Initiatives for information integration in Japan

1. State of the Collection and Provision of Road Traffic Information in Japan

2. Need a system to Share Road Information

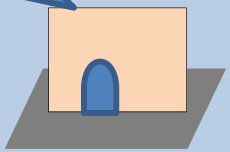
1. State of the Collection and Provision of Road Traffic Information in Japan

Categories of Road Traffic Information

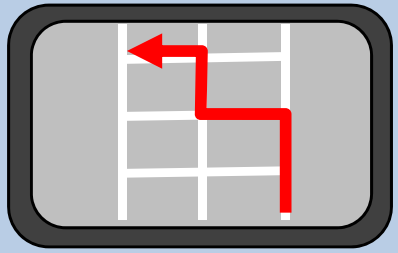
Disabled vehicle information

Road closures

SA/PA/Road Station information



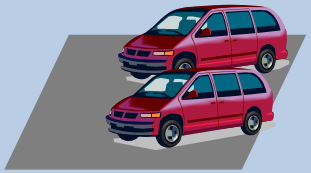
Route information



Congestion information

Disasters

Parking lot information



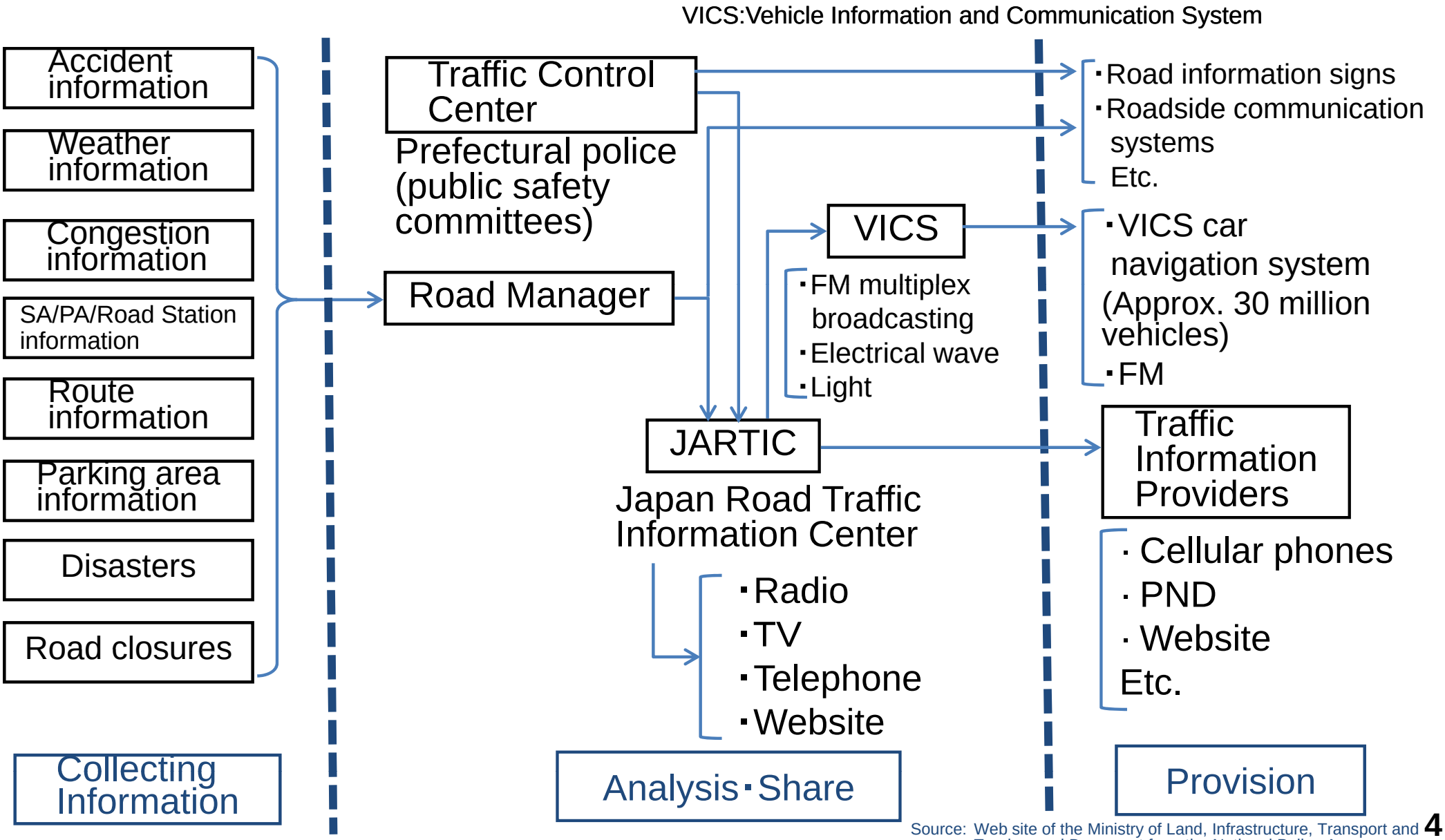
Weather information

Information

- Total road length in Japan is about 1.26 million kilometers.
- Information is collected and provided daily through cooperation by road managers and private sector companies.

From Collection to Provision of Road Traffic Information

- In Japan, road traffic information is collected and provided to road users by JARTIC and VICS as shown below.



Source: Web site of the Ministry of Land, Infrastructure, Transport and Tourism and Document from the National Police Agency

Outline of JARTIC

JARTIC(Japan Road Traffic Information Center)

- Japan Road Traffic Information Center Established in 1970
- Collects and provides information under contracts with traffic managers and road managers
- Posts employees nationwide to collect information at a central location.
- Collects, organizes, and analyzes constantly changing road traffic information in real time, online with each management organization.
- Provides road traffic information to road users through radio, TV, cellular phone, car navigation systems, and other media.

Orange-colored Line show Congestions.

Red-colored Line show Heavy Congestion.

Source: JARTIC web page

Outline of VICS

VICS (Vehicle Information and Communication System)

- Information communication system which transmits road traffic information, congestion and road closures for example, in real time, and displays this information in text and diagrams on car navigation units and other on-board equipment.

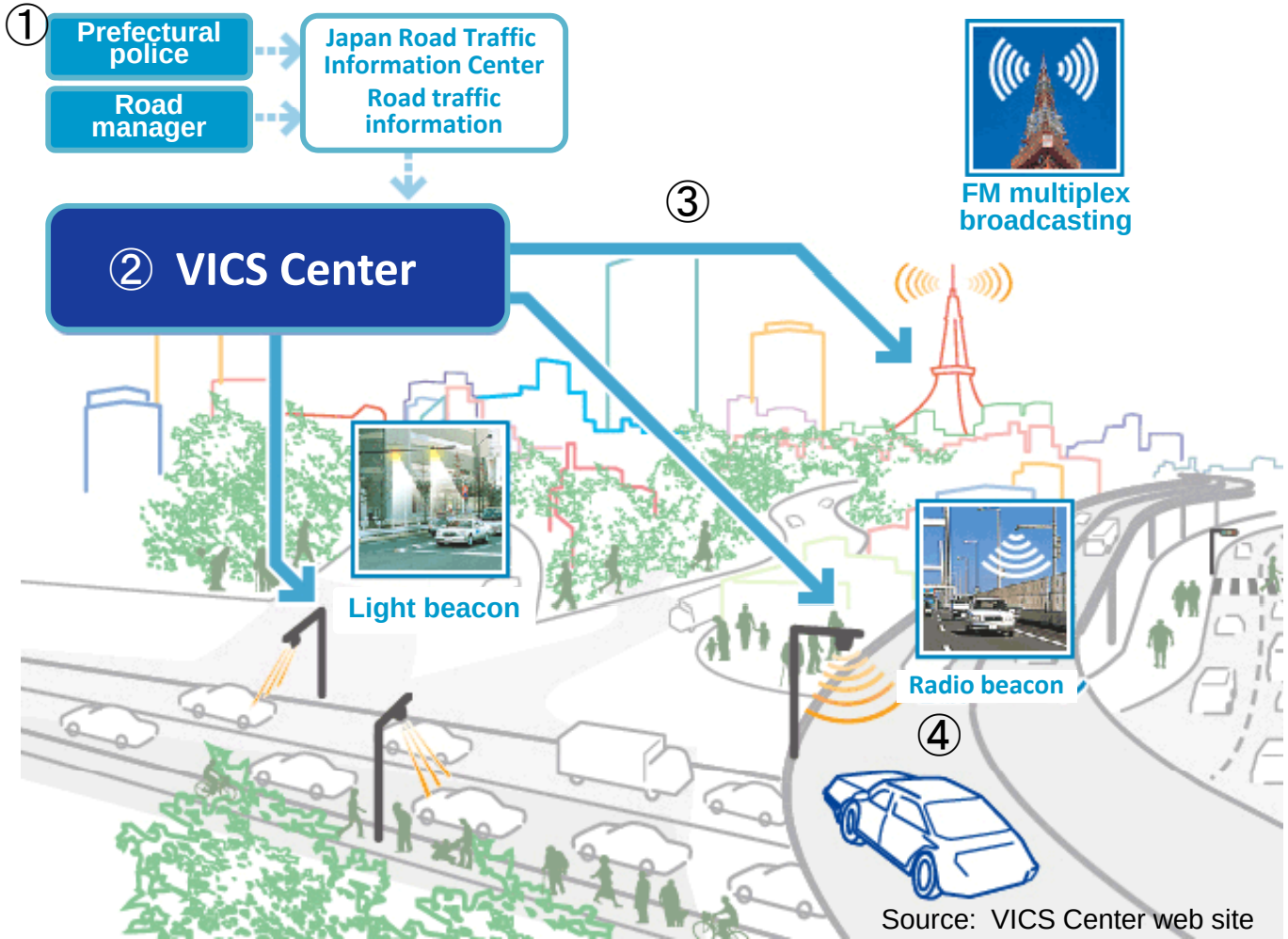
Four functions required to establish VICS

①Collecting information

②Processing and editing information

③Providing information

④Using information



Source: VICS Center web site

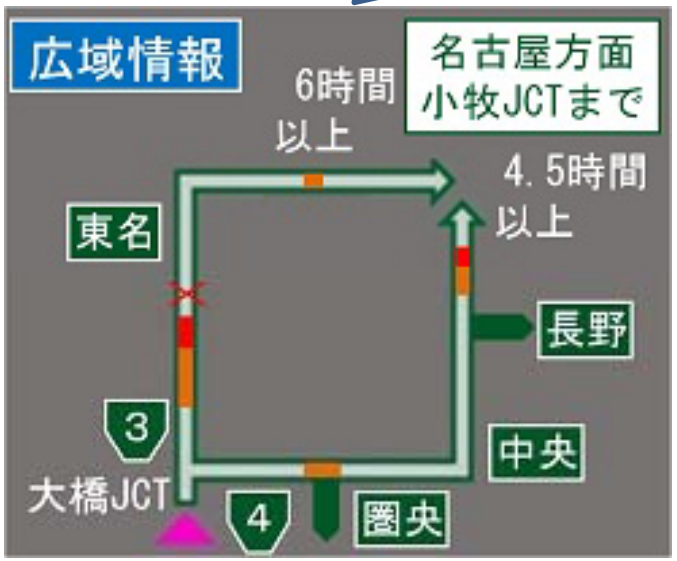
Using VICS to Provide and to Use Information

Using information

- The system displays maps, displays simple diagrams, and displays text to provide road information through car navigation units

The Car-navigation System guides a car to the optimum route considering the situation of traffic congestion.

Provision of Information about congestion and travel time by Simple Diagram Display

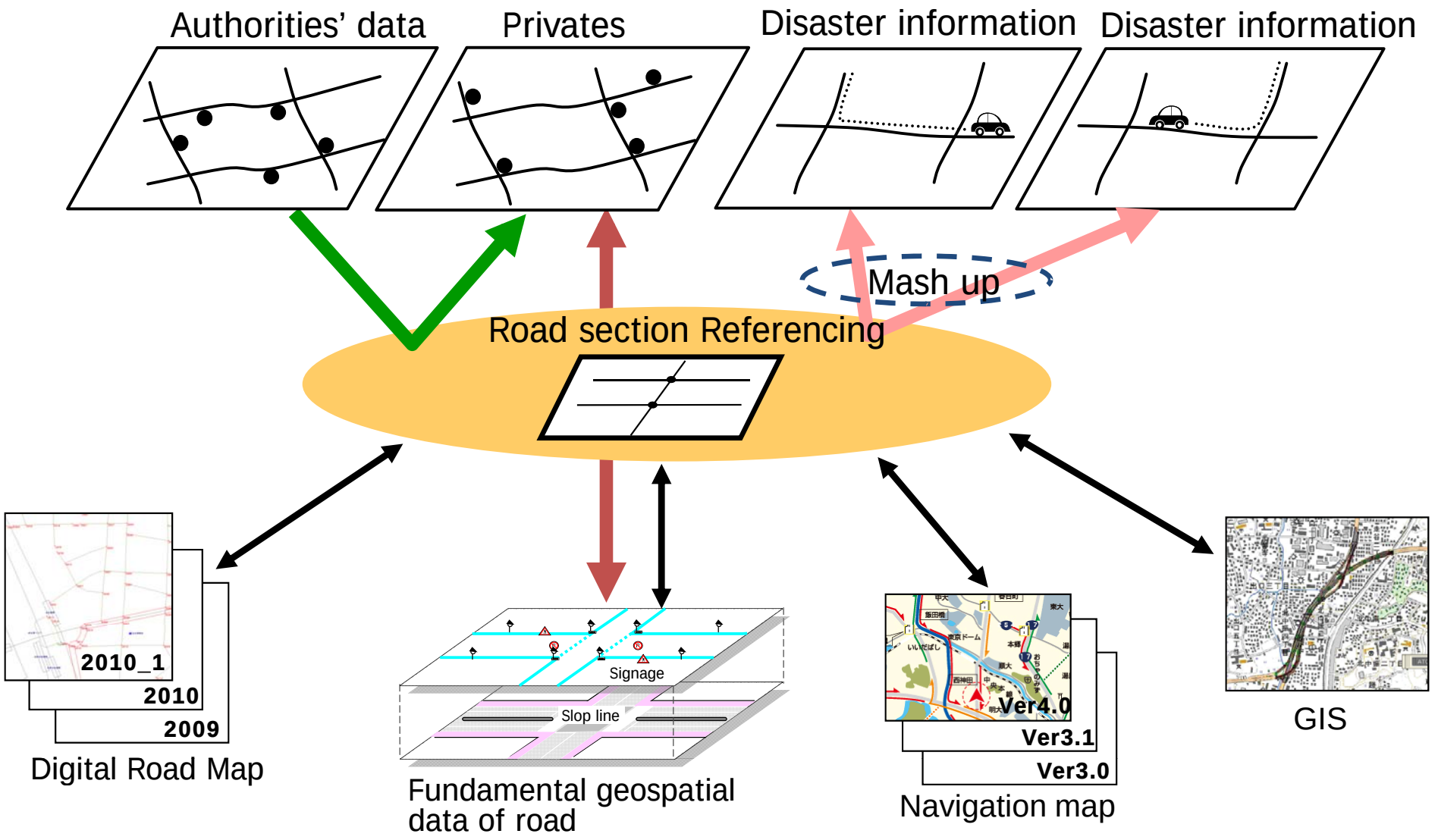


Source: VICS Center web site

2. Need a system to Share Road Information

Road Related Data Distribution

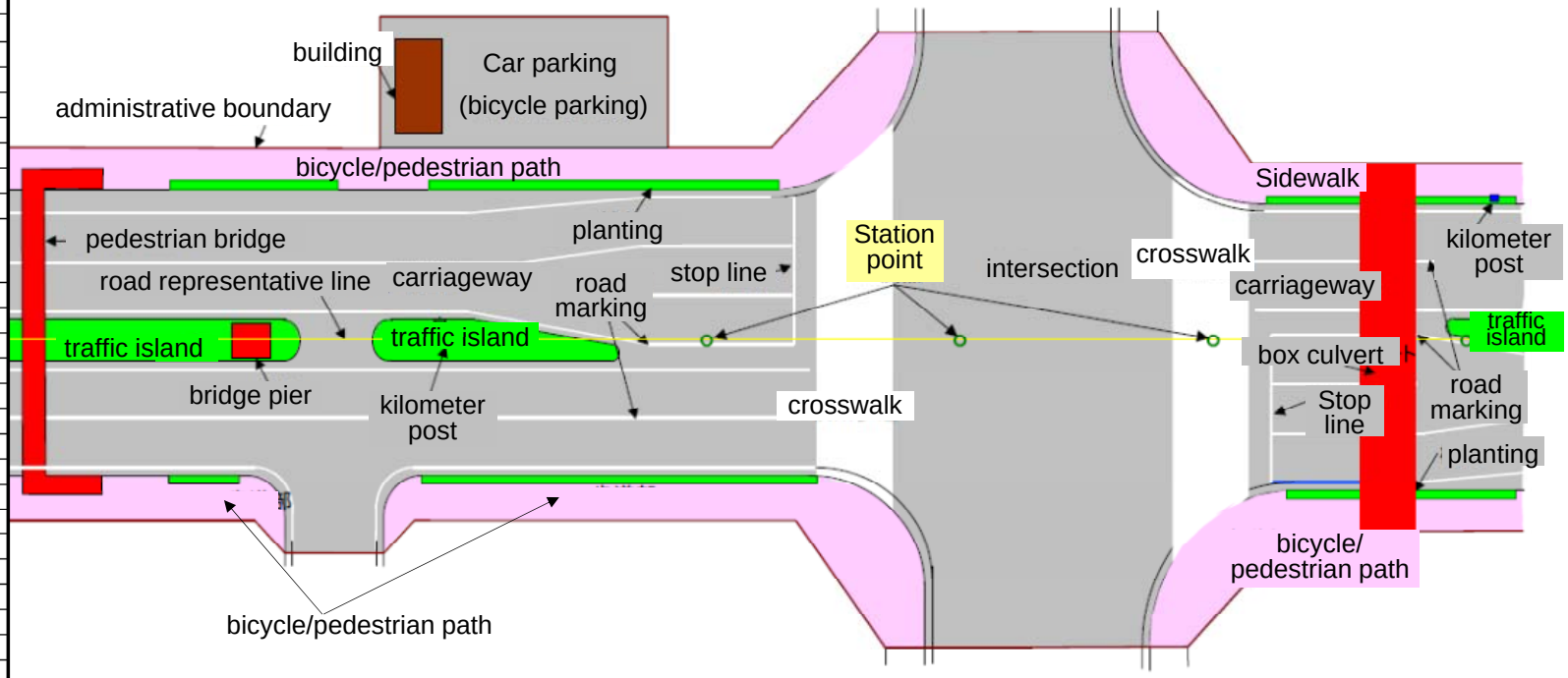
- To distribute road traffic information of various kinds, it is necessary to adopt reduced-scale road maps and open-platform location reference methods.



The Fundamental Geospatial Data of Road

- Reduced-scale (1/1,000) road structure GIS data.
- Composed of planar road shape and height information (30 features).
- Based on drawings of road structure characters. Currently, being adjusted for expressways and national roads.
  - In 2009, it was provided for expressways (approx. 7,300km) and national roads (approx. 7,000km).

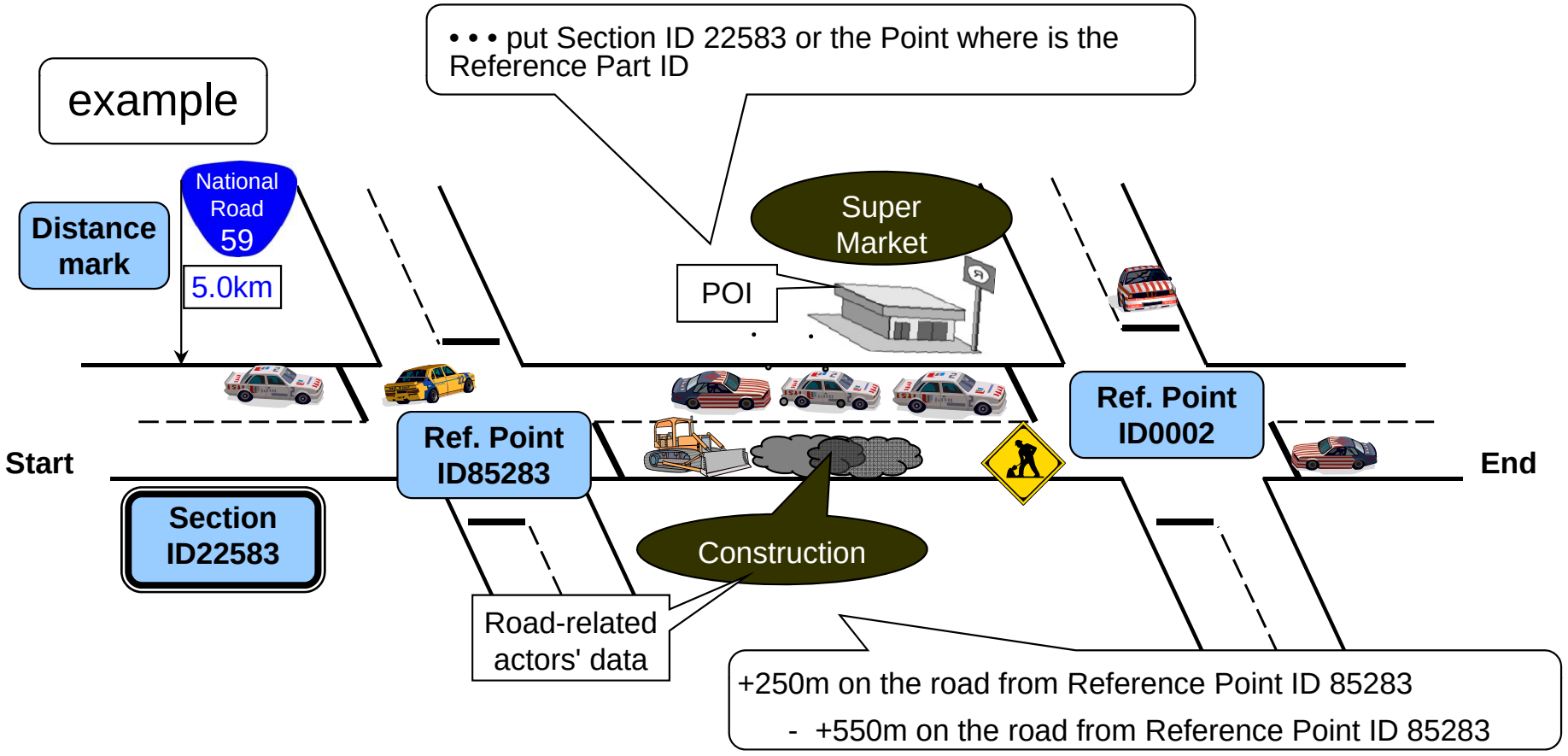
Feature Name		feature type		
		Surface	Line	Point
Road representative line			●	
Kilometer post				●
Administrative boundary			●	
Survey point				●
Roadway surface features	Carriageway	●		
	Intersection	●		
	Railroad crossing	●		
	Track lane	●		
	Traffic island	●		
	Tram stop	●		
	Bicycle/pedestrian path	●		
	Bicycle parking	●		
	Car parking	●		
Planting		●		
Road marking			●	
Stop line			●	
Crosswalk		●		
Pedestrian bridge		●		
Pedestrian underpass		●		
Building		●		
Bridge pier		●		
Filled Slope		●		
Cutting slope		●		
Slope stabilization		●	●	●
Retailing Wall		●		
Box culvert		●		
Shed		●		
Shelter		●		
Bridge		●		
Tunnel		●		



Road Section Referencing

- Show a location on the road using section and reference point. Conform to IS17572 Part2*
- Permanent IDs have been assigned to 200,000km of main roads in Japan. It is planned to open this to the public later this year. Granting ID to the rest of the Japan's roads is being considered.
- Distributing road related data using this referencing is also planned.

*IS17572:ITS Location referencing for geographic databases Part2 (pre-coded profile)

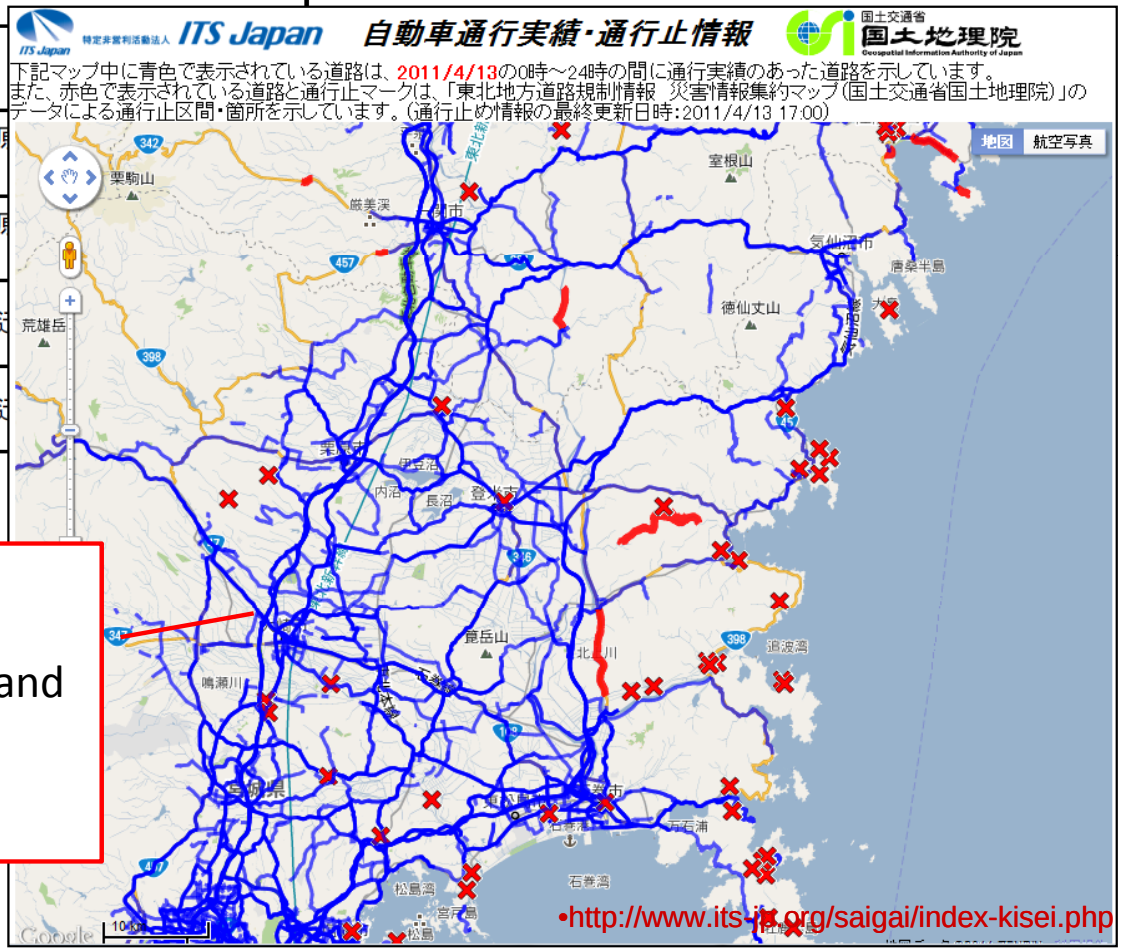


Great East Japan Earthquake

•Excerpted from Great East Japan Earthquake (Report No. 46)

路線名	区間名	被災状況	備考
国道４５号	宮城県南三陸町（102.6KP）歌津大橋	橋梁上部工流出	通行止め（迂回路あり）
国道４５号	宮城県気仙沼市（111.7KP）小泉大橋	橋梁上部工流出	通行止め
国道４５号	岩手県陸前高田市（151.9KP）気仙大橋	橋梁上部工流出	通行止め
国道６号	福島県広野町（230.1kp）	法面崩落	通行止め（原め）
国道６号	福島県富岡町（239.2kp）	路面陥没	通行止め（原め）
国道４５号	宮城県石巻市河北町（67KP）	法面崩落	通行止め（迂
国道４５号	岩手県釜石市（213.9KP～215.2KP）	路面崩壊	通行止め（迂

Because information is provided by the location reference method (KP) which road managers use, it is impossible to reflect this on maps from private sector companies.



•http://www.its-jp.org/saigai/index-kisei.php

- Automobile traveling records and road closure information are provided, mainly by ITS Japan.
- Probe data from four private sector companies and road closure information provided to road managers is reflected in maps by human wave tactics.

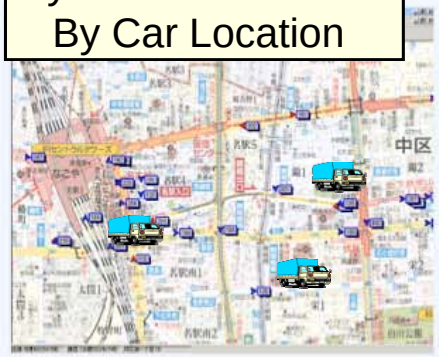
Using the road section ID method, it is possible to link various kinds of information to save work, achieving rapid information provision!

Information Platform for ITS Services

(1) Sharing large quantities of data by Common PF
(2) Effectively using both private and public Data
(3) Creating value and new ITS Services

Utilization of Road Traffic Information by Common Platform

Dynamic Traffic Info. By Car Location



Road Construction Plan for ensuring smooth Traffic

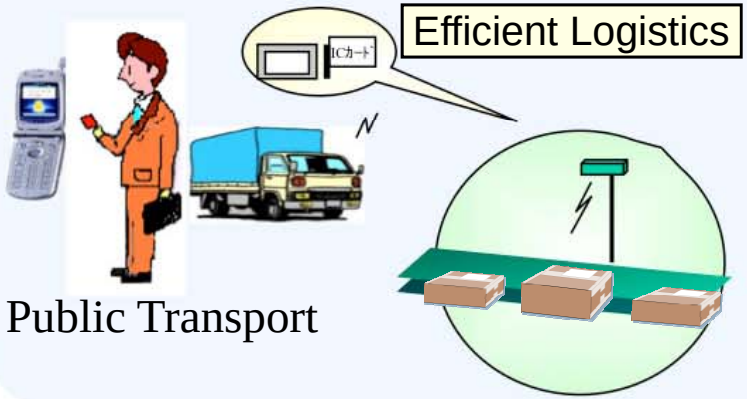
Road Disaster

Traffic & Road Surface

CO_2 Emission

Road Administrator

Efficient Logistics



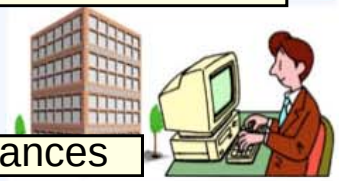
Public Transport

Economical and Safe Driving

Vulnerable road users

Upgrading Traffic Control

Assigning Ambulances



Traffic management