

**Regional Seminar on Safe, Climate Adaptive and Disaster Resilient  
Transport for Sustainable Development  
Nov. 17<sup>th</sup>, Seoul**

# **Rural Road Safety Policy in Korea: Lesson Learned**

**Sangjin HAN**  
**Korea Transport Institute**

# Contents

---

- 1. Trends of road safety in Korea**
- 2. Main findings from crash statistics (2013)**
- 3. Village Zones in National Highway**
- 4. Sidewalks along National Highways**
- 5. National Road Safety Plan (2012~2016)**
- 6. Some reasons of high road fatalities**
- 7. Success stories in Korea**

# 1. Trends of road safety in Korea

- The number of fatalities peaked at 13,429 in 1991.
- Halved this number in 2004 reaching at 6,563.
- It has shown steady decrease so far, now it is 4,762 in 2014.
- Road accident costs: 38 trillion KRW (38 billion USD) → 1.5% of GDP

Year	Crashes	Fatalities	Causalities
2012	223,656	5,392	341,391
<b>2013</b>	<b>215,354</b>	<b>5,092</b> <b>(‘14: 4,762)</b>	<b>328,711</b>

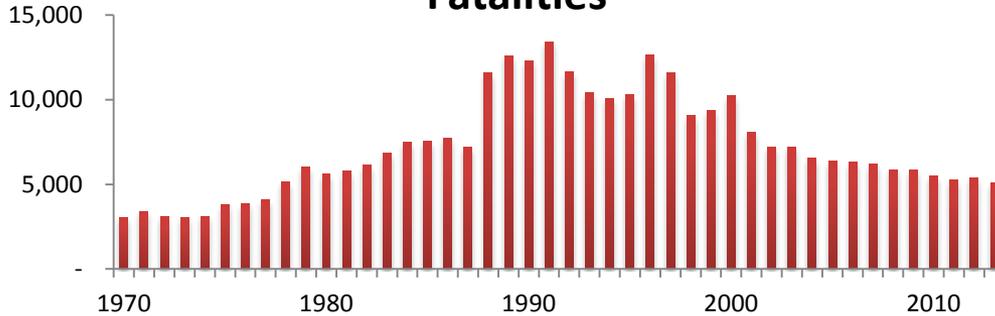
\* 50.2 million population

\* 19.4 million registered vehicles

\* 106,414 km road length (4,111km of motorway)

# 1. Trends of road safety in Korea

## Fatalities

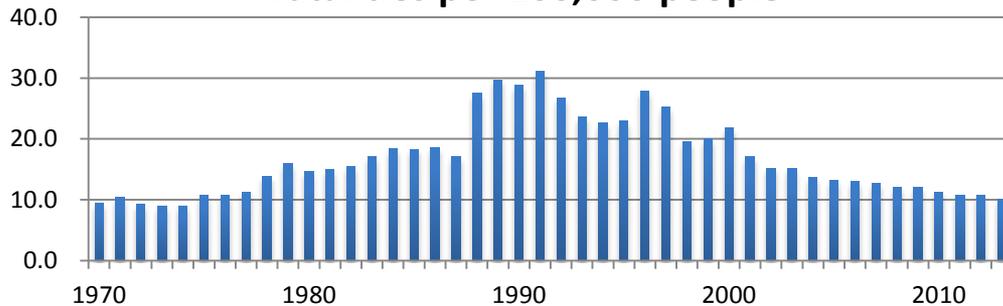


Fatalities per day: 13.95

Fatalities per month: 422.3.

\* Fatalities and missing people from Sewol ferry: 304

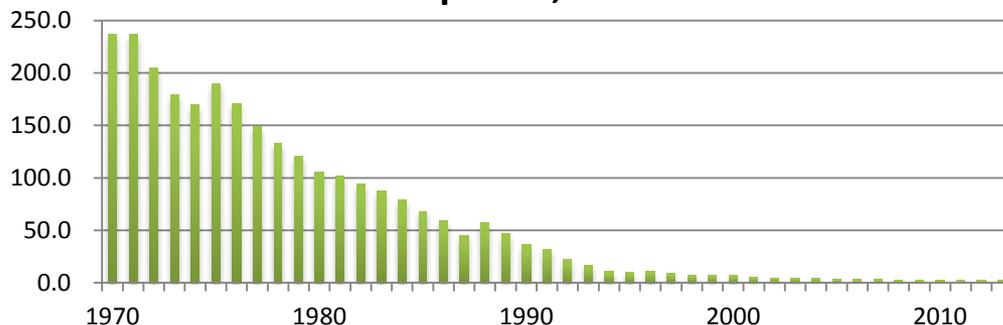
## Fatalities per 100,000 people



Fatalities per 100,000 people:

10.1 (OECD average is 6.8)

## Fatalities per 10,000 vehicles



Fatalities per 10,000 vehicles:

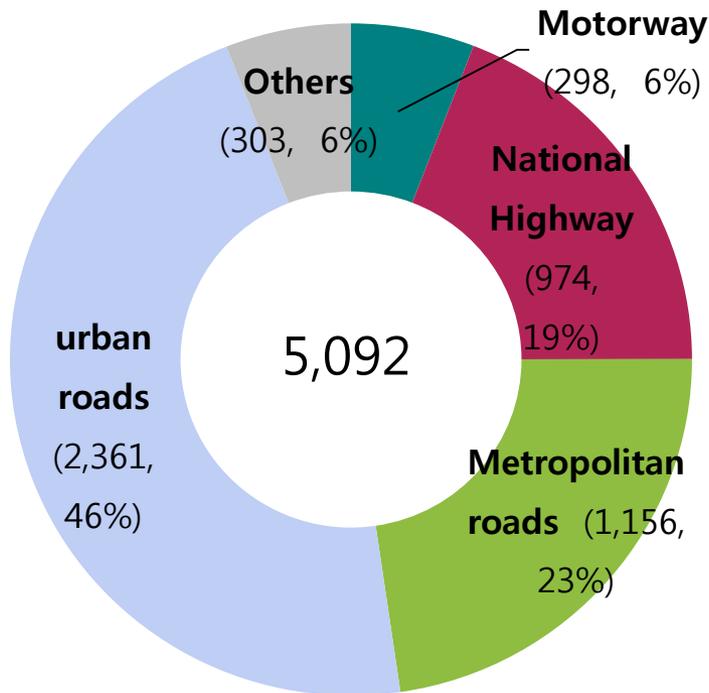
2.2 (OECD average is 1.2)

## 2. Main findings from crash statistics (2013)

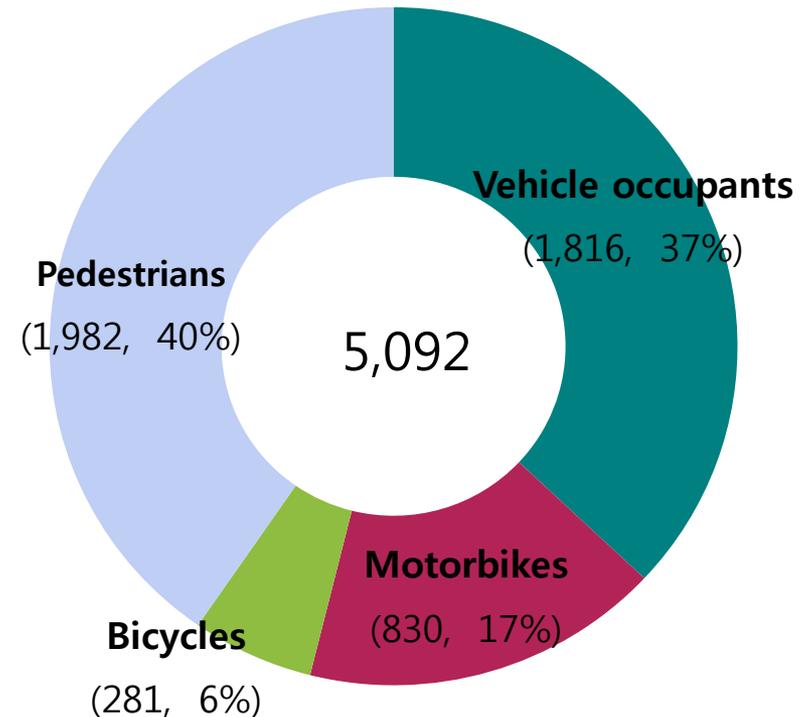
More than 70% of fatalities occurring in urban roads

Pedestrians represent 38.9% of total fatalities

Fatalities by road types

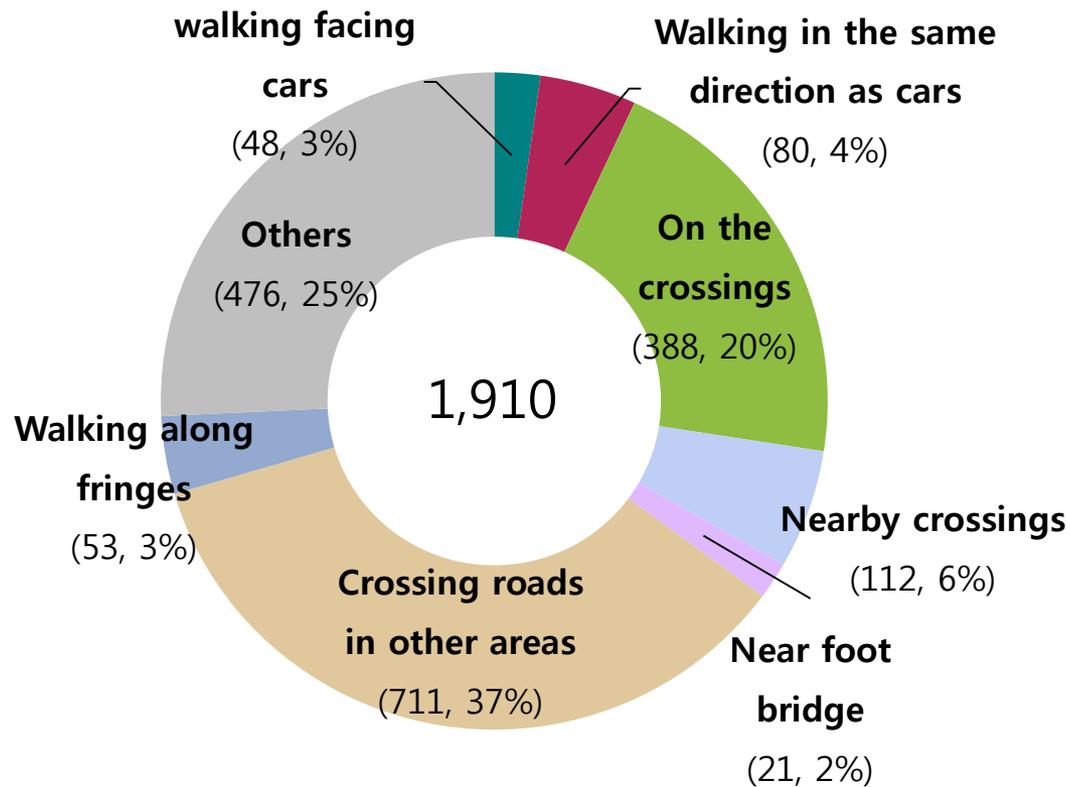


Fatalities by road users



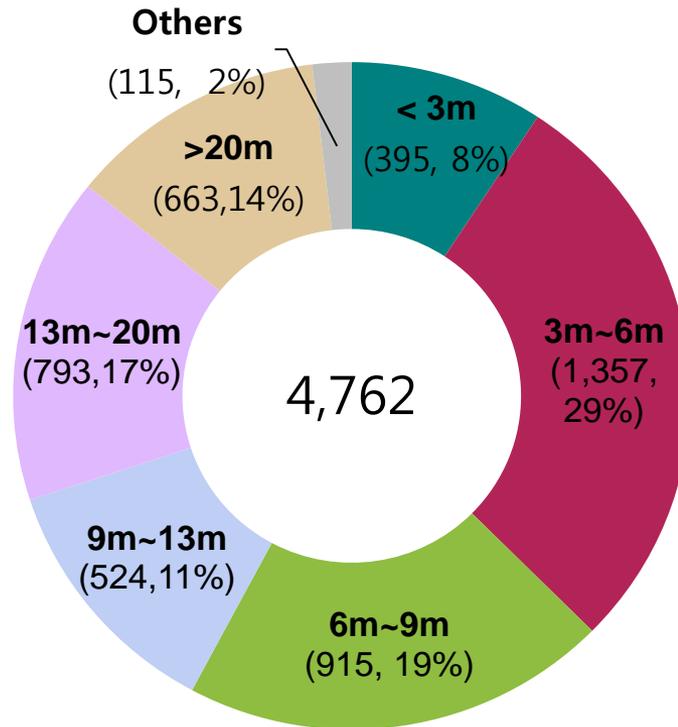
## ■ 64.5% Hit by Cars while Crossing Roads (2014)

### Pedestrian fatalities

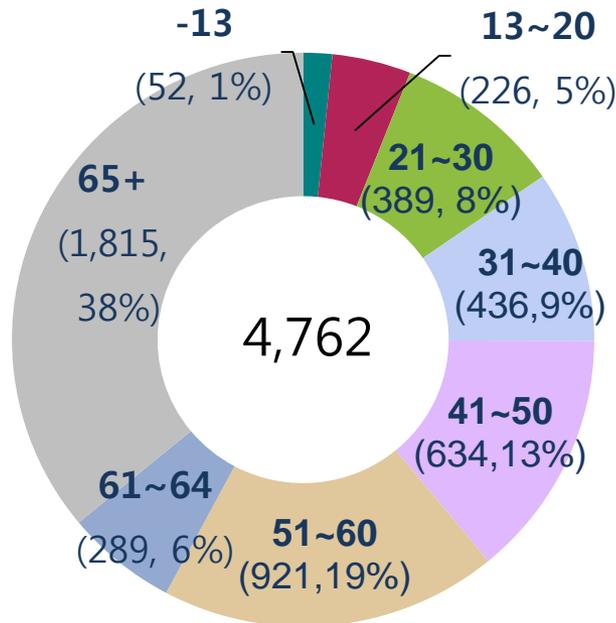


- 56% of fatalities occurs in road width less than 9m (2014)

## Fatalities by road width



- 38% of fatalities occurs in the age group over 65 (2014)



- Age group over 65 accounts for only 12.7% of the population

- 48% of pedestrian fatalities occurs in the age group over 65

- Pedestrian fatalities is 1,910
- Pedestrian fatalities over 65+ is 919

## 2. Main findings from crash statistics (2013)

---

### Implications of crash statistics

- Need to reduce pedestrian fatalities at crossings and narrow roads
- Need to reduce fatalities of the olds
- Need to reduce fatalities in junctions

☞ Pedestrian priority zones (Zone 30) in villages

☞ Sidewalks in roads around high land use

☞ Safe crossings facilities

☞ Road safety educations for the olds

☞ Roundabouts in junctions

# 3. Village Zones in National Highway

## Typical Problems in Rural Roads in Korea

**Less sidewalks**

**Less crossings**

**Less lights**

**High Speed all the way**

**Less Consideration for People in Highway Design**

Children to school

Farmers (walking late but drunken)



Source: <http://blog.jinbo.net/nongbu/tag/%EB%A7%88%EB%9F%89%ED%95%AD>

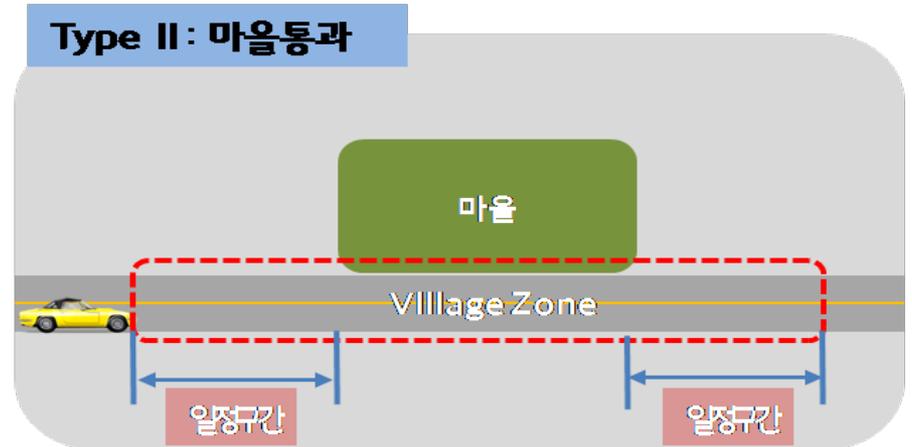
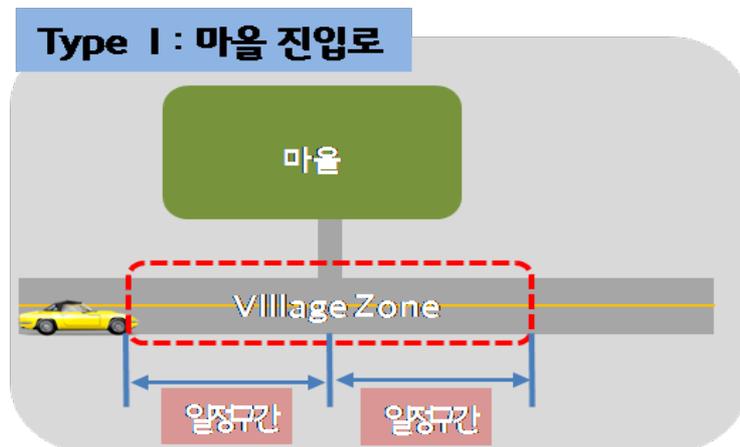
### 3. Village Zones in National Highway

#### Why?: High fatality Rate in crashes occurred in National Highways

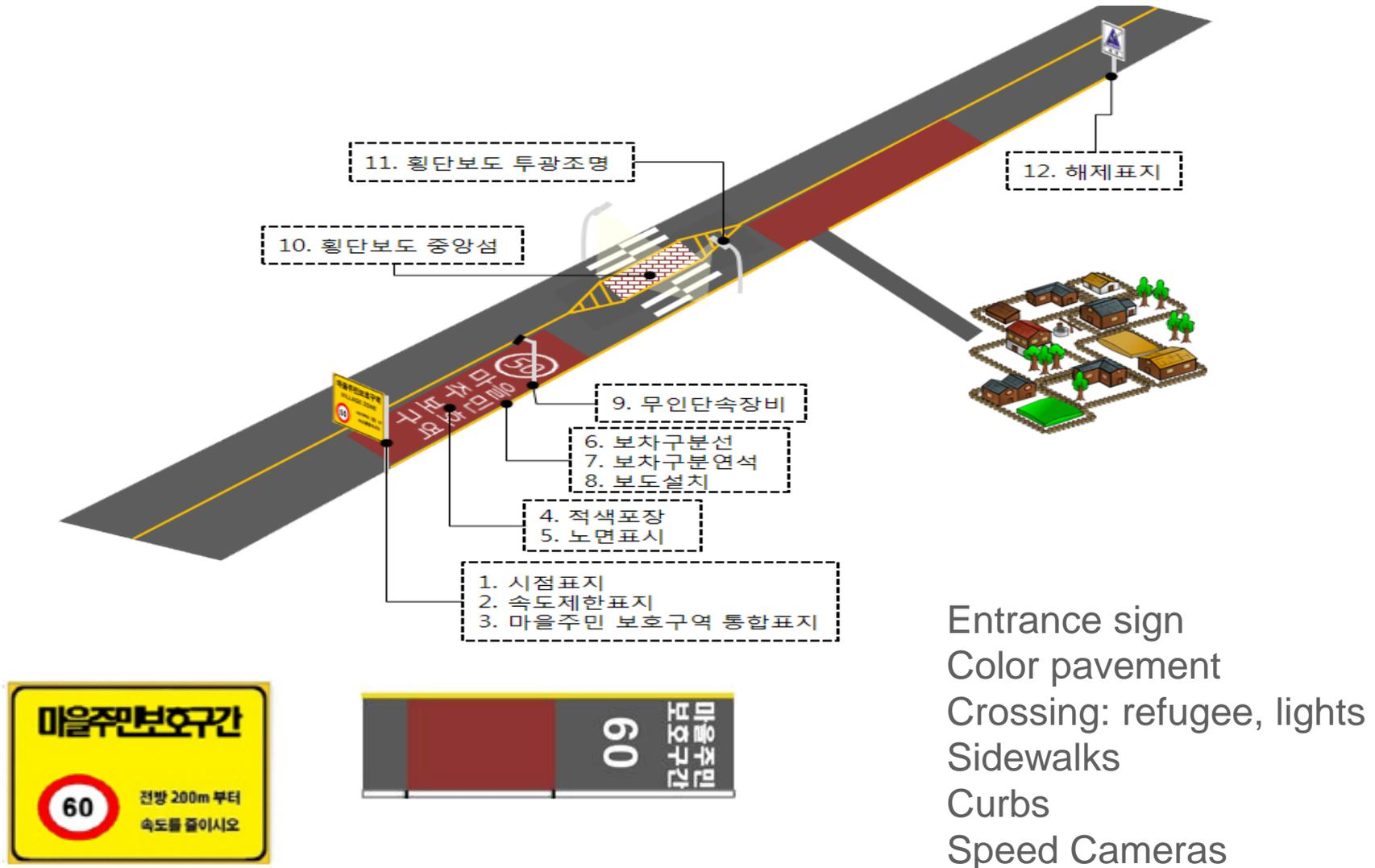
fatalities/pedestrian crashes (National Highway) =13.4%  
3 times higher than the average

#### How?: Speed Reduction Measures around Villages along NH

80km/h → 60 or 70km/h  
Particularly before and after village (100 m)



# 3. Village Zones in National Highway



# 3. Village Zones in National Highway

## Pilot Studies

Counties	Gapyong	Youngam	Hogngsung	Chilgok	Uljoo
Sections and Length	3 sections 3.10km (NH 46, 37)	2 sections 2.43km (NH2, 13)	2 sections 1.35km (NH 21, 29)	3 sections 3.40km (NH 4, 5)	4 sections 1.97km (NH14, 35)
No. of crashes	88	62	26	116	57
Main counter-measures	Crossings Lights Railings	Junction layout Warning signs	Junction Lights Sidewalks Markings	Crossings Signals	Junction closure Taxi bay
	All includes entrance signs, speed limits signs, speed cameras, and red pavement				

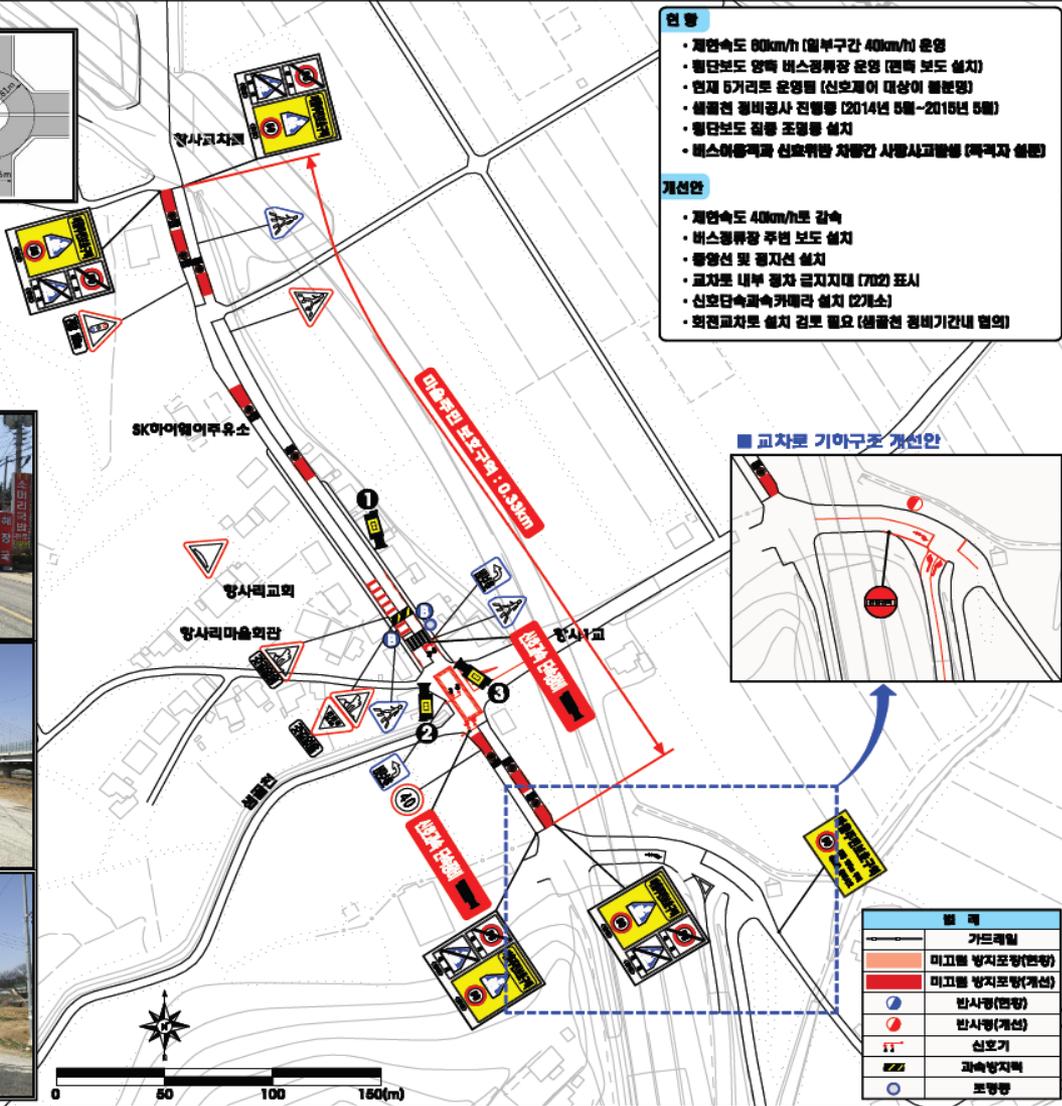
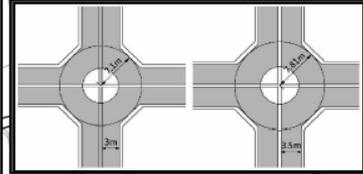
## Expectations

380 savings in pedestrian fatalities  
 USD 190 billion savings

# 3. Village Zones in National Highway

## 가평군-국도37호선-항사교차로

### ■ 상할도순형 회전교차로 (악사도)

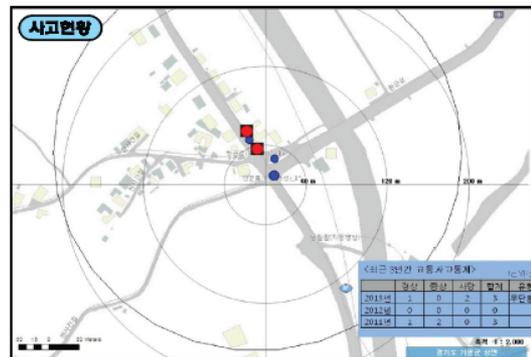


- 현황**
- 제한속도 80km/h (일부구간 40km/h) 운영
  - 횡단보도 양측 버스정류장 운영 (전측 보도 설치)
  - 인제 5거리로 운영됨 (신호제어 대상이 불분명)
  - 생활권 정비공사 진행중 (2014년 5월~2015년 5월)
  - 횡단보도 좌측 조명등 설치
  - 버스이동구역과 신호위반 차종간 사망사고발생 (적극적 설문)

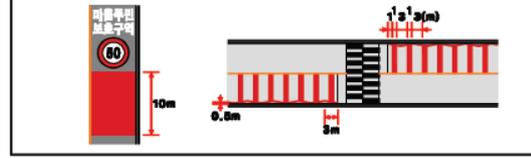
- 개선안**
- 제한속도 40km/h로 감속
  - 버스정류장 주변 보도 설치
  - 동양선 및 경지선 설치
  - 교차로 내부 경차 금지지대 (70%) 표시
  - 신호단속과속카메라 설치 (2개소)
  - 회전교차로 설치 검토 필요 (생활권 정비기간내 협의)



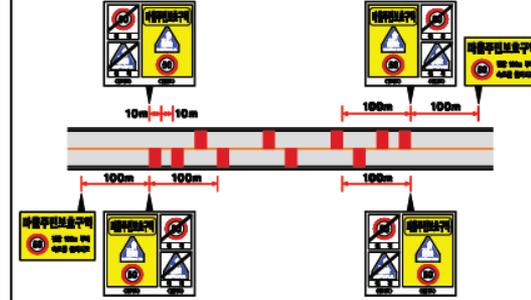
색상	내용
Blue	가드레일
Orange	미끄럼 방지포장(현황)
Red	미끄럼 방지포장(개선)
Blue circle	반사경(현황)
Red circle	반사경(개선)
Red 'X'	신호기
Red 'Z'	과속방지턱
Blue circle	보행랑



### ■ 적색 미끄럼방지 포장 및 노면표시, 지그재그 설치 예시도



### ■ 통합표지판 설치 예시도



## 4. Sidewalks along National Highways



### Success of 1<sup>st</sup> Sidewalk Installation (05~07)

'04: 823 fatalities → '07: 619 fatalities

### Success of 2<sup>nd</sup> Sidewalk Installation (08~14)

371km (USD 121.6 billion)

Source:  
<http://blog.jinbo.net/nongbu/tag/%EB%A7%88%EB%9F%89%ED%95%AD>

### Around School and Villages



[http://www.nsineews.net/Gosung/contents/cat2\\_2\\_00/18719](http://www.nsineews.net/Gosung/contents/cat2_2_00/18719)

# 5. National Road Safety Plan (2012~2016)

## Main strategies and actions

Strategies	Areas	Actions
Improvement of road user behaviours	Better safety for school routes	<ul style="list-style-type: none"> <li>· Walking school bus</li> <li>· Registration of school buses</li> <li>· Child car seat enforcement</li> </ul>
	Children - oriented road safety education	<ul style="list-style-type: none"> <li>· Development of education textbooks</li> <li>· Increase of road safety classes</li> <li>· Promotion of road safety instructors</li> </ul>
	Better safety for the olds	<ul style="list-style-type: none"> <li>· <b>Self-diagnosis manual for the olds</b></li> <li>· Education program for the olds</li> <li>· Provision of the old-friendly cars</li> </ul>
	Enforcement on drink driving	<ul style="list-style-type: none"> <li>· Reinforcement on BAC level</li> <li>· <b>Installation of ignition interlock device</b></li> <li>· Increase of penalties for violation</li> </ul>
	Improvement in insurance policy	<ul style="list-style-type: none"> <li>· Premium reduction for cars with safety equipment</li> <li>· Differentiation of premiums by regions</li> <li>· More responsibility to rental car drivers</li> <li>· <b>Distance based insurance</b></li> </ul>
	Working hour limit for commercial vehicle drivers	<ul style="list-style-type: none"> <li>· Research on working hours per day for various types of drivers</li> <li>· Amendment of Labour Act</li> </ul>
	More education and promotion	<ul style="list-style-type: none"> <li>· <b>Passing priority at unsignalised junctions</b></li> <li>· More TV advertisements</li> <li>· Road safety experience centre</li> </ul>

# 5. National Road Safety Plan (2012~2016)

## Main strategies and actions

Strategies	Areas	Actions
Provision of safe transport infrastructure	Safe and comfortable pedestrian space	<ul style="list-style-type: none"> <li>· <b>Sidewalks for roads in residential areas</b></li> <li>· More pedestrian priority zones</li> <li>· LED lights over pedestrian crossings</li> </ul>
	Special zones for vulnerable road users	<ul style="list-style-type: none"> <li>· <b>Silver zone increase</b></li> <li>· More safety facilities for the disabled people</li> </ul>
	Better safety facilities	<ul style="list-style-type: none"> <li>· <b>Installation of signal posts before junctions</b></li> <li>· Safety improvement at entrance to villages</li> </ul>
	Area-wide road safety improvement	<ul style="list-style-type: none"> <li>· <b>Designation of pilot road safety cities</b></li> </ul>
	Bicycle safety	<ul style="list-style-type: none"> <li>· Better cycle paths and education</li> </ul>
	Sharing road safety information	<ul style="list-style-type: none"> <li>· National road safety data sharing system</li> <li>· Sharing in-depth crash investment data</li> </ul>
Operation of smart transport system	Advanced safety assistance equipment	<ul style="list-style-type: none"> <li>· Introduction of various sensors, alarms, and occupants protections to reduce vehicle to vehicle accidents</li> </ul>
	Safety equipment for commercial vehicles	<ul style="list-style-type: none"> <li>· More installation of maximum speed limiters and digital tachometers</li> </ul>
	Meeting global standards in vehicle safety	<ul style="list-style-type: none"> <li>· More testing areas in NCAP</li> <li>· Life-cycle management for motorbikes</li> <li>· Safety standards for Green Cars</li> </ul>

# 5. National Road Safety Plan (2012~2016)

## Main strategies and actions

Strategies	Areas	Actions
Enforcement of safety management system	Speed management for people	<ul style="list-style-type: none"> <li>· <b>60km/h limit for minor arterial roads</b></li> <li>· 30km/h speed limit in residential areas</li> </ul>
	Scientific investigation of accident causes	<ul style="list-style-type: none"> <li>· More in-depth investigation on major crashes</li> <li>· Introduction of <b>Korea Road Assessment Program</b></li> </ul>
	Safer logistics systems	<ul style="list-style-type: none"> <li>· Information system for hazardous materials movement</li> </ul>
Enhancement of emergency response system	Emergency response by areas	<ul style="list-style-type: none"> <li>· <b>e-Call system</b></li> <li>· Emergency routes along congested areas</li> <li>· Emergency response by helicopters</li> </ul>
	Weather information system	<ul style="list-style-type: none"> <li>· <b>Provision of weather forecasts along roads</b></li> </ul>

☞ Good plans, and need evaluation what has been done, what is not and why?

## 6. Some reasons of high road fatalities

- Culture of “**Hurry-Hurry**”: Good for IT, Bad for road safety
- Some **drivers never understand** what is safe or dangerous driving behaviour.
- Some **reckless pedestrians** cross roads without care.
- **Generous to alcohols**
- Common to come across **wide junctions** particularly in new town.
- **Sidewalks are not found in rural highways** in certain sections.
- **Speed limit in urban areas is set at 60km/h (80km/h)**
- **Parking cars hinder** sight distance of drivers



## 6. Some reasons of high road fatalities

- **No change in traffic signal times.** It causes **speeding.**



- **Low penalty fines** or demerit system

\* this money is not used for road safety



- **No road safety program for high schools**



- The **priority of road safety is still very low for most local governments.**

- **The law not to prosecute people who caused accidents** if they are not caused from major violations

# 7. Success stories in Korea

## Child road safety

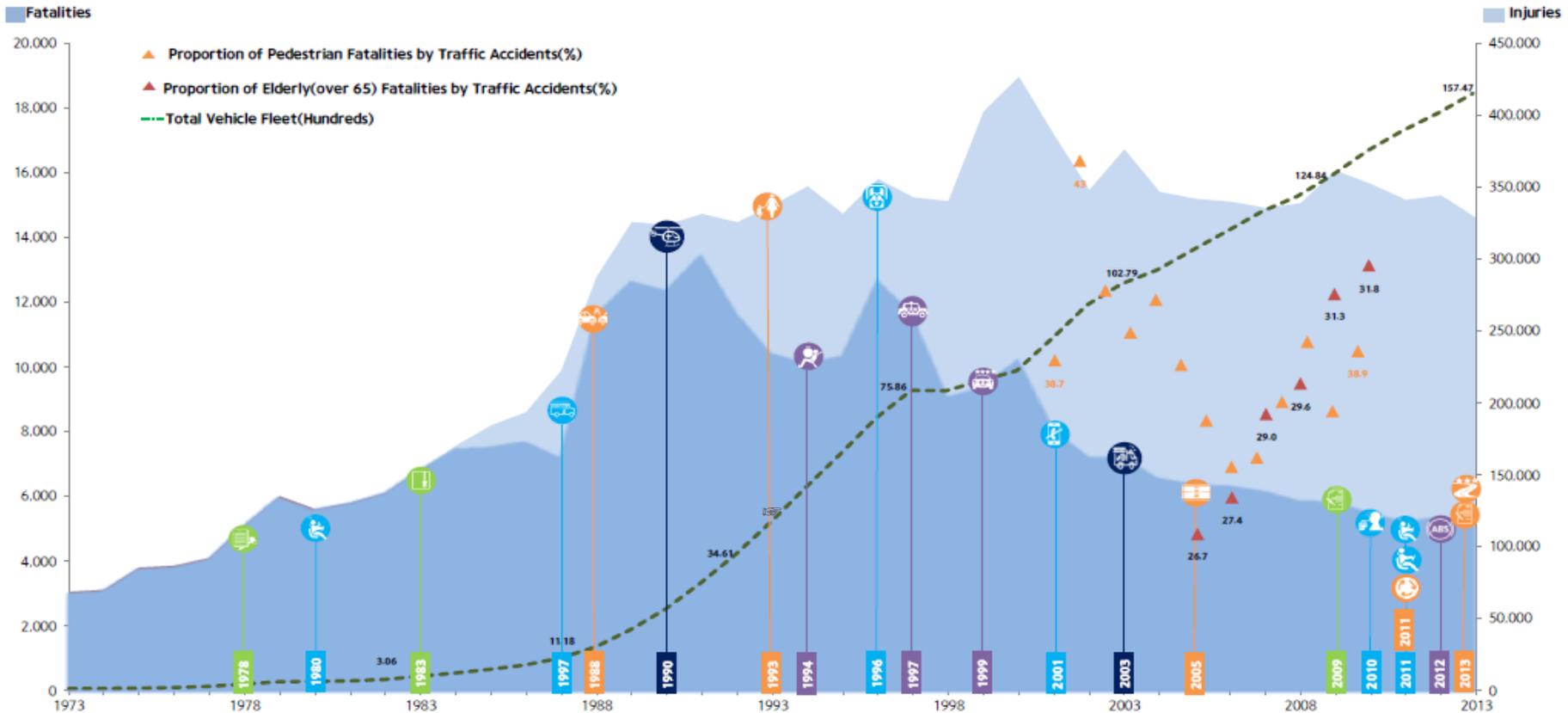
- Child road fatalities from 1,776 to 82 (**-95%**) between 1988 and 2013.
- **9,021 School Zones** spending 1,456 billion KRW (2003~2012)
- 30km/h speed limit and parking prohibition in School Zones.
- '**Green Mothers Organization**' to help children crossing roads

## Black box installation for cars

- More than **2 million cars** with black boxes (2012)
- Can be an **evidence when crash occurs** (reduce disputes)
- Fatalities from taxis have been reduced by more than 15%
- **B/C ratio** should be around **1.7** if all cars install black boxes
- Car insurance companies **reduce insurance premiums** by 3 % to 5%



# History of Road Safety Policy in Korea



## Laws for Road Safety



- 1961 Road Act
- 1961 Road Traffic Act
- 1978 Traffic Safety Act
- 1983-1986 1st Basic Plans for National Traffic Safety
- 2012-2016 7th Basic Plans for National Traffic Safety
- 2009 Basic Plans for Regional Traffic Safety

## Road Users



- 1961 Driver's licence for motorcycles (over 17 years old)
- 1980 Enforcement for drinking driving
- 1989 Mandatory seat belt wearing in front seats
- 1996 Mandatory use of child seat
- 1997 Special protection for children buses
- 2001 No use of mobile phones while driving
- 2001 Cancellation of driver's license for drink driving 3+
- 2010 Limit of BAC 0.05% for driving
- 2011 Mandatory seat belt wearing in rear seats on motorways
- 2012 Mandatory seat belt wearing for commercial vehicles (except urban buses)
- 2014 Examination of driving ability for commercial vehicle drivers over 65
- 2015 Mandatory seatbelt wearing in all roads

## Vehicles



- 1994 Introduction of air bag (New Grandeur, Hyundai)
- 1996 Installation of ABS for all heavy vehicles
- 1997 Installation of digital tachometers for all commercial vehicle
- 1999 Introduction of New Car Assessment Program
- 2012 Mandatory installation of ABS for all motor vehicle
- 2012 Mandatory installation of BAS for passenger cars

## Road Infrastructure



- 1988-2014 Black Spot Improvement Program
- 1993 Designation of Children Protection Areas
- 2004 Designation of Silver Zones
- 2005 Designation of Pedestrian Priority Zones
- 2008 Road Safety Inspection for roads becomes obligatory
- 2010 Design manual for 2+1 roads
- 2011 Design manual for roundabouts
- 2013 Korea of Road Assessment Program

## Emergency Rescue Service



- 1961 Priority for emergency vehicles
- 1990 Rescue people using police helicopters
- 2003 Priority for firefighters