



**XXIVth World
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Perspectives of ITS on Expressways & Intermodal Transportation in Korea

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**Korea Expressway
Corporation**

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- I** Background and Status
- II** ITS Service
- III** ITS on Expressway
- IV** Intermodal Transportation



Low-cost and high-efficiency smart transport infrastructure enabling scientific and automatic transport operation and management with improved efficiency and safety by combining advanced IT with transport modes and facilities



1.2 Applications of ITS

| Background and Status

Traffic Information

- Providing real-time traffic information through Internet, broadcast, navigation, cellular phone (smart phone), VMS, etc.



Traffic Management

- Carrying out real-time traffic signal control and management in case of emergency such as traffic accident and construction

Signal Control



Traffic management



Safety Management

- Providing real-time CCTV monitoring and warning of misty road and tunnel fire to prevent dangerous driving and encourage safe driving



2.1 Services Provided by ITS



Advanced Traffic Management Service (ATMS)



- Traffic Flow Control Service
- Incident Management Service
- Automatic Traffic Enforcement Service

Electronic Fare Payment Service (EFPS)



- Electronic Toll Collection Service
- Electronic Fare Collection Service

Advanced Public Transportation Service (APTS)



- Public Transportation Information Service
- Public Transportation Management Service

Advanced Traffic Information Service (ATIS)



- Basic Information Broadcasting Service
- Traffic Information Management Coordination Service

Commercial Vehicle Operation (CVO)



- Logistic Information Management Service
- Hazard Material Vehicle Management Service

Advanced Traveler Information Service (TIS)



- Vehicle Traveler Additional Information Service
- Non-vehicle Traveler Additional Information Service

- Safety Driving Support Service
- Automatic Driving Support Service

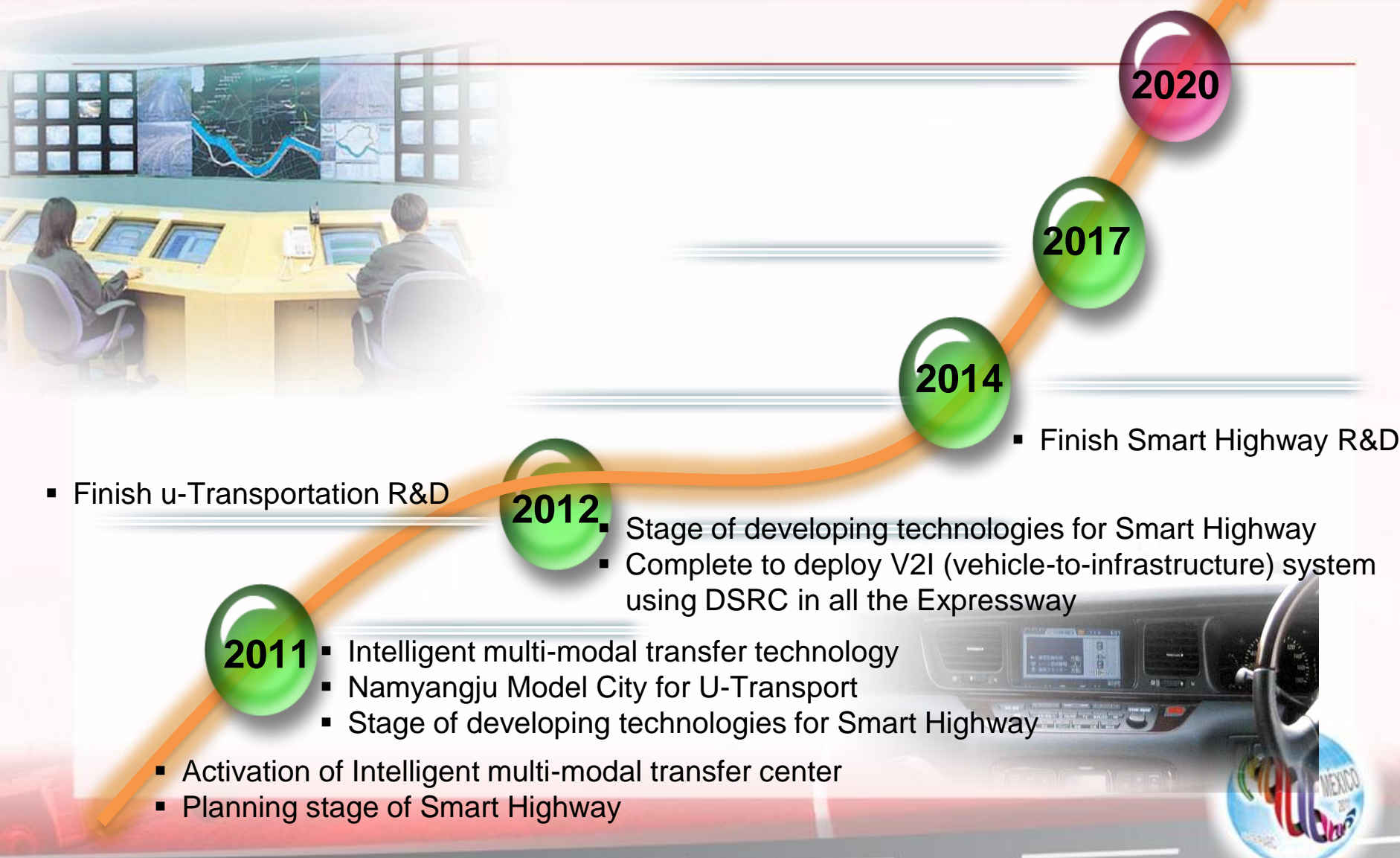
Advanced Vehicle and Highway Service (AVHS)



2.2 The 3rd ITS Nat'l Action Plan

|| ITS Service

Year of Completion



3.1 Expressway Network Plan

2020  **6,000km**

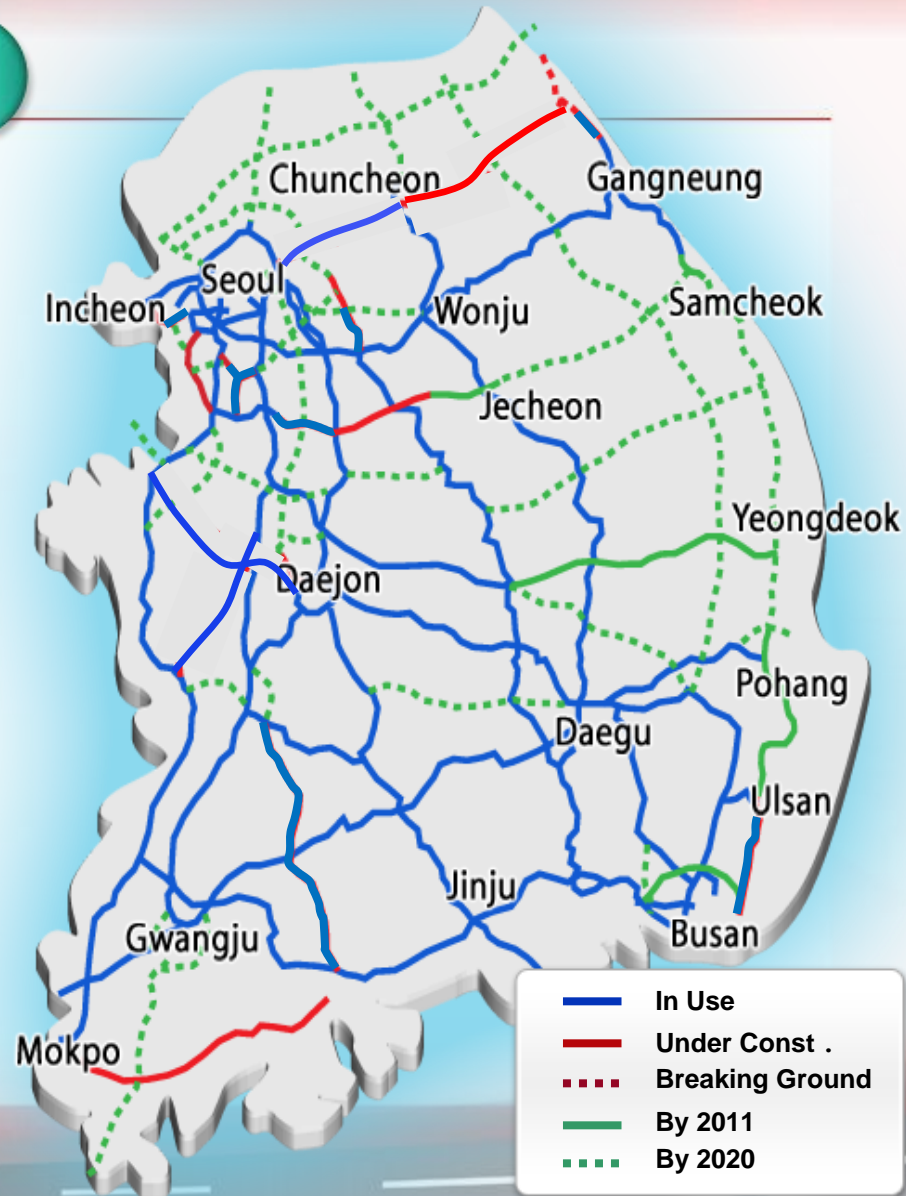
- South - North 7 Axes 2,965km
- East - West 9 Axes 3,035km

2011  **4,013km**

- Mokpo-Kwangyang Including 4 route
- New Exp. 164km

2010  **3,855km**

- Namwon-Junju Including 8 route
- New Exp. 80km



3.2 ITS Plan on Highways

Year 2009

Total ITS installed roadways : 11,969km (14.2%)

- Nat'l Expressway : 3,860km (100%)
- Nat'l Highway & Prov. : 8,109km (10.1%)
- Invested total \$2.11 billion from 2001 to 2010

Operation of Transport Information Center

- Total No. of TIC : 48 (MLTM, Korea Highway Corp. and Local Governments, etc)



Year 2020

Total ITS installed roadways : 21,663km (26.5%)

- Nat'l Expressway : 6,256km (100%)
- Nat'l Highway & Prov.: 15,137km (23.6%)
- Plan to invest total \$1.84 billion from 2010 to 2020

Operation of Transport Information Center

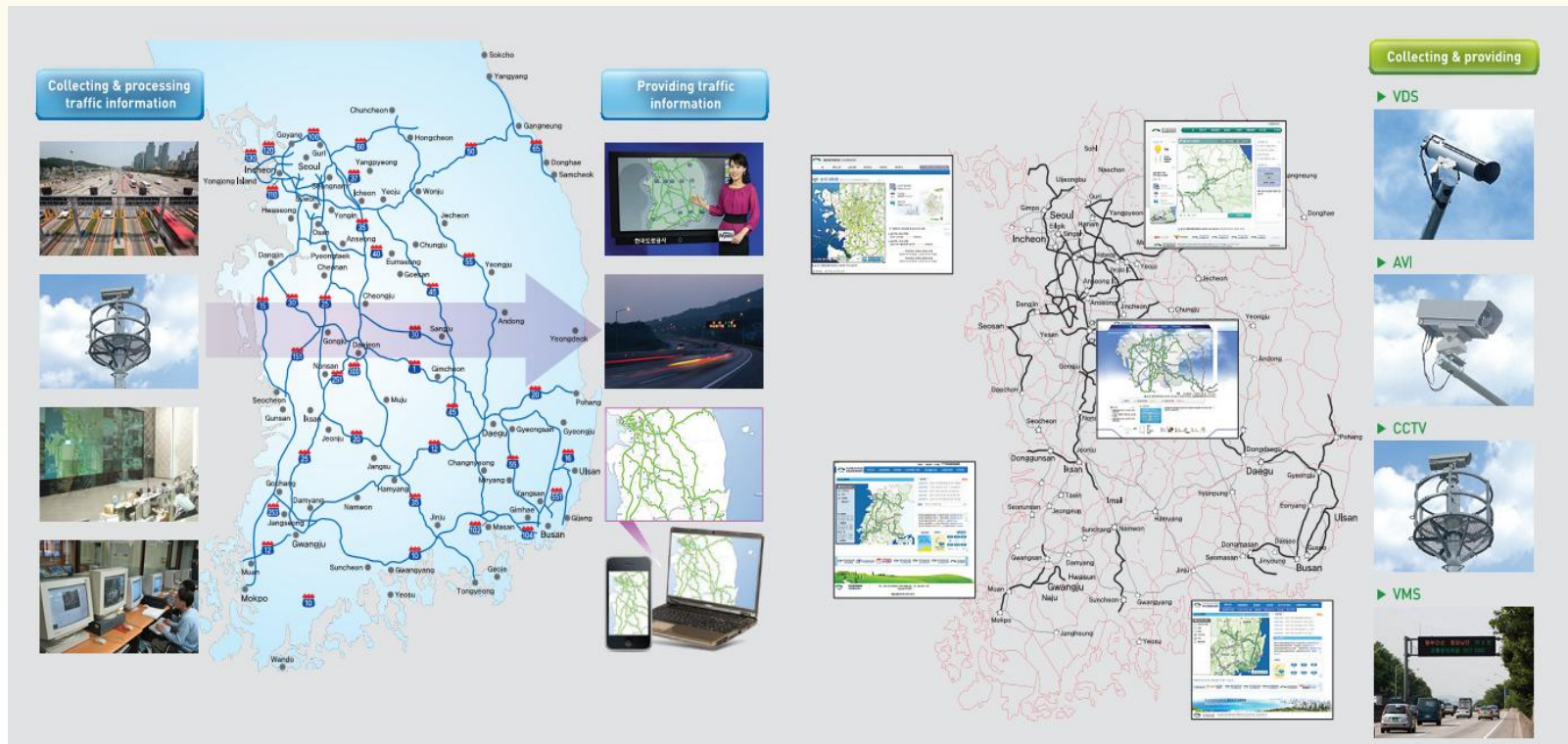
- Expansion of Total No. of TIC : 75 (Local governments of over 100,000 population)



3.3 FTMS & RTMS

- 3,860 km (100% of total 3,860 km) of expressways are ITS equipped
- Traffic information collection , traffic flow management, incident management , traffic information and etc..

- 8,109km (national highways: 2,554 km & provincial roadways 5,555km) of major roadways are ITS equipped
- 5 regional construction management administrations are operating traffic information center in each district.



※ FTMS : Freeway (Expressway) Traffic Management System, EXTMS

※ RTMS : Rural Traffic Management System

Traffic Web-Site

(www.Roadplus.com)

- Integrated Information with Expressway, highways, city streets
- Contents
 - CCTV Images, Traffic Forecasting. etc



Mobile Phone Service

- Departure IC, Arrival IC typing 1588-2504 Sending









Smart Phone App

- Contents
 - Traffic Condition
 - Twitter
 - Car Accidents
 - CCTV Images
 - Location of Gas Station

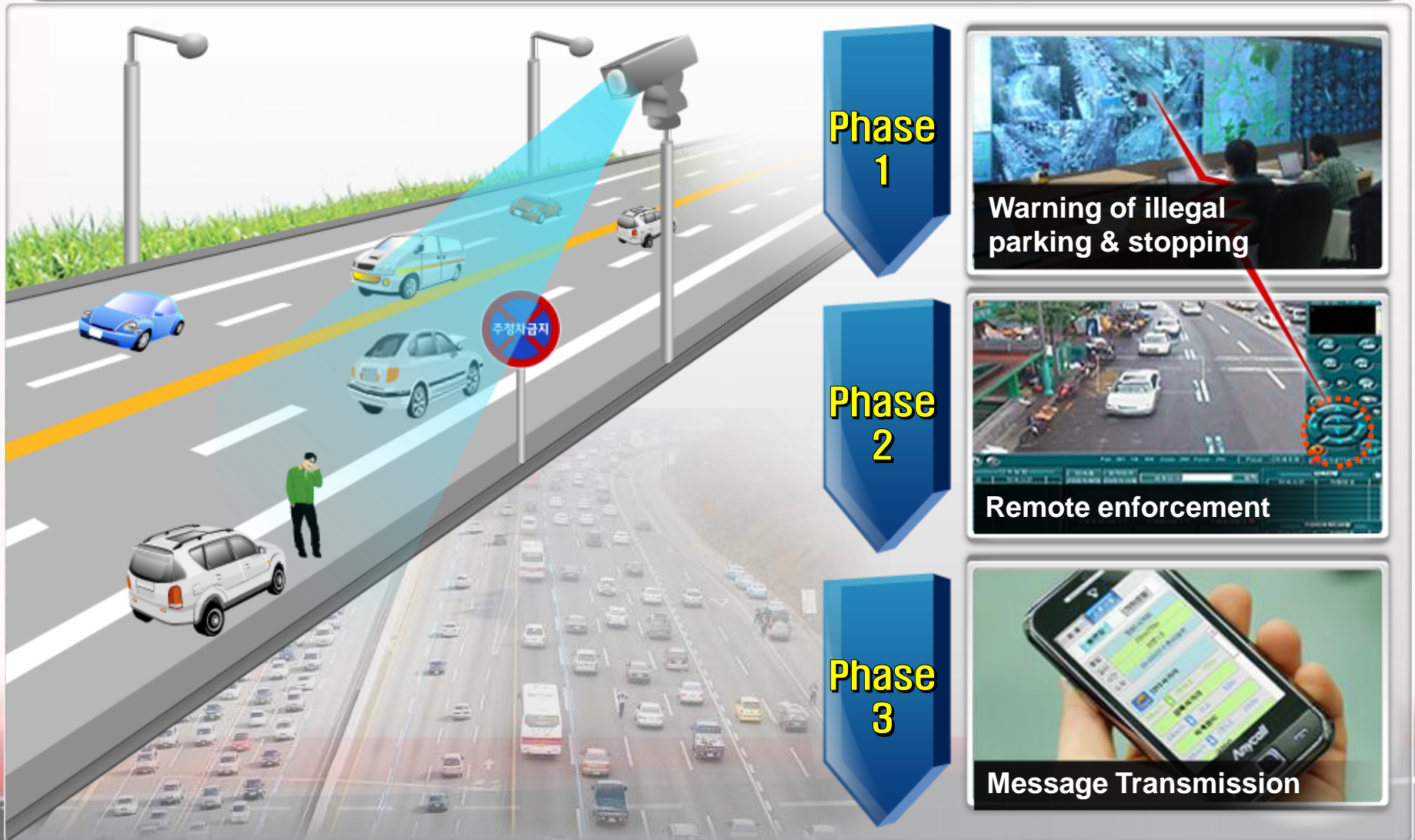


Twitter

(<http://twitter.com/15882504>)

- Operated since 2009
- Followers : 950,000 (including 2nd followers)

- Automated check for violations related to parking and bus exclusive lane using video camera



Generating Social Benefits

- Create annual \$10.7 billion worth social benefits by reduced costs of traffic congestions, accidents and logistics and increase travel speed by 15~20%

Contributing to Low Carbon Green Transport System

- Save 8.26 million liter (6,258 TOE) fuel and decrease 18,000 tons of CO₂/year with ITS installation on 1000km national highways
- Save 8.45 million liter (7,905 TOE) fuel and decrease 23,000 tons of CO₂/year with Hi-pass system on nation-wide toll gates

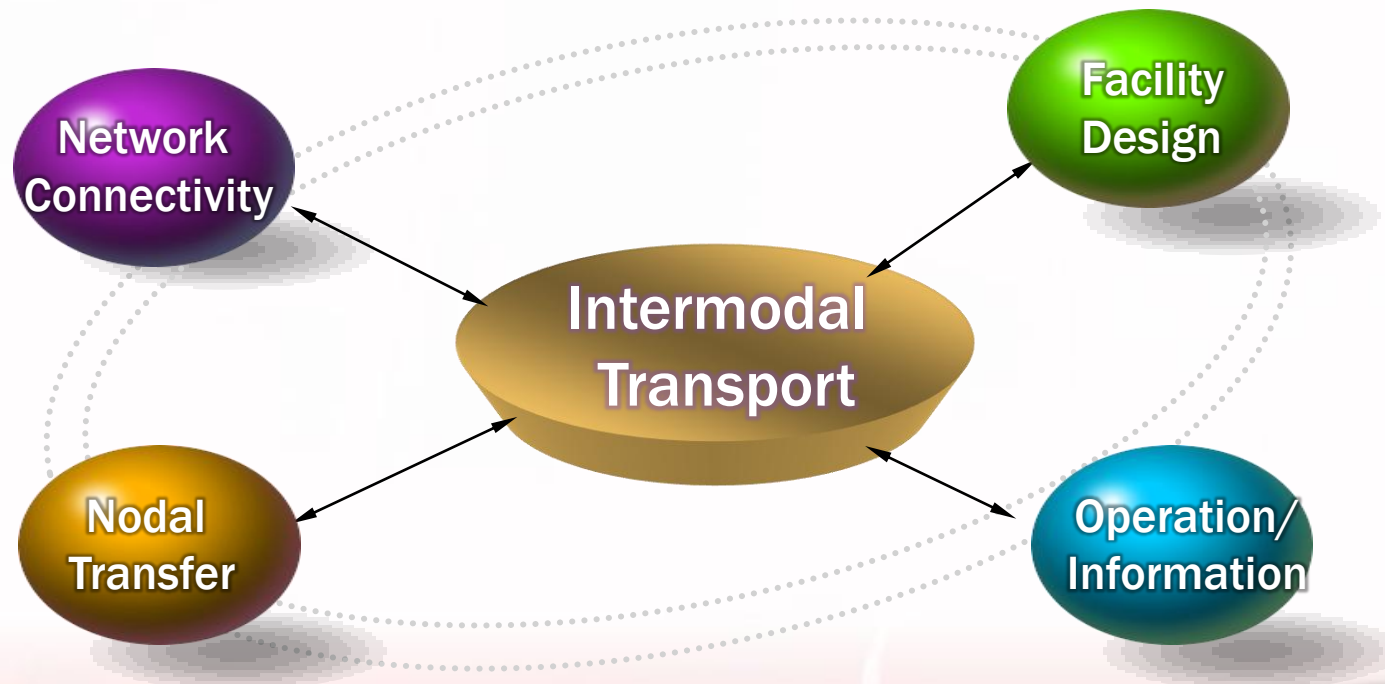
Expanding Growth Potential for Future

- ITS is a fast-growing and promising global industry
- ※ Selected and managed as one of 17 new growth engines in Korea (2009.01.13)



Intermodal Transport

- Providing Seamless Transport service for people and goods from Origin to Destination by Integrating modes and facilities (bicycles, cars, buses, trucks, rail, air, etc.)



Types of Integration

Types	Contents
Infrastructure	Instructure Coordination Between Road, Rail, Seaport, Terminals, Etc.
Scheduling Coordination	Optimal Scheduling Operation of Bus, Train, Airport, Ferry, Etc.
Fare Integration	Integrated Fare Structure and System Coordination
Information Providing	Providing Coordinated Real-Time Travel Information Such as Bus, Rail, Airplane , Ferry, Etc.



Best Practices

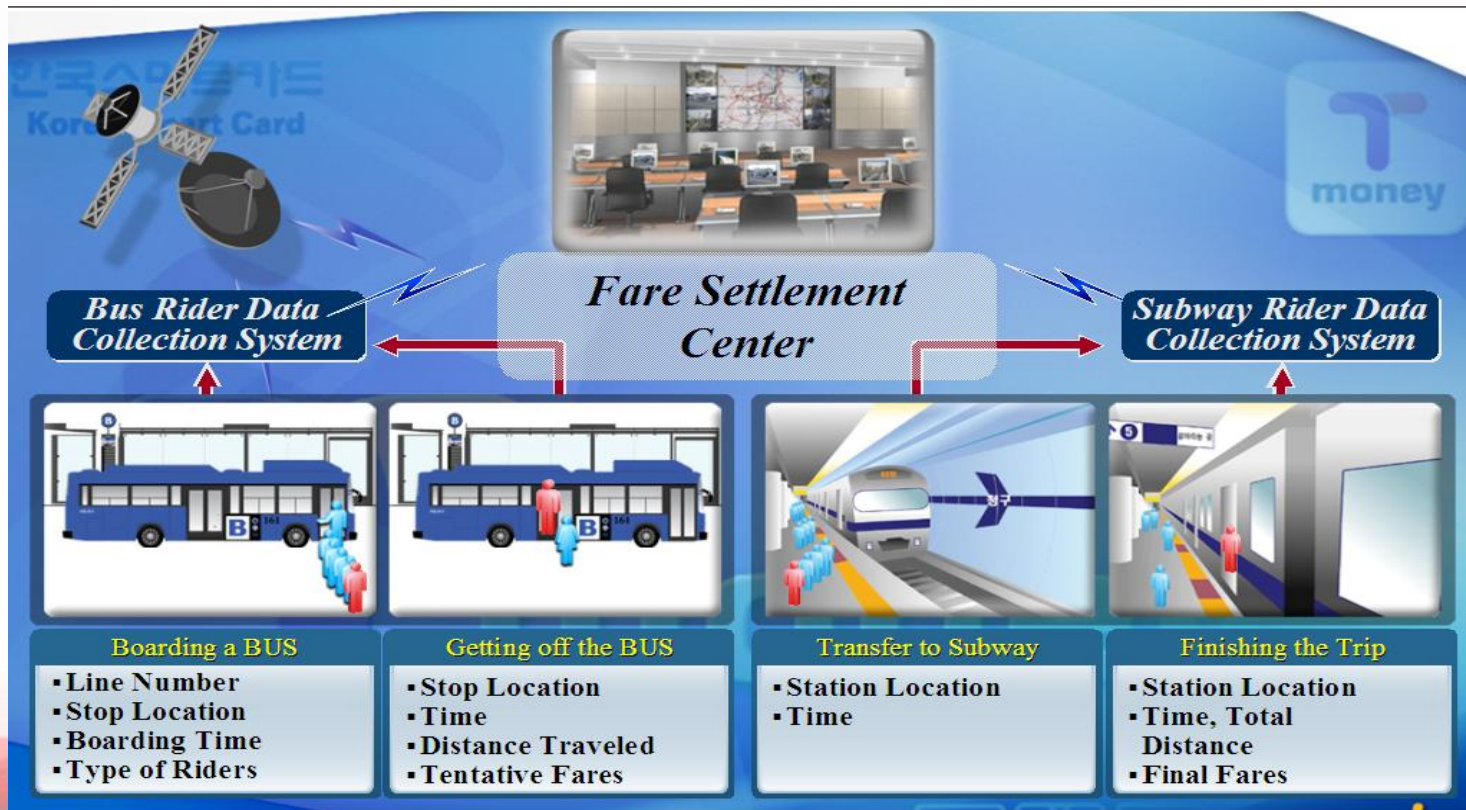
- One Card All Pass
: Seoul Metropolitan Area & Major Cities
- Seoul Station
: Intermodal Transfer Facility Design
- IIA Access Transport
: Nationwide Limousine Bus, KTX Network Connection
- Expressway Service Area Bus Transfer



One Card All Pass

Reforming Public Transport in 2004

- Available to All Modes
- Admitting Free Transfers



Seoul Station

■ Transport Modes

- Subway line 1 & 4
- KTX (high speed rail)
- Gyeonggi Line
- Airport Railroad
- Bus : 99 Routes



<Before>

■ Transfer Center (July, 2009)

- New Bus Rapid Transit
- Connecting all modes & easy access : buses, subways, taxis, and railways



<After>



IIA Access Transport

IIA Access Modes

- Airport Railroad
- 119 Bus Routes

Mode Share

Mode	Modal Share(%)
Auto	23.1
Taxi	6.7
Limousine Bus	55.7
Bus	8.6
Rail	5.9

Feature

- Nation-wide Limousine Bus Network
- KTX Operation to IIA by 2014



4.3 Best Practices (cont'd)

IIA Access Transport

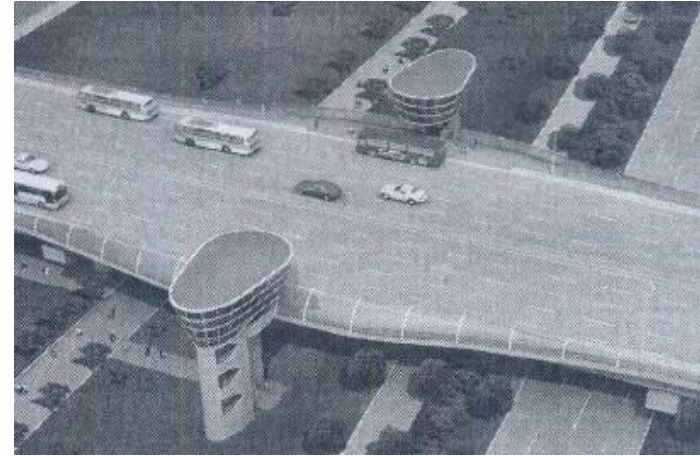


Expressway BRT

- Gyeongbu(Seoul-Busan) Expressway Since 2008
- Section : Hannam Bridge of Seoul ~ Osan IC (44.8km)
- Operation time : 07:00 ~ 21:00 (14 hour), Monday-Sunday
- Others : 9 or more seats passenger cars or vans, bus
(6 or more persons on board needed)



Expressway Service Area Bus Transfer



< Bus Transfer Stop Plan in Seoul Ring Road >

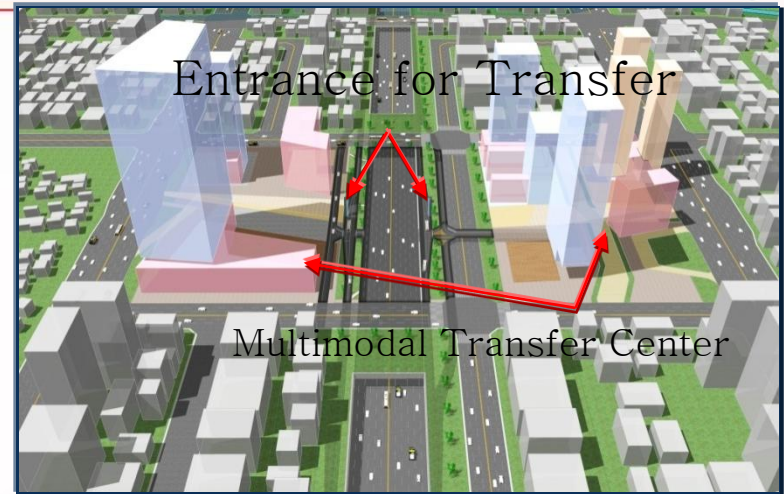


<Bus Transfer at 3 Expressway Service Area>



- **Direct Transfer between Expressway & KTX**

- Direct Access from Gyeongbu Expressway to KTX Dongtan Station at Transfer Center Located near Expressway
- Direct Access from Gyeongbu Expressway to KTX Ulsan Station at Transfer Center Located near about 1 Km from Expressway by Transfer Bus



Thank You
Gracias !!!

