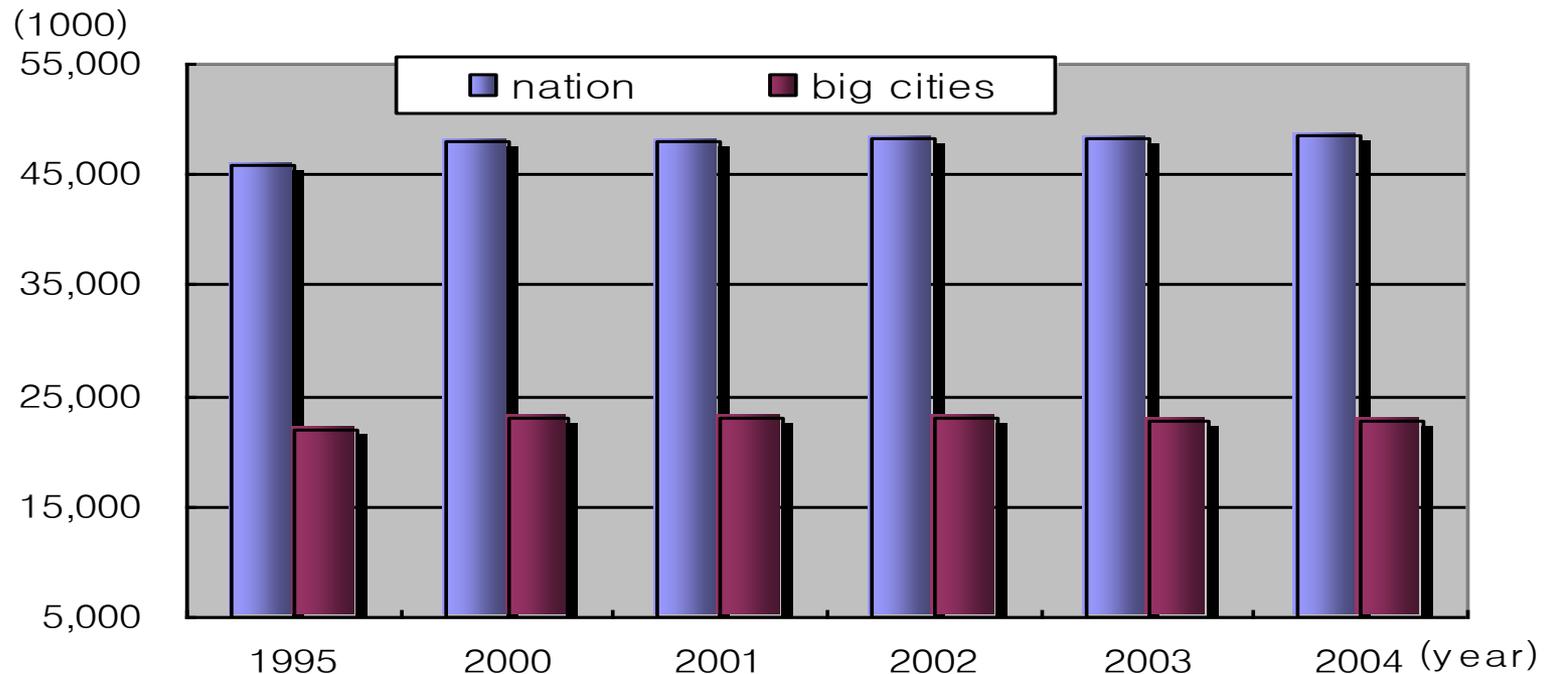
- ❖ As a result
 - Decrease in auto speeds
 - High congestion cost
 - Lack of parking lots
 - Air pollution

Present Status

Population Growth

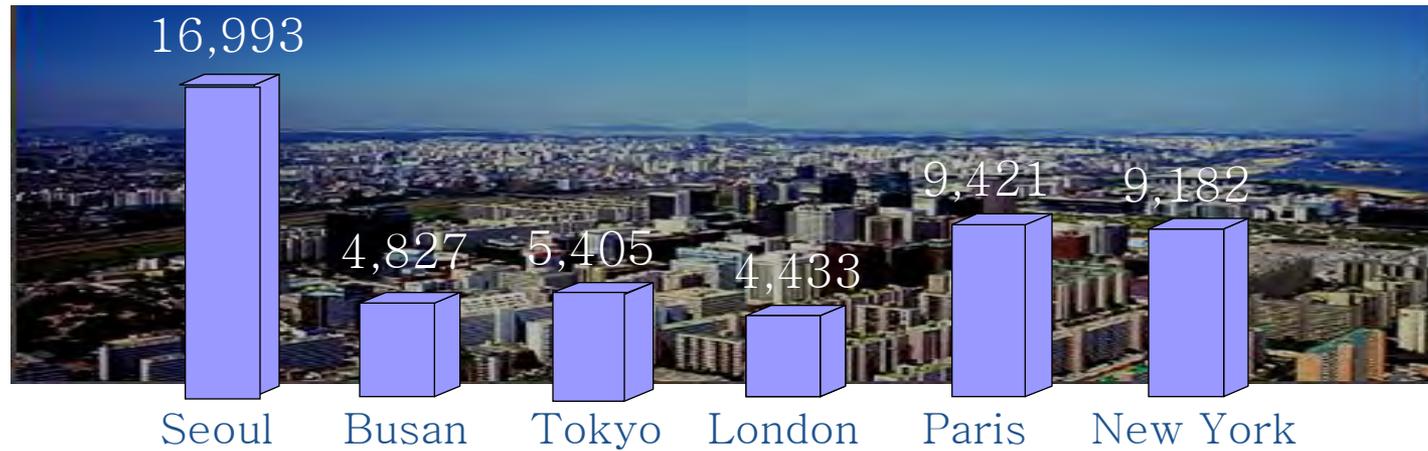
- has increased at annual average 0.43% during the last 10 years in 7 metropolitan areas

Population Growth

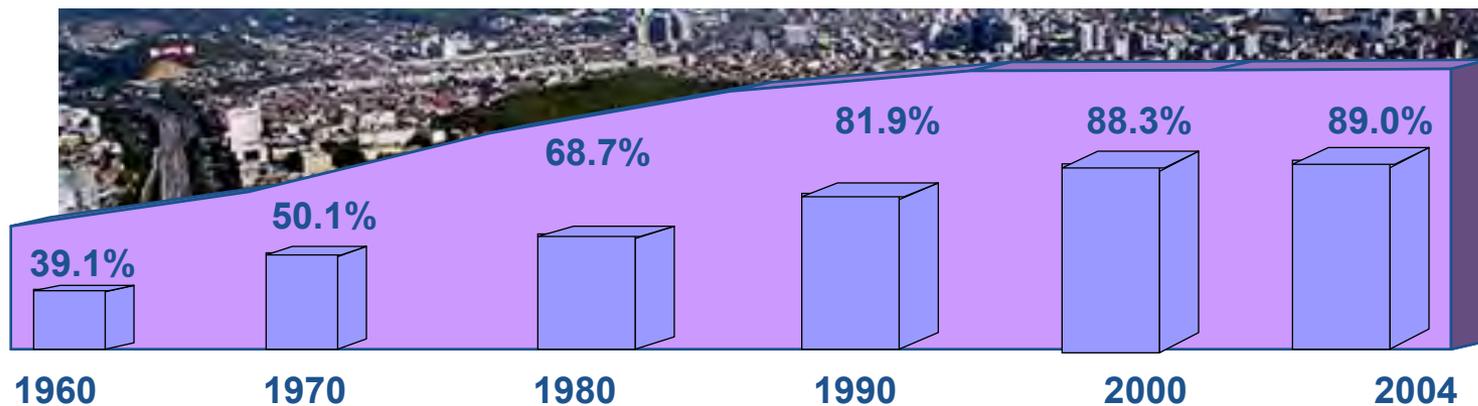


Present Status

Comparison of population densities



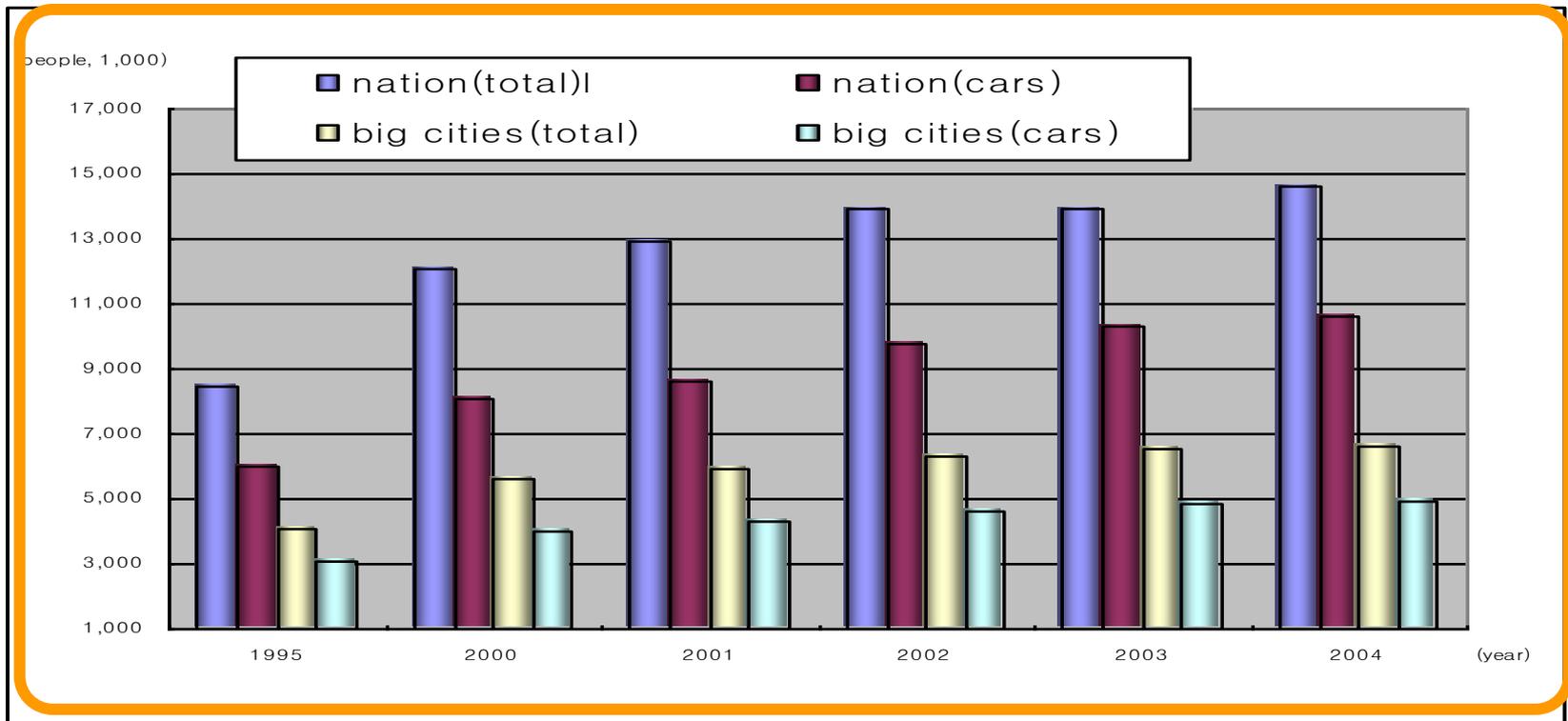
Rapid Urbanization



Present Status

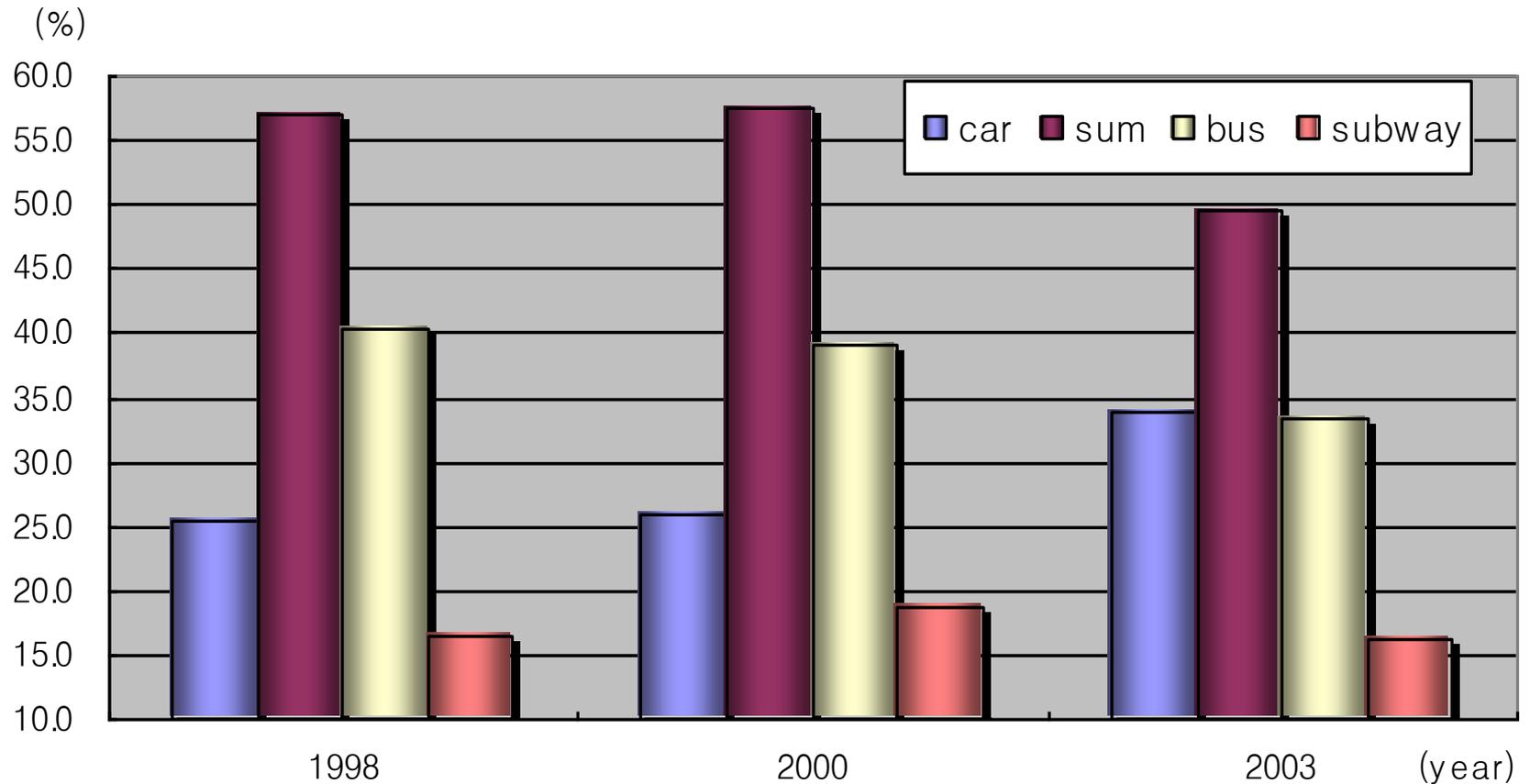
Vehicle Growth

- has Increased at the rate of 5.8% annually last 10 years from 8,469 thousand in 1995 to 14,934 thousand in 2004



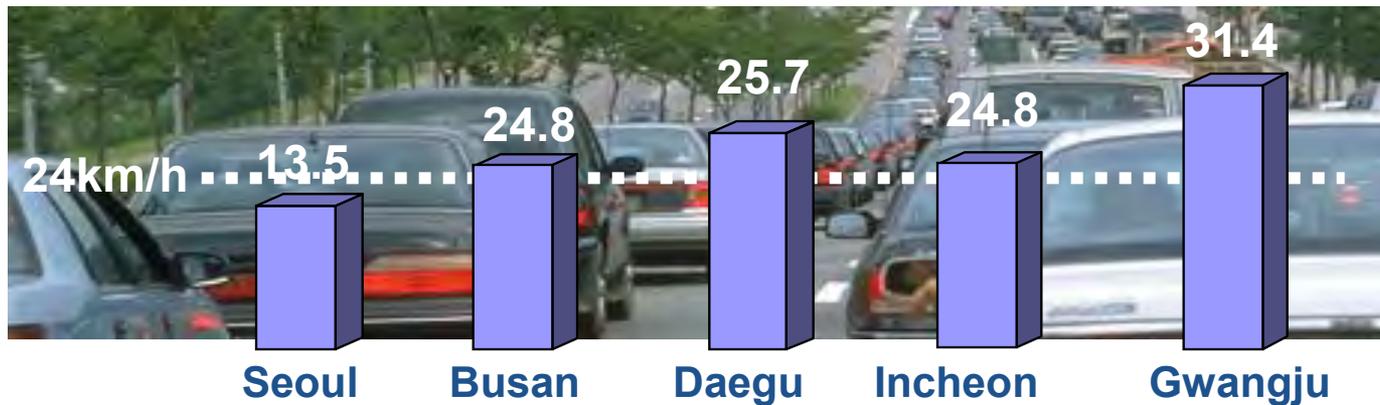
Share of Public Transport

- Ride share of bus have decreased during 10 years
- But, ride share of passenger cars have steadily increased

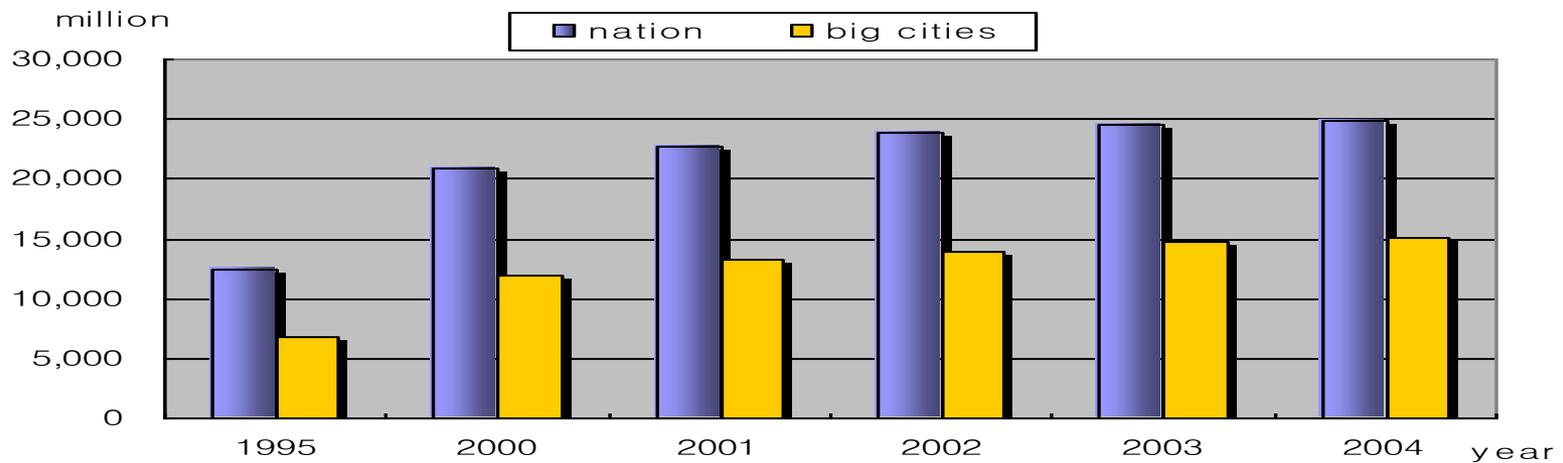


Problems

Auto speeds in central business districts

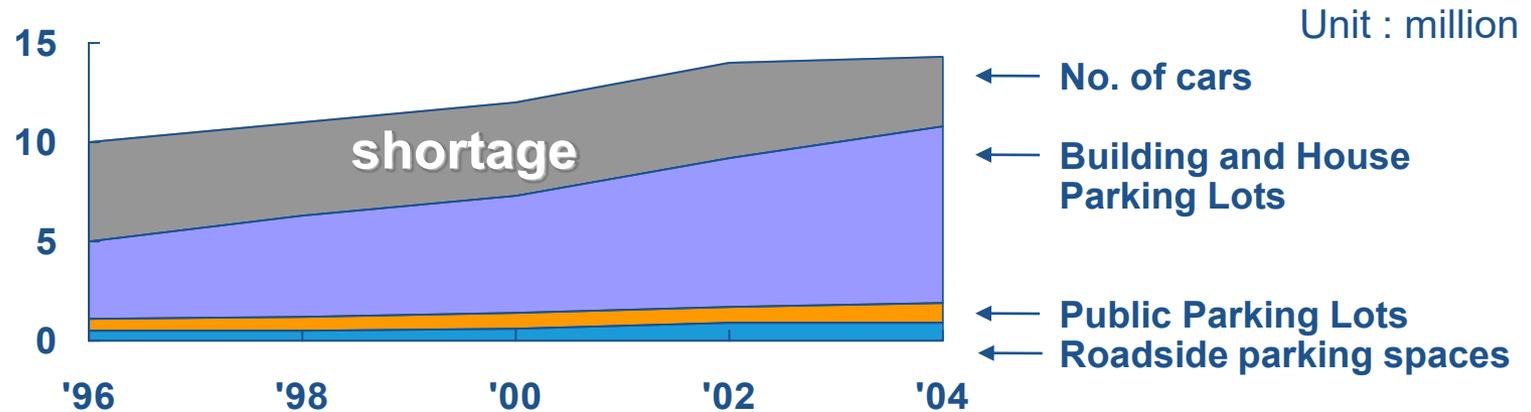


Increase in Congestion Cost

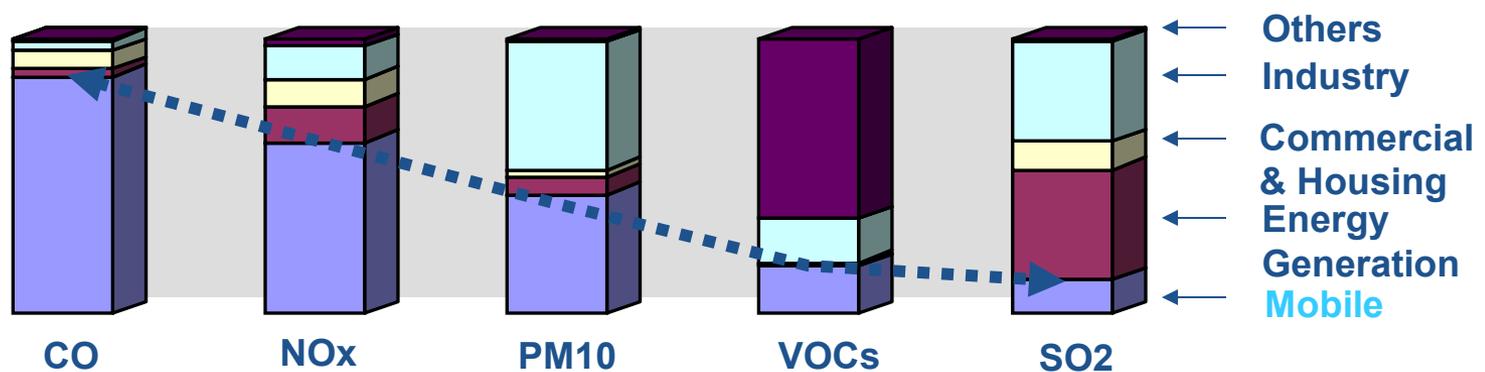


Problems

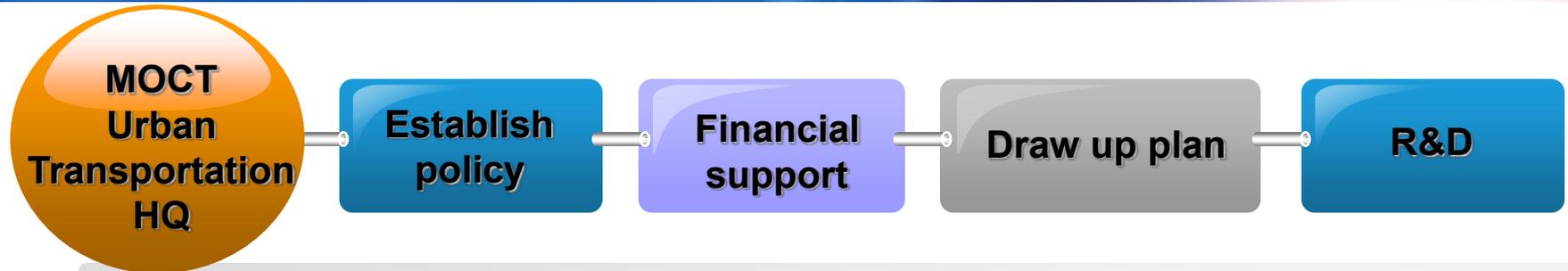
Parking lot shortage



Share of emission gases



II. Urban Transportation Policy System



Organization 1 HQ, 1 Director General, 10 teams, total 91 staff members

Budget

19 projects including urban railroad construction with an annual budget of about \$1.86 billion

Laws

Urban Transportation Improvement Promotion Act
Act on Promotion of Public Transportation
Act on Improvement of the Transportation Vulnerable, etc.



III. Urban Transportation Policy



1. Sustainable Urban Transportation

Promotion of the Public Transportation

Transportation Demand Management

Green Transportation

1. Promotion of the Public Transportation

① Act on Promotion of the Public Transportation

- ❖ **Public Transportation Master Plan**
(5-year plan by central & local governments)
- ❖ Expansion of **public transportation facilities**
 - consider public transport facilities when planning large-scale land development
- ❖ **Subsidy** to public transport service improvement projects such as BRT system, low floor buses, etc.
- ❖ **Assessment** of transport services and **incentives** to quality service providers

Public Transportation Master Plan

■ **Nation's long-term blueprint for public transportation**

- ❖ is an administration plan for public transportation-oriented transportation system in the urban area
- ❖ is guidelines and directions for local government's public transportation policies

■ **Goals**

- ❖ is to provide mobility and access to be safely and conveniently
- ❖ is to promote public transportation use to reduce traffic congestion, air pollution, and energy consumption

② Expansion proper public transportation facilities considering city's population and characteristics

	Bus	BRT	LRT	HRT
				
Right of way	Common use	Exclusive, partly common	exclusive	exclusive
Capacity (person/car)	60~80	80~150	50~120	120~160
Car (car/locomotive)	1	1~2	2~6	6~10
Traffic volume (time direction)	1,600~2,500	1,600~10,000	5,000~30,000	Over 30,000
Interval (minutes)	7~9	5	0.5~2	2~3
Maximum speed(km/h)	100	100	60~80	80~130

1. Promotion of the Public Transportation

Expansion of urban rail transportation

- ❖ **First subway, a 7.8 km line, constructed in 1974**
- ❖ **596.5 km of subways in operation in 2004**
- ❖ **Subway projects status as of 2006**

New Lines	Extension of Existing Lines
- Seoul No. 9 – 25.5 km (2001-2007)	- Seoul No. 3 – 3.0 km (2003-2009)
- Busan No. 3 – 29.5 km (1996-2007)	- Seoul No. 7 – 9.8 km (2003-2010)
- Gwangju No. 1 – 20.1 km (1996-2007)	- Busan No. 2 – 8.0 km (1997-2006)
- Daejeon No. 1 – 22.6 km (1996-2006)	- Incheon No.1 – 6.5 km (2003-2007)

1. Promotion of the Public Transportation

Expansion of metropolitan transportation facilities



Railroads

- ❖ Subway's transport share in capital region: 23.6% (2002) → 40% (2020)
- ❖ 286.5 km by 2015 in the capital region and other metropolitan areas



Roads

- ❖ Eliminate 12 major bottlenecks (56.7 km) in the capital region by 2008
- ❖ 12 bottlenecks (79.6 km) in major cities by 2010



Transit facilities

- ❖ Build 1 transit center and 4 transit parking facilities by 2007

Promotion of the Public Transportation

Light rail transit

Cities	Lines	Length (km)	Construction periods	Costs (million US\$)
Gimhae	Busan - Gimhae	23.9	2003 – 2008	1,080
Busan	Minam - Bongsong	12.7	2003 - 2007	805
Yungin	Gilheung - Everland	21.3	2002 - 2006	597
Uijeongbu	Jangam - Songsan	10.3	2001 - 2007	396
Jeonju	Songcheon-Samcheon	14.19	2003 - 2008	-



1. Promotion of the Public Transportation

Bus rapid transit

❖ Urban rail systems

- Huge investment costs
- Long construction periods

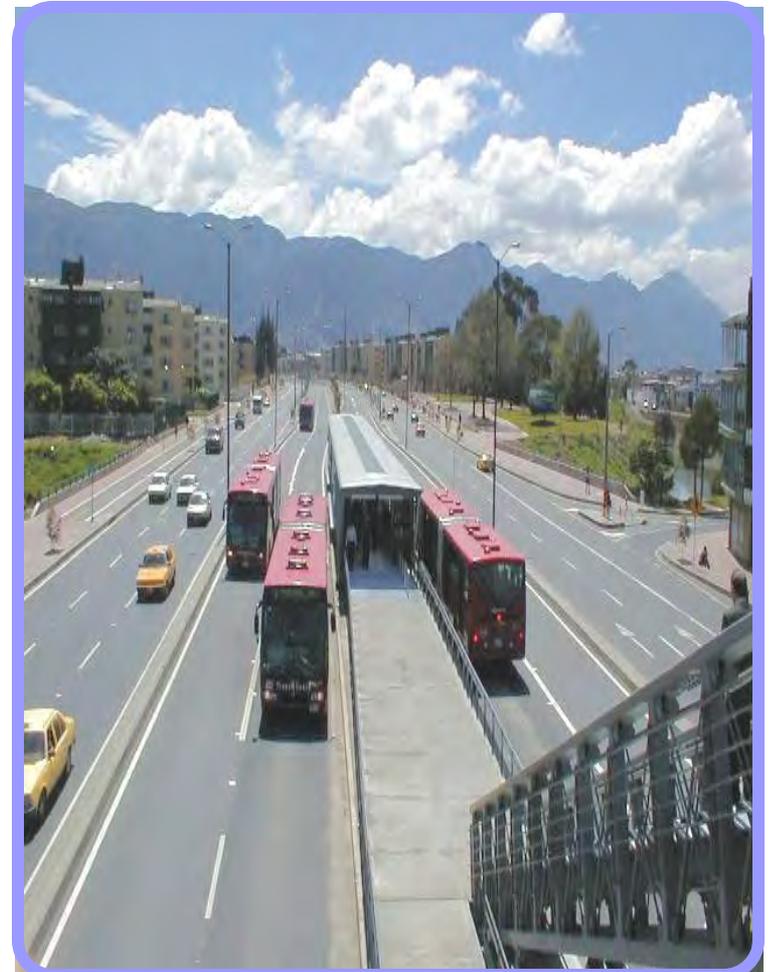
❖ Conventional bus operation systems

- Irregular intervals between buses
- Uncomfortable rides
- Violent driving by bus drivers



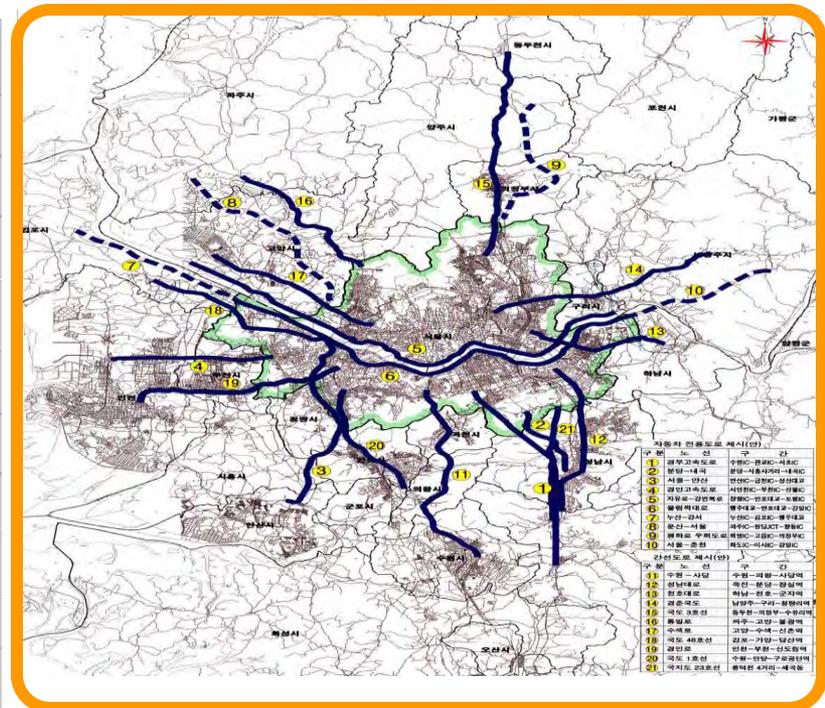
❖ Bus Rapid Transit

- Exclusive bus lanes, level boarding, bus information system (BIS)
- Bus priority signal, regular intervals, reliability, speedy, free transfers



- ❖ Plan drawn up in 2004 to build **22 BRT routes** measuring 540.4 km by 2012 in Seoul metropolitan area (2004)
- ❖ **2 Pilot projects** are being implemented: 14.8 km Hanam-Gunja and 12.3 km Cheongra-Hwagok routes

Route	Lane	Length (km)
Pungdeokchun ~ Yangjae	6~8	21.8
Gyeongbu Expressway	6~8	26.5
Cheonhodaero	8~10	12.6
Gyeongchun Hwy	4~6	21.2
National Hwy 47	4	17.6
National Hwy 3	4~8	28.9
Tongillo	4~6	17.9
Susaengno	6	16.9
Jayulo	8~10	19.9
National Hwy 48	4~8	19.8



1. Promotion of the Public Transportation

New bus system adopted by Seoul since July 1, 2004

Policy and Assessment will be presented by Ph. Kim From SDI of Seoul Metropolitan City

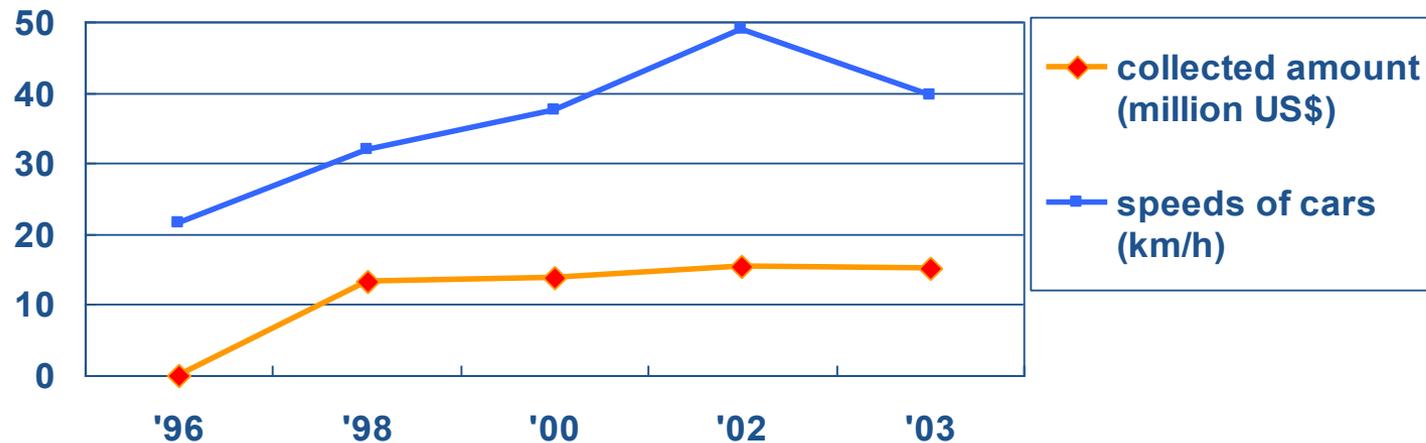


2. Transportation Demand Management

① Congestion pricing

- ❖ Congestion toll (about \$2) charged at Namsan Tunnels 1 and 3 in Seoul since 1996
- ❖ Buses, taxis and HOVs are exempted from the charge

Present status

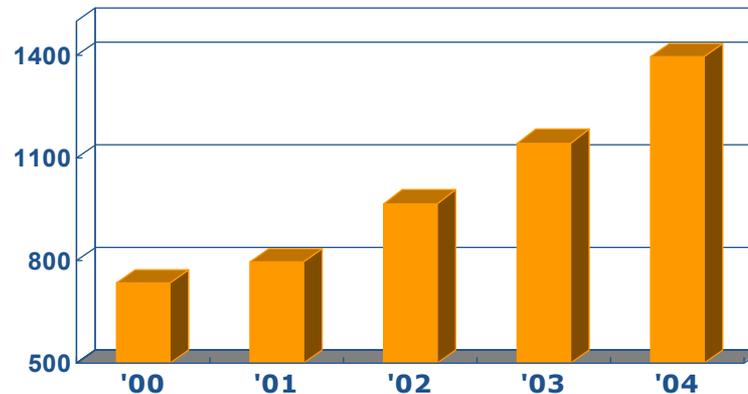


2. Transportation Demand Management

② Traffic Impact Assessment (TIA)

- ❖ TIA minimizes side effects caused by developments of large-scale projects and construction of big facilities
- ❖ TIA Committee proposes the extension of road or other alternatives to the developer to mitigate traffic impact

❖ Cases for TIA



2. Transportation Demand Management

③ Traffic Inducement Charge (TIC)

- ❖ **City government imposes TIC to owners of facilities that attract trips to their facilities (\$109 million in 2004)**
- ❖ **Applicable facilities**
 - Buildings in city areas with minimum population of 100,000 and with total floor area measuring at least 1,000 square meters
- ❖ **Reduction/Exemption of TIC**
 - Reduced or exempted in cases of mitigating traffic demand
 - Reduction/Exemption amounts
- ❖ **Non-driving day system (10~30%), operation of commuter buses (10~20%), charged parking lots (10%), carpooling (5~15%), etc.**

2. Transportation Demand Management

④ Limitation on parking spaces

- ❖ **Upper limit guidelines of parking space in the commercial areas of central business districts**
- ❖ **Expanded to include semi-residential districts in 2004**
- ❖ **The system in operation in major cities**

Region	Seoul	Busan	Daegu	Gwangju
Percentage	2.1%	1.1%	0.3%	1.8%

(The percentage indicates the whole area of the cities with ceiling on parking spaces)

3. Green Transportation

① Extension of car-free streets

- ❖ **27 car-free streets exist in 9 cities**
- ❖ **Each local government is expected to have at least one car-free street.**

② Extension of bicycle facilities

- ❖ **Bicycle-Use Facilitation Act enacted in 1995**
- ❖ **5,684 km of bicycle roads, 249,000 bicycle racks in 2005**
- ❖ **10,000 km of bicycle roads, one million bicycle racks by 2010**

3. Green Transportation

③ Supply of CNG buses

- ❖ **2,910 diesel buses (9.2% of all urban buses) replaced with CNG buses since 1998**

Note: MOE subsidizes the bus companies \$21,600 for every replacement

- ❖ **Replace 20,000 diesel buses (65% of all urban buses) with CNG buses by 2007**



2. Smart Urban Transportation

Transportation Smart Cards (TSC)

Intelligent Transportation System

Bus Information System

Ubiquitous Transportation Information

1. Transportation Smart Cards (TSC)

- ❖ Promotes use of public transportation, solves inconvenience in public transportation, enhances transparency, improves working conditions
- ❖ 40 million cards for urban buses, subways, taxis, and expressways
- ❖ Use on all transport modes and anywhere in the country by 2007

Prepaid Card Type



Credit Card Type



Nationwide use of TSC

Apply national standard in new adoption of transport cards

Allow use of both national standard cards and cards already in use

Simultaneous use with credit cards (post-pay) with transport card function



Mediation by Task Force



Nationwide use of TSC on all transportation facilities and modes

2. Intelligent Transport System

- ❖ Super high-speed internet, mobile phones, spread of PDA, and designated devices for transport information provide advantages ITS establishment
- ❖ ITS projects in Daejeon, Jeonju, Jeju and Gwachon
 - Auto speeds increased 20.3%
 - Waiting time at Intersections decreased 38.8%

Traffic Information by Link



Traffic Information by Camera



3. Wide Area Bus Information System

Project Progress Update

- ❖ Sadang Station, Seoul – Changyong, Suwon
- Dec. 2004 – Aug. 2005, \$5.5 mil. (MOCT \$2.5 mil. / local govts. \$3 mil.)
- ❖ Daejeon – Chungju Location
- Dec. 2005 – Aug. 2006, \$6 mil. (MOCT \$3 mil. / local govts. \$3 mil.)



4. Ubiquitous Transport Information

(Transport Advice on Going Anywhere)

- ❖ Real-time & intermodal transfer information system
- ❖ Information on a number of different transportation modes, routes and transit information



Airport, bus stop



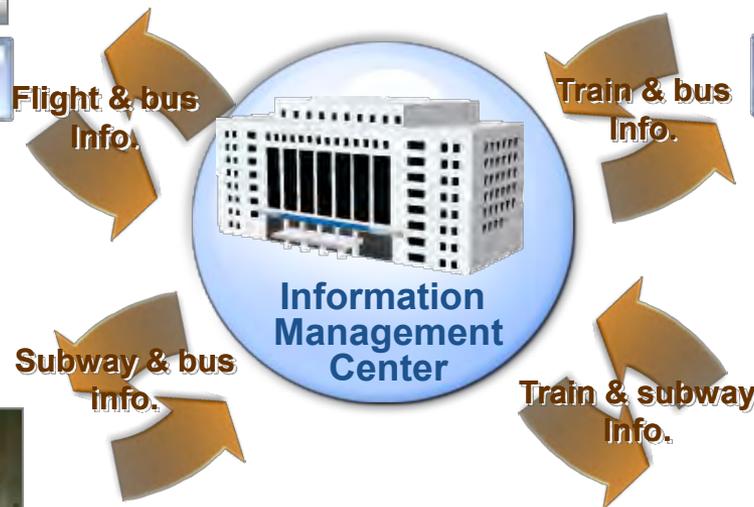
Train station, bus stop



Subway station, bus stop



Train station, subway station



3. Safe Urban Transport

Transportation Safety Act

Transportation Safety Measures

1. Transportation Safety Act

- ❖ First 5-year plan drawn up in 1983, **6th plan (2007-2011) is being prepared**
 - Comprehensive plan that covers safety matters under the authority of 12 different government agencies
 - Finalized upon approval by the Transportation Safety Policy Committee (chaired by prime minister) after deliberations by the Cabinet
- ❖ **Annual Transportation Safety Report** should be submitted to the National Assembly

Expected outcomes

- ❖ Fatalities/10,000 cars: **3.4 in 2005 → 1.9 in 2011**
- ❖ Fatalities: **6,376 in 2002 → 4,350 in 2006**

2. Transportation Safety Measures

① Measures to increase safety belt uses

❖ Recent trend of safety belt use

23% (2000) → 90% (2001) → 86% (2002) → 79% (2003)

Implementation Plan

- ❖ Promote to use safety belt and **enforce** the violation periodically
- ❖ Make **backseat safety** belt use mandatory
- ❖ Reduced insurance benefits for violators (approx. 20%)

2. Transportation Safety Measures

② Drinking & Driving prevention measures

- ❖ There were 31,219 cases of drinking & driving accidents in 2003 with 1,110 dead and 55,222 people injured

Goal & Implementation Plan

- ❖ Periodical enforcement of drunk drivers
- ❖ **Stronger punishment for recurrent violators and drunk driving leading to accidents**
 - Alcohol detecting engine start lock systems or confiscate cars
 - Heavier punishment for drivers with blood alcohol level of 0.1% or higher who cause accidents for crimes of dangerous and fatal driving
 - Implement self-defrayment system where the insurance company has the claim rights for drunk driving causing accidents

IV. Silver Urban Transport

**Act on Promoting Mobility for
the Transportation Vulnerable**

Expanding Convenience Facilities

1. Act on Promoting Mobility for the Transportation Vulnerable

- ❖ Legislated in January 2005
- ❖ **Mandatory requirement** of mobility facilitating installations and stricter regulations
- ❖ **Creating pleasant pedestrian environment** including the designation of pedestrian priority zones



2. Expanding Convenience Facilities

① Supply of low floor buses

- ❖ 50% of all buses will be low floor buses (2004 - 2013)
- ❖ being researched & developed for standard model

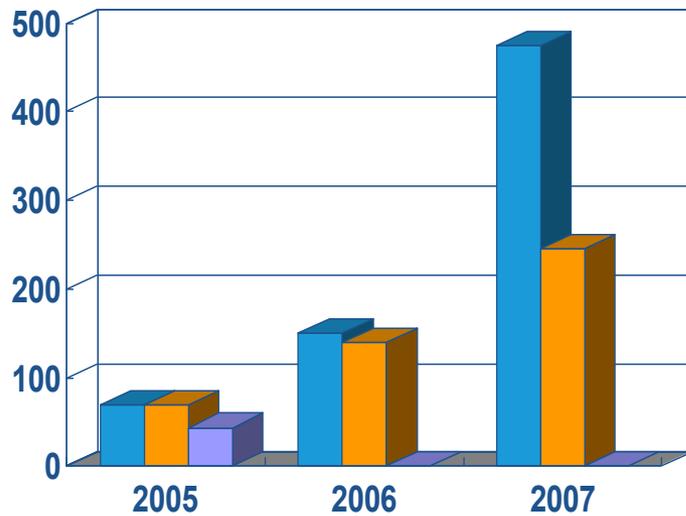
	Total	2004	2005	2006
Total	592	60	162	370
Seoul	347	35	102	210
6 major metropo-litans	235	25	60	150



2. Expanding Convenience Facilities

② Mobility enhancing facilities

- ❖ **694 elevators** and **456 escalators** will be installed from 2005 to 2007
- ❖ **Screen doors** have been installed at new subway stations since 2004



■ Elevators ■ Escalators ■ Wheelchair lifts





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