History of Traffic Safety Measures: Relevant Legislation, Organization and Policy

November 27, 2012
Current Traffic Accident Conditions in Japan
The "Traffic War," led by post-war motorization, became a social problem with fatalities reaching a record high of 16,765.

Since 1993 fatalities have decreased, while both fatal/injury accidents and fatalities/injuries increasing until 2004 and then taking a downward turn from 2005.

**Change in traffic fatalities and fatalities/injuries**

Note: the numbers exclude Okinawa Pref. before 1971.
◆2/3 of traffic fatalities take place on arterial roads
◆Half of the fatal and injury accidents occurred on residential roads

**Traffic accidents by road type**

<table>
<thead>
<tr>
<th>Road Type</th>
<th>Length (km)</th>
<th>Fatalities</th>
<th>Fatalities/Injuries</th>
<th>Fatal/Injury accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential roads</td>
<td>1,017,905</td>
<td>1,572</td>
<td>418,141</td>
<td>354,362</td>
</tr>
<tr>
<td>Arterial roads</td>
<td>3,094</td>
<td>418,141</td>
<td>354,362</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>181,259</td>
<td>3,094</td>
<td>354,362</td>
<td>15%</td>
</tr>
</tbody>
</table>

※Road length : as of April 1st 2010
※Fatal and Injury accidents : as of 2010
※Fatalities and Fatal/Injuries : as of 2010
※Arterial roads : National Highways, Principal Regional Roads, Prefectural Roads
※Residential Roads : Municipal Roads, and other roads other than “public roads” determined in the Road Law such as farm roads and private roads

Data from Annual Report of Road Statistics and ITARDA
Compared to arterial roads, residential roads
- have 2.4 times higher fatal/injury accident rates → Higher chance of accident
- have 1/6 accidents per length → Harder to narrow down the hot spot

Traffic accidents by road type (2009)

<table>
<thead>
<tr>
<th>Fatal/injury accidents</th>
<th>Accidents per km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arterial roads</td>
<td>Residential roads</td>
</tr>
<tr>
<td>820</td>
<td>1980</td>
</tr>
</tbody>
</table>

Fatal/injury accident rate: Number of Fatal and Injury accidents per billion km of traffic by a vehicle

Data from the Police, Annual Report of Road Statistics and Annual Transport Statistics
Total number of traffic accidents decreased by 20% during the last decade, while bicycle-pedestrian accidents increased by 150%. 

Data from the Police
50% of elderly traffic accident deaths occur while the person is walking.
72% of traffic accident deaths that occur while walking are the elderly.
⇒ Fatalities of elderly while walking accounts for 25% of total fatalities.

Elderly traffic accident deaths by situation (2010)

- On a car: 24%
- On a motorcycle: 2%
- On a motorized bicycle*: 7%
- On a bicycle: 17%
- Walking: 50%
- Other: 12%

Traffic accident deaths while walking by age

- 15 or younger: 4%
- 16 to 24: 9%
- 25 to 29: 7%
- 30 to 39: 7%
- 40 to 49: 4%
- 50 to 59: 4%
- 60 to 64: 4%
- 65 or older: 50%

Data from the Police

*with a displacement of less than 50cc
Road Traffic Safety Policy System
Traffic Safety Policies Basic Act (June 1, 1970 Act No. 110)

National Government
- Fundamental Traffic Safety Program (the 8th program formulated on Mar. 14, 2006)
  - National Traffic Safety Panel develops and recommends to PM (Article 22)
  - Annual report to the Diet on the summary of the program and measures undertaken (Article 13) → White paper on Traffic Safety in Japan

Prefectural Government
- Prefectural Traffic Safety Program (Article 25)
  - Prefectural Traffic Safety Panel develops (Article 16)
  - Formulates prefectural traffic safety program annually (Article 25)

Municipal Government
- Municipal Traffic Safety Program (Article 26)
  - Municipal Traffic Safety Panel develops (Article 26)
  - Formulates municipal traffic safety program as necessary (Article 26)
Fundamental Traffic Safety Program is developed every 5 years since 1971 as a comprehensive and long-term all-mode traffic security outline plan based on the Act on Traffic Safety Policy (enacted in 1970).

The current program is the 9th program covering from 2011 to 2015.
# Outline of the 9th Fundamental Traffic Safety Program

## 1. Basic Principles

- A society without traffic accidents should ultimately be realized with the thought that there are a number of people who lose their lives in traffic accidents and that traffic accidents are also costly socially and economically.
- Every measure should be made toward human-oriented traffic, considering vulnerable road users such as the elderly, physically challenged and children.

## 2. Road Traffic Safety

**[Objectives Set for Road Traffic Safety]**

1. To reduce the annual number of deaths resulting from traffic accidents within 24 hours after the incident to 3,000* or fewer so that Japan becomes the world's safest nation pertaining to road traffic. (*If multiplied with the ratio of 2010's number of 24-hour deaths and 30-day deaths, the number will be about 3,500.)
2. To reduce the number of fatalities and injuries combined to 700 thousand or fewer.

**[Measures for Road Traffic Safety]**

- Ensuring safety of the elderly and children
- Ensuring safety of pedestrians and cyclists
- Ensuring safety for road users on residential and arterial roads

## 3. Railway Traffic Safety

**[Objectives Set for Railway Traffic Safety]**

1. To achieve the number of passenger deaths to zero
2. To reduce the number of railway traffic fatalities

**[Measures for Railway Traffic Safety]**

- Prevention of serious accidents
- Prevention of passenger-involving accidents
- Improving railway traffic environment
- Raising traffic safety awareness

## 4. Traffic Safety at Level Crossings

**[Objectives Set for Traffic Safety at Level Crossings]**

1. To reduce accidents by 10% by 2015 compared to the number in 2010.

**[Measures for Traffic Safety at Level Crossings]**

- Countermeasures based on each situation at the site
- Replacement of level crossings with grade-separated crossings
- Improvement of grade separation facilities for pedestrians

## 5. Maritime Traffic Safety

**[Objectives Set for Maritime Traffic Safety]**

1. To reduce the number of vessels that needed rescue around Japan by 10% (i.e. 2,200 vessels) by 2015 compared to the average annual number during the 8th program.

**[Measures for Maritime Traffic Safety]**

- Continually promote accident-prevention measures
- Improvement of maritime traffic environment

## 6. Air Traffic Safety

**[Objectives Set for Air Traffic Safety]**

1. Continue to hold the record of no fatal accidents caused by specified Japanese air carriers, which has been held since 1986.

**[Measures for Air Traffic Safety]**

- Recovering of trust on air traffic safety
- Establishment of safe and efficient system allowing increased air cargo capacity
- Introduction of National Safety Program

## 7. 5-year Period: 2011 to 2015

The Panel developed the Program in Mar. 2011.
By 2015

Traffic fatalities: 3,000 or fewer
Traffic fatalities and injuries: 700,000 or fewer

If multiplied with the ratio of 2010’s number of ‘24-hour deaths’ and ‘30-day deaths,’ the number will be about 3,500.
In addition to the conventional safety measures as a basis, quick response to change in socioeconomic and traffic circumstances, **enhanced data-collection and analysis of real traffic accidents** and possibly effective new measures will be used for more efficient implementation.

In order to improve measures, it will be necessary to **target the setting by measure to the fullest extent possible** and **effect evaluation after the implementation of the measure**.

Considering the future socioeconomic and traffic circumstances, **the following viewpoints should be given serious consideration**:

1) To ensure elderly and child safety
2) To ensure pedestrian and cyclist safety
3) To ensure the safety of road users on residential and arterial roads
National Traffic Safety Panel

Act on Traffic Safety Policy
Article 14
(Development of Fundamental Traffic Safety Program)

Chair: the Prime Minister
Member: Relevant 12 ministers
(Director-general Cabinet Secretary, minister for a particular field (traffic safety, Okinawa and Northern Territories Affairs), Chair of the National Public Safety Commission, minister for a particular field (finance), Minister of Minister of Internal Affairs and Communications, Minister of Justice, Minister of Education, Culture, Sports, Science and Technology, Minister of Health, Labor and Welfare, Minister of Agriculture, Forestry and Fisheries, Minister of Economy, Trade and industry, Minister of Land, Infrastructure and Transport and Minister of Defense)

Traffic Task Force

Decision of National Traffic Safety Panel

Enacted on Dec. 26, 2000
Partly amended on Dec. 8, 2005
Partly amended on Jun. 13, 2006

Chair: Minister for a particular field (traffic safety)
Member: Relevant 15 administrative vice-ministers
(Vice-minister of the cabinet office, Director General of NPA, Financial Services Agency Commissioner, Vice-minister of the public management, home affairs, posts and telecommunications, Director general of fire and disaster management agency, Vice-minister of Justice, Vice-minister of education, culture, sports, science and technology, Vice-minister of health, labor and welfare, Vice-minister of Agriculture, Forestry and Fisheries, Director-general of Fisheries Agency, Vice-minister of Economy, Trade and Industry, Vice-minister of Land, Infrastructure and Transport, Director-general of Metrological Agency, Director-general of Japan Coast Guard and Vice-minister of Defense)

Prefectural Traffic Panel

Decision of traffic safety task force (Aug. 9, 1961)
(Prefectural-wide initiative of traffic safety)

Prefectural Traffic Safety Panel

Article 16 of Act on Traffic Safety Policy
(development of prefectoral traffic safety program)

Municipal Traffic Safety Panel (on a voluntary basis)

Article 18 of Act on Traffic Safety Policy
(development of municipal traffic safety program)

Reference: MLIT based on the documents released by Cabinet Office
Traffic Safety on Arterial Roads
21% of the total road segments accounts for 71% of the total fatal/injury accidents, when all 0.71 million segments of 0.18 million kilometers of arterial roads across the nation are arranged in order of fatal/injury accident rate.
Illustrative Description of Improvements at Black Spot (Basic Segment)

<Urban area>
- **Lighting**
- **Signal**
- **Median strip**
- **Pedestrian crossing**
- **Pavement improvement** (non-slip finishing) (color finishing)
- **Safety guard**

<Mountain area>
- **Delineator** (Guide light)
- **Traffic information**
- **Warning sign**
- **Pavement marking** Pavement improvement (non-slip finishing) (speed bump)
- **Overtaking prohibited**
- **Raised marker**
- **Safety guard**
- **Drainage pavement**

Measures
- By road administrator
- By public safety commission
Illustrative Description of Improvements at Black Spot (Intersection)

Measures
- By road administrator
- By public safety commission

- Additional signal patterns (for right-turning cars)
- Right-turning lane
- Bicycle crossing
- Pavement improvement (nonslip finishing)
  (color finishing)
- Channel (marking)
- Lighting
- Pavement improvement (drainage pavement)
Example of Measures Taken at a Black Spot (Mishima Bridge on National Hwy 3)

60% decline in rear-end accidents and accidents-when-turning with smoother traffic

- 40 fatal and injury accidents occurred from 2004 to 2007 (i.e. 4,000 accidents/billion vehicle km).
- Waiting right-turning cars block the cars going straight, causing rear-end accidents.
- As a countermeasure, the length of the right turn lane was extended and the pavement surface was colored, which reduced cars turning right from blocking cars going straight.

### Cause of accident

- Short right turn lane, only 30m, does not accommodate enough cars. Overflowed right-turning cars block the traffic of cars going straight.

### Effect (60% decline in rear-end accidents and accidents-when-turning)

- 7.5 rear-end accidents and accidents-when-turning altogether before the measure:
  - 6.75 accidents/year
  - 7.5 accidents/year

- 3.0 rear-end accidents and accidents-when-turning altogether after the measure:
  - 0.75 accidents/year
  - 3.5 accidents/year

- 60% decline in rear-end accidents and accidents-when-turning with reduction of cars blocking because of lengthened right turn lane.

### Countermeasure (Extended right-turn lane and colored pavement)

- Waiting right-turning cars backed-up and block the main lane
- Right turn lane was extended to reduce right-turning cars that block main lane traffic
Plan for the Elimination of Traffic Accidents (Focusing on Black Spots)

- The plan for the elimination of traffic accidents (focusing on black spots) is being implemented by intensively and effectively tackling traffic accidents through the approach of “selecting and focusing” and “citizen participation and cooperation.”

1. Identifying black spots ⇒ ”selecting and focusing”
   ① Black spots based on accident data
      - Fatal and injury accident rates, number of serious accidents
   ② Potentially dangerous spots
      - Identified by residents, road users, and municipal governments
   ⇒ Identified 14,303 spots across the country (2010)
      - Input from a committee consisting of academia and stakeholders

2. Sharing information ⇒ “citizen participation and cooperation”
   ※ Change in behavior of residents and road users to increased awareness is also expected to prevent accidents.
   ① Publishing the locations of typical black spots
   ② Installing signs to draw driver’s attention for added caution
   ③ On-site observation with residents and related organizations

【Efforts at Okayama National Highway Bureau】

On-site observation and exchange of views by residents and related organizations
Installing Signs for Caution and Onsite-observation

- With the expectation that road users’ increased awareness of black spots can reduce accidents, signs pertaining to the elimination of traffic accident plan (focusing on black spots) are installed onsite.
- Black spots, spots with serious accidents in recent years, school roads and particular spots that citizens are concerned with are inspected onsite by local interested parties and relevant organizations, such as the prefectural police.

【Example Caution Signs】

Note: the signs say “Danger, this is a black spot. Not traffic accident plan is ongoing”

【Onsite inspection】

Note: the newspaper article says on-site inspection was carried out on the black spot of National Hwy 246.
Accident Prevention in Residential Areas
Development of Safe Pedestrian Areas

Road administrators work in cooperation with a public safety commission in an area-wide comprehensive accident prevention measure. For example, MLIT and the police designated hot spot areas as “Safe Pedestrian Areas” (796 areas in Jul. 2003 and 582 areas in Mar. 2009) where through-traffic tends to flow into the residential roads.

Development of pedestrian network with more sidewalks and signals

Reduce inflow through-traffic to residential roads with smoother surrounding arterial roads

【Development of pedestrian network】
Sidewalk
Push button signal

【Smocker surrounding arterial roads】
Adding right-turning lane
Increasing signal patterns

【Development of pedestrian/bicycle preference roads】
Installment of road hump
Speed control

Development of pedestrian/bicycle preference roads with speed control and road hump

<Legend>
Measure: by road administrator
Measure: by public safety commission
Effects of “Safe Pedestrian Area”

Effects of Safe Pedestrian Area

- Traffic accidents were reduced by 17% in the areas where “Safe Pedestrian Area” measures were completed by 2009, among the designated areas in 2003 (8% reduction in accidents involving pedestrians and cyclists).

Projected assuming the trend stays the same nationwide.
Example of Development of a Safe Pedestrian Area (Kamagaya City in Chiba Pref)

- Involving residents through a workshop where specific measures will be decided using reports on potentially dangerous minor incidents.
- Sidewalks, road narrowing fence, road hump at intersections are developed, which reduced traffic accidents by 75%.

**<Location>**

Black spot

Potentially dangerous minor incidents

Arterial road with through traffic

- Give priority in development to a black spot that is also prone to potentially dangerous minor incidents.

**<Measures>**

- Sidewalk development
- Road narrowing fence
- Road hump at intersection
- Road marking for caution
- Color pavement at intersection

**<Discussion on measures>**

**<Effects>**

![Bar graph showing 75% reduction in accidents](image)

Before (average during 1998~2002)

After (average of 2005~2011)

Note: excl. peripheral roads.
Traffic Accident Prevention on School Roads
Traffic accidents involving elementary school students on their way to and from school have increased over time.

A meeting for ensuring traffic safety on school roads was held involving vice ministers of MLIT, MEXT and NPA on May 28th.

【Decisions】

(1) Enhance cooperation at national level
   Liaison conference between MEXT, MLIT and NPA will be held
   (Input from experts and follow-up of urgent joint inspections)

(2) Develop cooperation between related organizations at regional level
   ○Develop cooperation between parents and residents in addition to school boards, road administrators and the police to ensure traffic safety on school roads.

(3) Carry out cooperative urgent inspections
   ○Carry out cooperative urgent inspections of school roads with the team mentioned above by the end of August.
   ○Relevant players will cooperate to consider countermeasures based on the results of the inspection.

MLIT, MEXT and NPA requested urgent joint inspections to road administrators, school boards/schools and prefectural police (May 30th)
Vice-minister meeting (May 28)

MLIT, MEXT and the NPA requested an urgent joint inspection (May 30)

Identification of black spots
By school and PTA

Identification of spots to be improved (by the end of Aug.)
※Report in early Sept.

Determine measures (by the end of Nov.)

Implementation of measures
(Sequentially implement after negotiation with the local entities from 2012)
Cooperative Safety Enhancement Measures for School Roads

【Involved parties】
・ school board, school, PTA
・ road administrators
・ police
・ road users

・ Cyclists and students use the same road, which can cause accidents
  <Countermeasure>
  ・ Traffic controlling by volunteers

・ Too narrow pedestrian space in grade crossing
  <Countermeasure>
  ・ Grade crossing widening

・ Pedestrians sometimes have to enter the roadway to go around power poles.
  <Countermeasure>
  ・ Under grounding

・ A bus stop in the middle of narrow side walk
  <Countermeasure>
  ・ Change of school route

・ Too narrow pedestrian
  <Countermeasure>
  ・ Restrict large vehicles
  ・ Narrow the road using a fence

・ Large vehicle on narrow residential roads

・ Narrow side walk with gaps
  <Countermeasure>
  ・ Sidewalk widening
  ・ Barrier-free side walk

-Designated route
-Points to be improved

-Elementary school

-O0Stn.
Improvement of Environment for Cyclists
### Background of Safe and Comfortable Environment for Cyclists

- **Total length of road space for bicycle separated from cars and pedestrians is only 3,000km.**

<table>
<thead>
<tr>
<th>Road space for bicycle separated from cars and pedestrians</th>
<th>83,600km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Separated from pedestrians</td>
<td></td>
</tr>
<tr>
<td>Bicycle road</td>
<td><img src="image1" alt="Bicycle road" /></td>
</tr>
<tr>
<td>Bicycle lane</td>
<td><img src="image2" alt="Bicycle lane" /></td>
</tr>
<tr>
<td>Bicycle lane marking within sidewalk</td>
<td><img src="image3" alt="Bicycle lane marking" /></td>
</tr>
<tr>
<td>About 3,000km</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other bicycle space</th>
<th>110万km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not separated from pedestrians</td>
<td></td>
</tr>
<tr>
<td>Road space for bicycle and pedestrian</td>
<td><img src="image4" alt="Road space for bicycle and pedestrian" /></td>
</tr>
<tr>
<td>Roadway with sidewalk</td>
<td><img src="image5" alt="Roadway with sidewalk" /></td>
</tr>
<tr>
<td>Roadway with no sidewalk</td>
<td><img src="image6" alt="Roadway with no sidewalk" /></td>
</tr>
<tr>
<td>About 80,600km</td>
<td></td>
</tr>
<tr>
<td>About 91,800km</td>
<td></td>
</tr>
<tr>
<td>About 1 million km</td>
<td></td>
</tr>
</tbody>
</table>

- Entire roads length across the country: 1.2 million km

---

Note: road length (km) as of April 1st, 2010  [Data from MLIT and the Police]
Road Space for Bicycle (Development Types)

- **Bicycle road**
  Bicycle-only road space structurally separated from roadway such as curb line.

- **Bicycle lane**
  Bicycle-only lane that is designated through traffic regulation. Bicycle lane is visually separated.

- **Roadway (not separated from roadway)**
  Road space for bicycles is not separated from cars. As necessary, colored road shoulder, belt-shaped marking or pictogram are used to indicate where cyclists are supposed to be.

Colored road shoulder  Pictogram  Belt-shaped road marking
Examples of integrated improvement for bicycle safety enhancement

① On-street parking
- Add space for cars in parking or loading/unloading operation beside bicycle road
- Install parking meters beside bicycle lane
- Development of on-street parking for bicycles

② Promotion of bicycle use
Creating and distributing bicycle map
- Advertise bicycle-friendly routes, spots that need extra caution, parking spots for bicycles

Bicycle Rental
- Provided at public transport facilities and popular tourist spots for easy access to bicycles.

■ Rental cycle station on road

■ Rental cycle for tourists

【Reference: website of Niigata City】
【“Koto rin” a rental cycle system provided in Nara City】