

# **Benefits of Traffic Safety Facilities installed by Police of Japan**

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# Traffic Management Infrastructure in Japan

- Traffic Signals: *0.16 Million*
- Road Traffic Signs: *7.6 Million*
- Infrared Beacons: *30,000*
- Closed Circuit TV: *2,000 etc.*

# UTMS and ITCS

- UTMS(Universal Traffic Management Systems)
  - ITS developed by Japanese police
- ITCS(Integrated Traffic Control Systems)
  - One of sub-systems in UTMS
  - Corrects traffic information and controls traffic signals, based on information obtained through two-way communication with in-vehicle equipment

# Outline of effect measurement (1)

- Effect of traffic accident inhibition
  - Decrease rate of traffic accident : 39%-65%
  - Decrease number of fatal traffic accident : approx. 85,700
- Effect of traffic smoothness
  - Travel speed : 19% up
  - Travel time : 16% shortening
  - Congestion : 26% ease

# Outline of effect measurement (2)

- Economical convenience
  - Economical convenience by traffic accident inhibition and traffic smoothness : approx. 29 billion \$
  - Effect of investment : approx. 16.7 times (via total investment)
- Effect of environment preservation
  - Discharge volume of carbon dioxide : approx. 420,000 ton carbon reduction

# Details (1)

- Research and study committee about effect of traffic safety facilities
- Correction analysis and evaluation of data
- Effect of traffic accident inhibition
  - Number of fatal traffic accident

# Details(2)

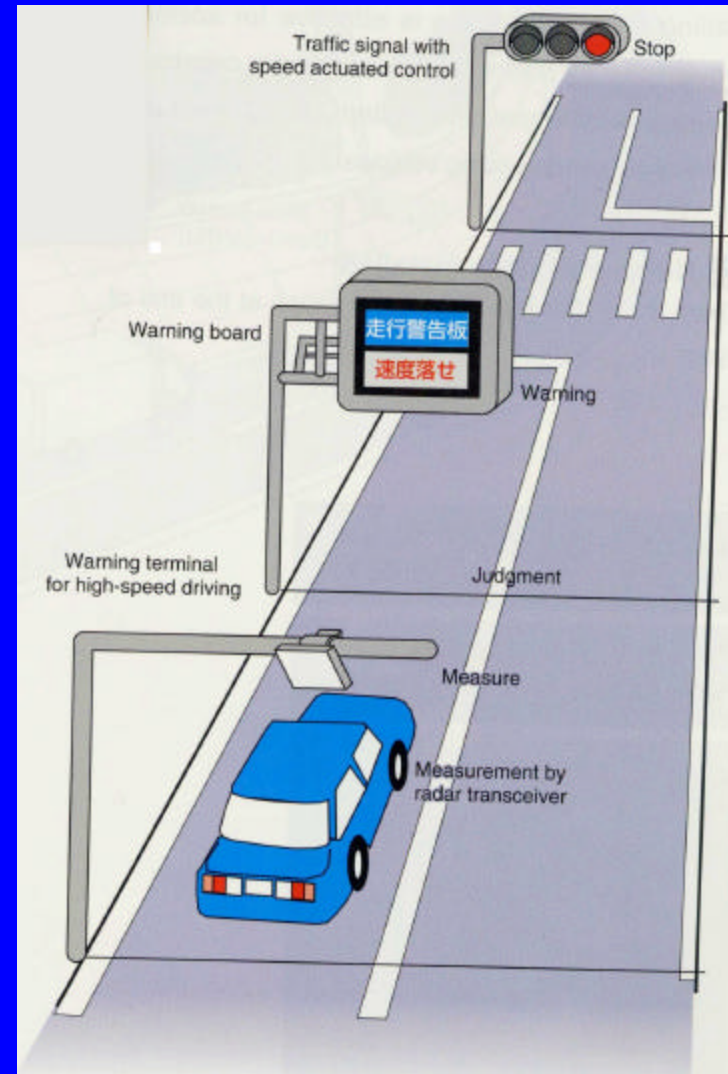
- Effect of traffic smoothness
  - Number of stop, Congestion time
- Economical convenience
  - Direct damage (party to accident)
  - Indirect damage
- Effect of environment preservation
  - Decreasing fuel by shortening travel time

# Systems on effect measurement



Travel time measurement system  
(AVL)

High-speed driving  
deterrence system





# Effect of traffic accident inhibition

System	Number of measurement point	Total number of fatal traffic accident		
		Before installation	After installation	Decreasing rate (%)
Centralizing signal control	2,547	5,592	4,721	15.6
For driver dilemma	48	216	98	54.6
High-speed driving deterrence system	42	246	232	5.7
Travel time measuring system (AVI)	53	9,727	8,834	9.2

# Effect of traffic smoothness

System	Number of measurement point	Result of measurement			
		Item	Average of before installation	Average of after installation	Rate of improvement (%)
Centralizing	338	Travel time (sec)	52.16	43.61	16.4
		Travel speed (km/h)	28.75	34.09	18.6
	965	Congestion time (m*h)	527.63	389.14	26.2

# Economical convenience by decrease of traffic accidents

System	Result of calculation (thousand yen)		
	Direct convenience	Indirect convenience	Total
Centralizing signal control	1,586	348	1,934
For driver dilemma	7,296	1,603	8,899
High-speed driving deterrence system	988	217	1,205
Travel time measuring system (AVI)	4,470	982	5,452

# Effect by decrease of discharge volume of carbon dioxide

System	Discharge volume of carbon dioxide
Centralizing signal control	10.28 ton carbon