

Special Interest Session 53
*International Challenges of
Vehicle-Infrastructure Cooperative Systems*

Smartway Policy

~ FOT/Evaluation/Implementation ~

September 2009

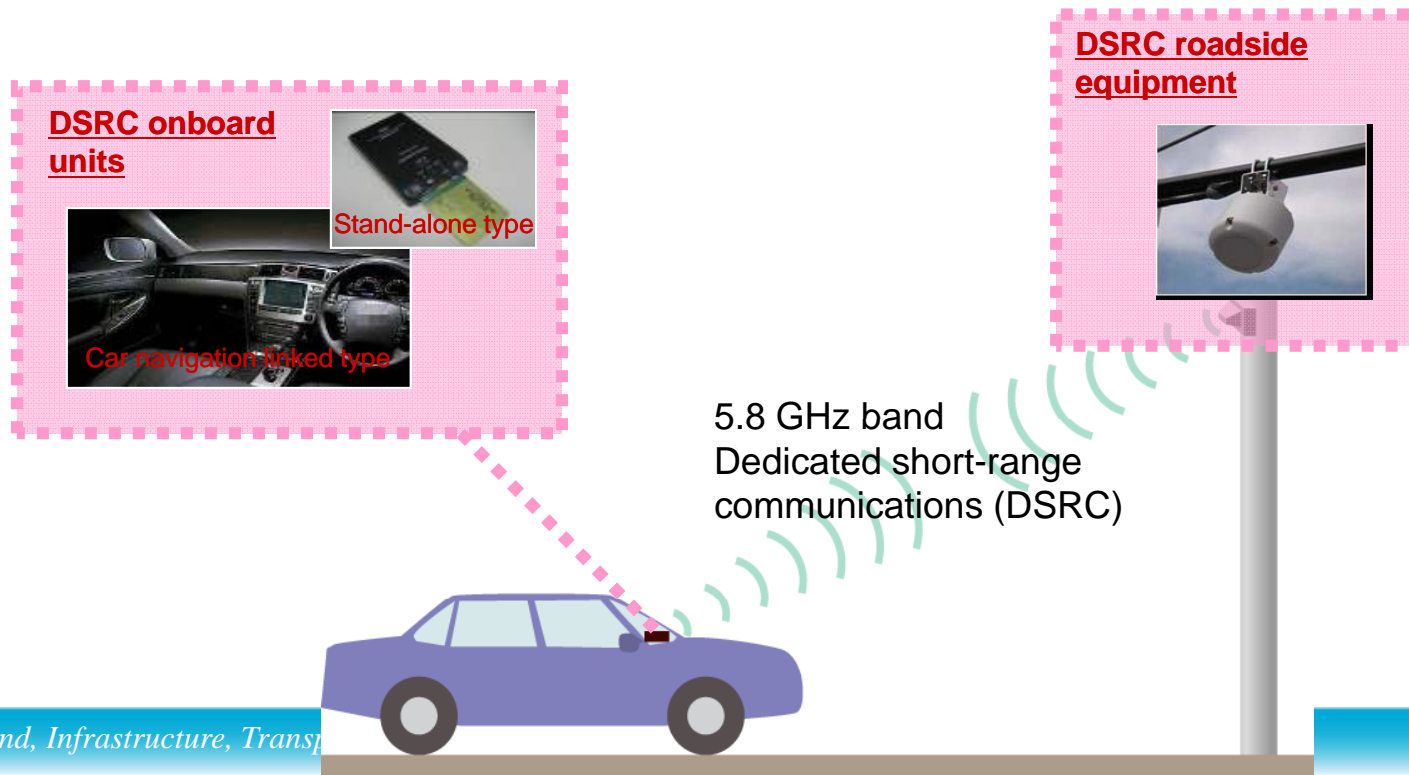
Koichi Sakai

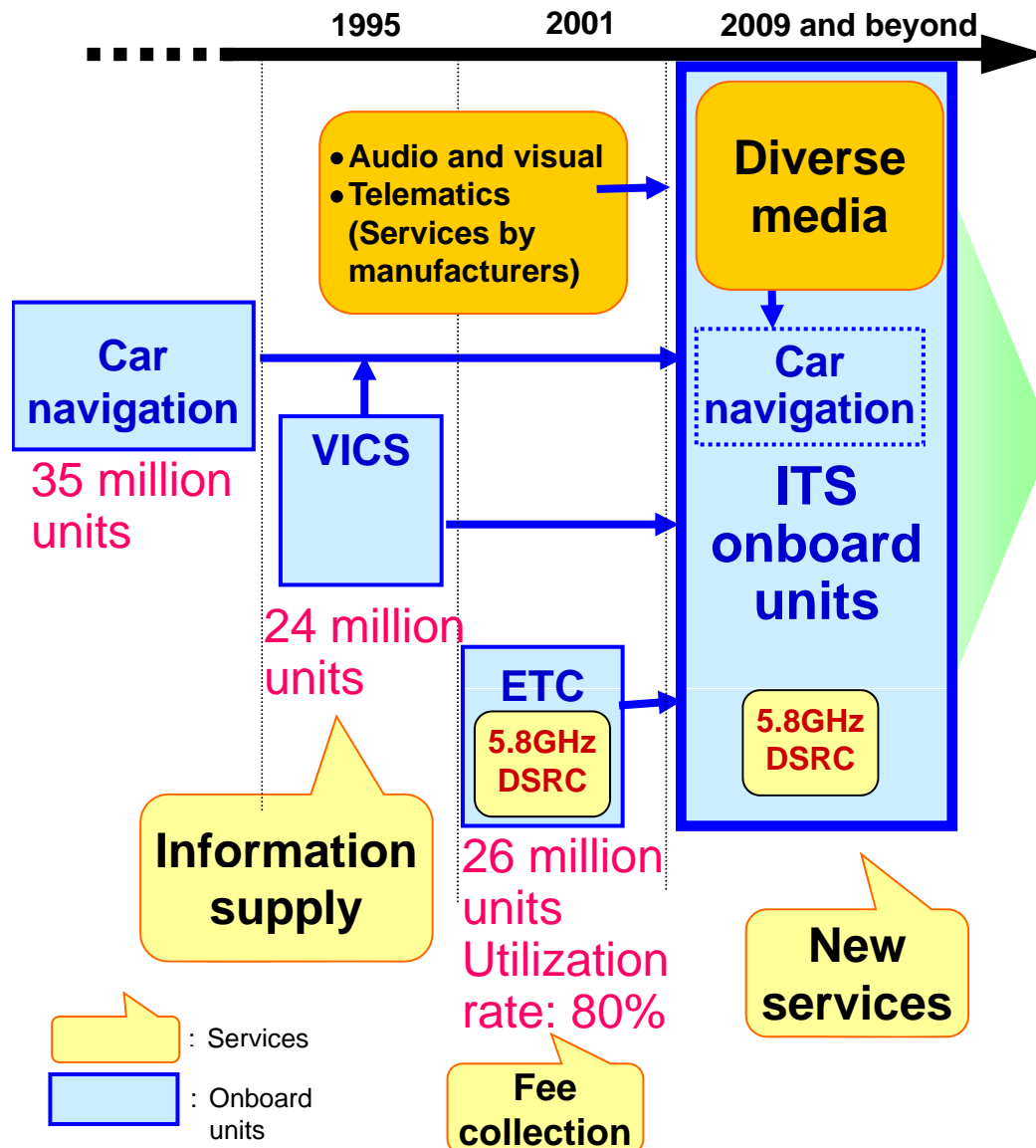
National Institute for Land and Infrastructure Management
Road Bureau, Ministry of Land, Infrastructure, Transport and Tourism
Government of Japan

ITU-R Recommendation M.1453 (approved in June 2005)
"Intelligent transport systems - Dedicated short range communications at 5.8 GHz"



- ISO15628 (Layer7 of ARIB STD-T75)
- ISO24103 (ARIB STD-T88)





<Diverse applications >

- ◆ Providing wide area traffic information
- ◆ Providing traffic information in easily understandable audio form
- ◆ Providing information to support safe driving
- ◆ Providing information at highway rest areas

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ETC
+

Private sector services

- ◆ Providing information based on requests
- ◆ Cashless payments

Services have been expanded to three major metropolitan areas; new services are being introduced according to the characteristics of each region; and regional proving tests have been conducted through public-private collaboration. (An open demonstration was held in February 2009).

【Kyoto, Osaka, and Kobe (Meishin Expressway and New Meishin Expressway)】

Providing information on obstacles ahead (highway radio reports)

【Niigata (Kan-Etsu Expressway)】

Collecting vehicle behavior information (snow-covered road surface information)

【Kyoto, Osaka, and Kobe (Hanshin Expressway)】

Preventing hazards on entering curves, providing information on obstacles ahead, merging assistance, and providing information on conditions ahead (providing road information by still images)

【Tokyo (Metropolitan Expressway)】

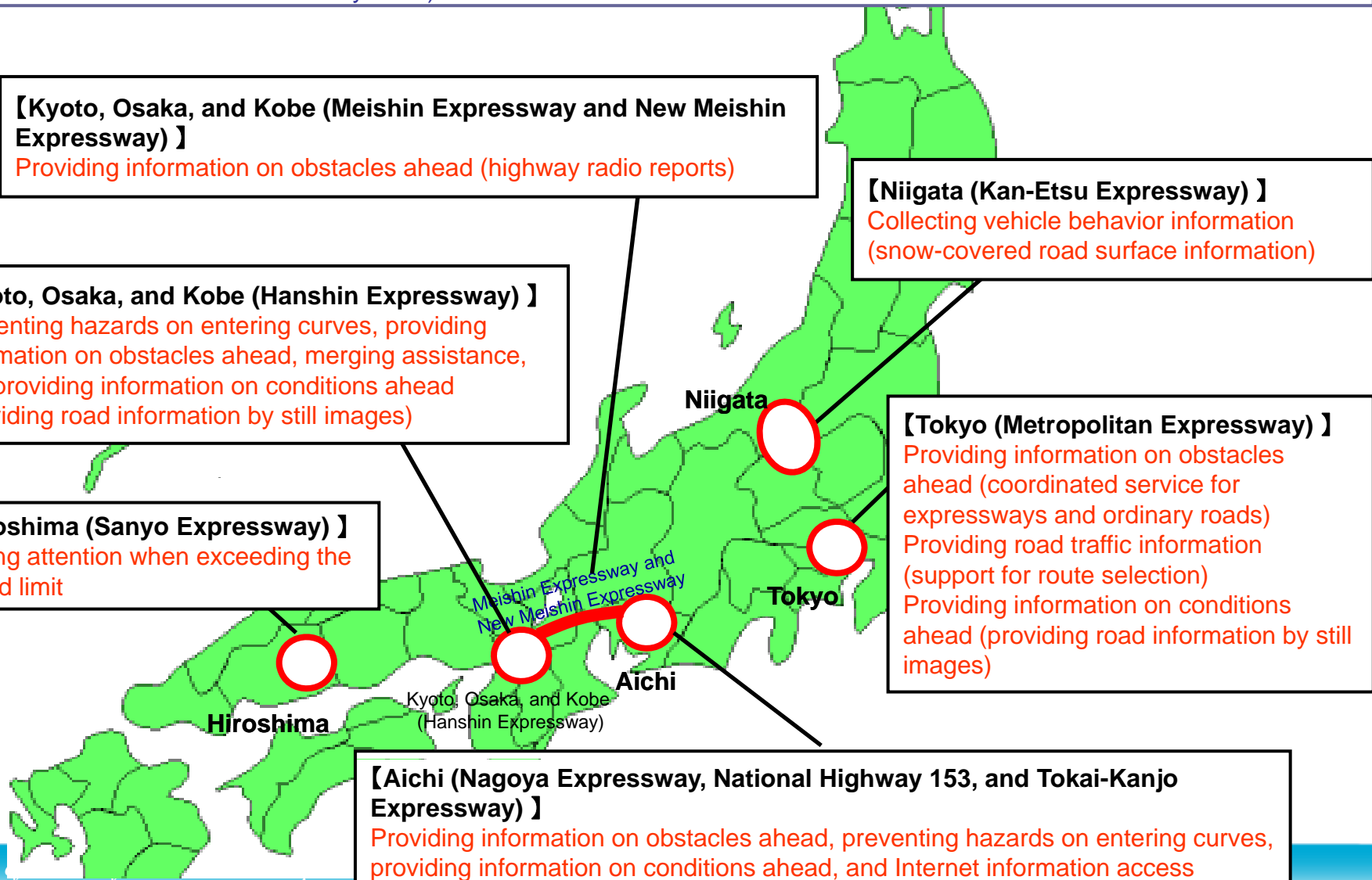
Providing information on obstacles ahead (coordinated service for expressways and ordinary roads)
Providing road traffic information (support for route selection)
Providing information on conditions ahead (providing road information by still images)

【Hiroshima (Sanyo Expressway)】

Calling attention when exceeding the speed limit

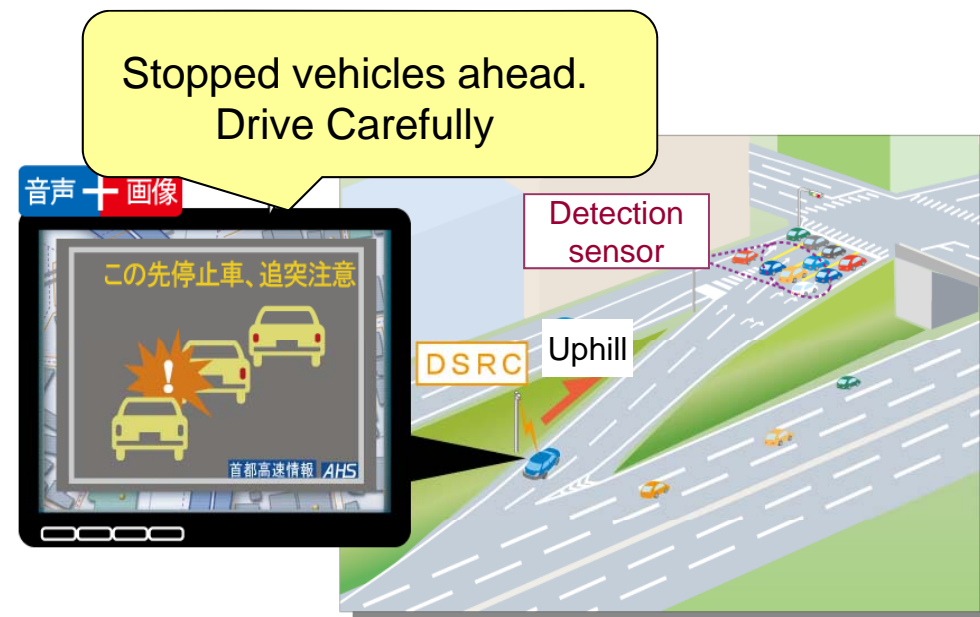
【Aichi (Nagoya Expressway, National Highway 153, and Tokai-Kanjo Expressway)】

Providing information on obstacles ahead, preventing hazards on entering curves, providing information on conditions ahead, and Internet information access

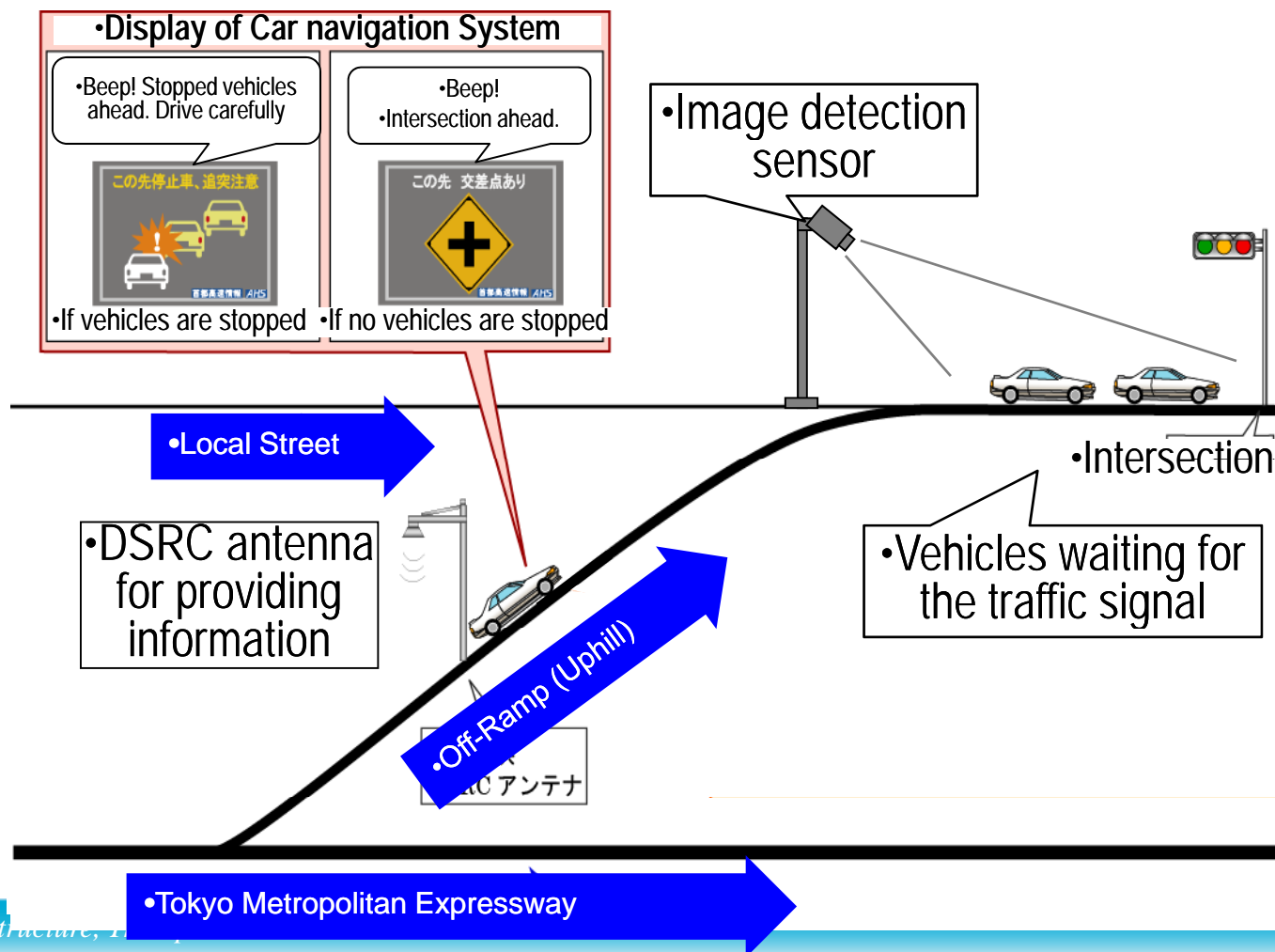


1. Overview of Field Operational Test

- ◇ Location: Tokyo Metropolitan Expressway, Wangan Line (Eastbound), Rinkai Fukutoshin off-ramp
- ◇ Period: February 18-21, 2009 (no service) and March 1-11 (service provided)
- ◇ Subjects: 60 persons
- ◇ Total trips: 180 trips , 80 trips without service; 100 trips with service (using car navigation linked on-board units)
- ◇ When image sensor detects stopped vehicles, this system provides information on the stopping vehicle ahead to the following vehicle. When image sensor does not detect stopped vehicles, this system provides the information on intersection ahead.



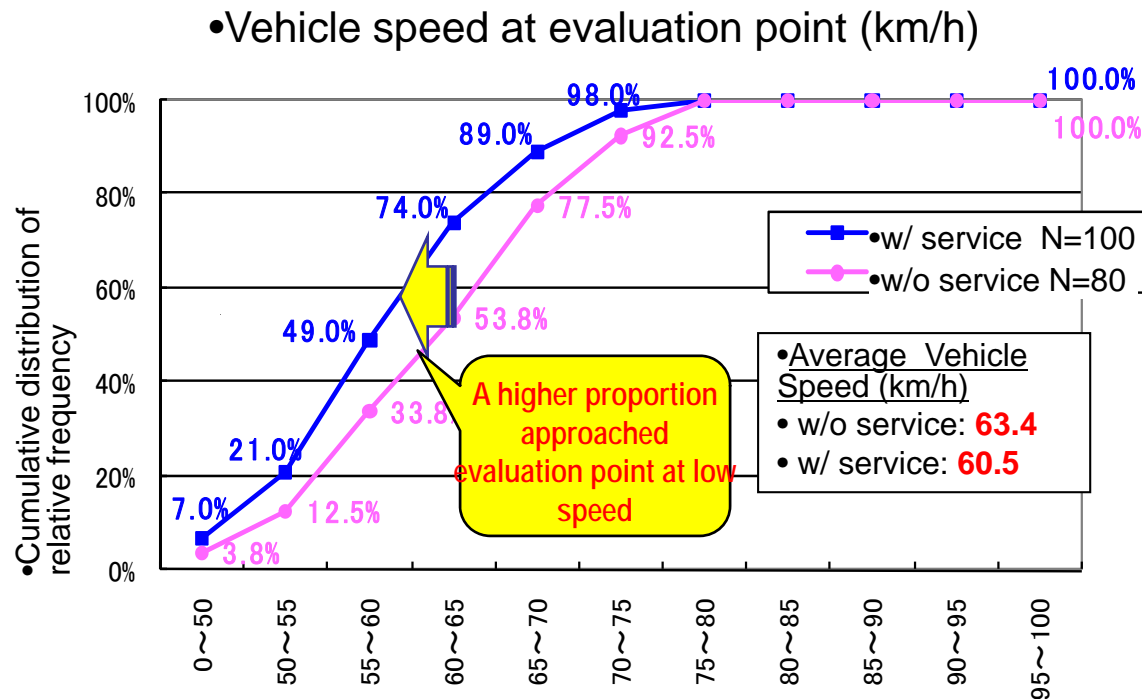
- As the shape of the Rinkai Fukutoshin off-ramp is crest of a hill, it is difficult for driver to see the intersection beyond it.
- This system is to prevent rear-end collisions with vehicles waiting for the traffic signal.



Results of FOT

Vehicle Speeds Reduction

- With the service, more vehicles approached evaluation point (near top of the uphill) at low speed rather than without service.



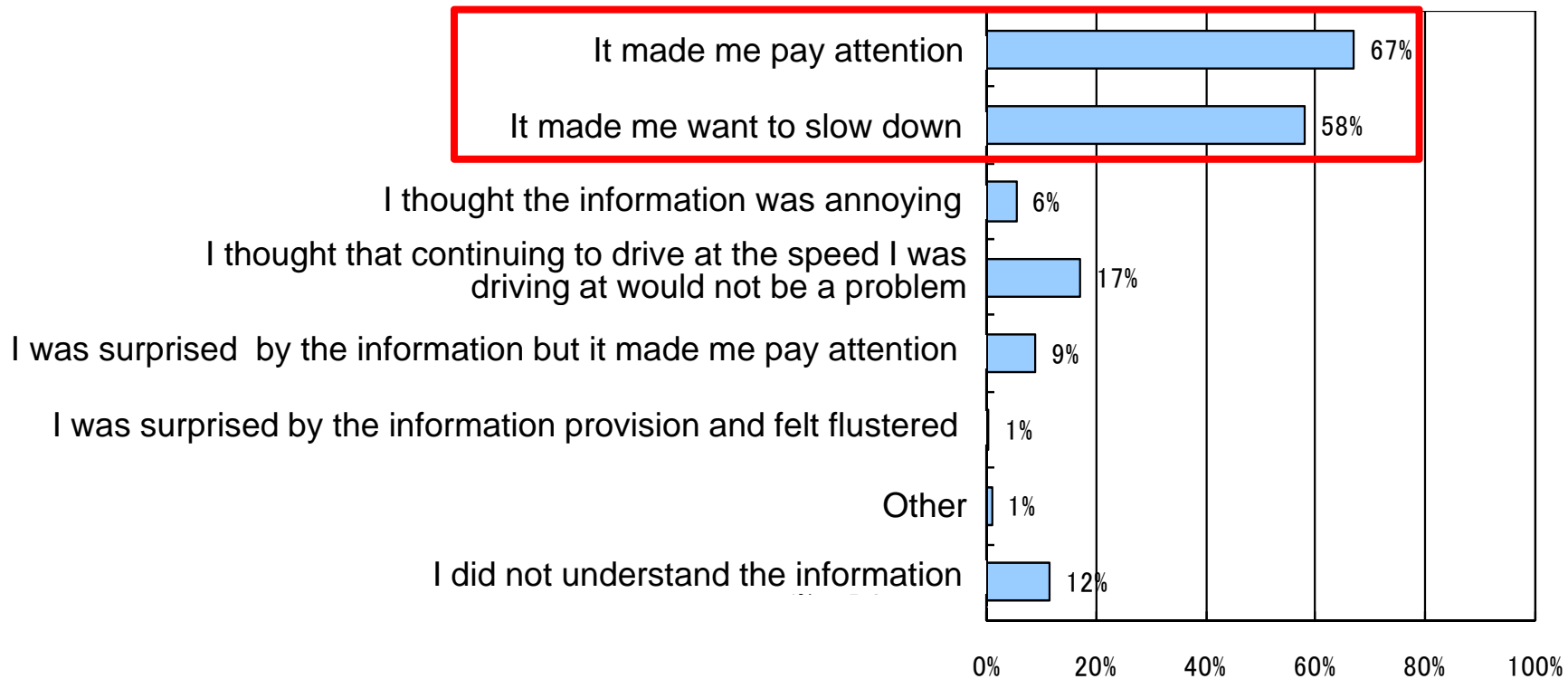
NOTE: Evaluation point: near the end of upward slope and driver come with sight the stopping vehicles waiting at the intersection

□ Results of questionnaire survey

- Many subjects answered positively, “It made me pay attention” or “It made me want to slow down”.

Q. How did you feel when you received the information?

(Multiple responses possible)



February–March 2009

Large-scale FOTs held as “ITS-Safety 2010”

April 9, 2009

New Strategy for the Digital Era: Three-Year Emergency Plan (decision of IT Strategic Headquarters)

April 10, 2009

Countermeasures to Address the Economic Crisis (decision by a joint meeting of the Government/Ruling Coalition Conference on Countermeasures to Address the Economic Crisis and the Ministerial Conference on Economic Measures)

July 6, 2009

i-Japan Strategy 2015 (decision of IT Strategic Headquarters)

These policies aim to promote the widespread deployment of next-generation on-board units and installation of roadside equipment in the field of ITS, which is expected to decrease the environmental impact, reduce traffic accidents, and improve freight distribution.

- Standard specifications of on-board unit and roadside equipment have been developed through public-private joint research.
- After deciding the standards, the challenge at the step of implementation is whether installing RSE first by public sector or selling on-board units first by private sector
- On the base of this joint research, on-board units are ready to come to the market by private sector.
- In response to private sectors' movement, roadside equipment will be installed nationwide as a countermeasure to address the economic crisis.

Countermeasures to Address the Economic Crisis (April 10, 2009)

Joint meeting of the Government/Ruling Coalition Conference on Countermeasures to Address the Economic Crisis and the Ministerial Conference on Economic Measures

Extract:

- II. Growth strategies: Investing for the future
 1. A "low-carbon revolution"
 - (3) Innovations in the means of transportation and related infrastructure
 - **Intelligent transport systems (ITS)**



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Various services in the private sector are expanding using ITS on-board units. (by open platform of ITS on-board units for high performance including multi-application capability)



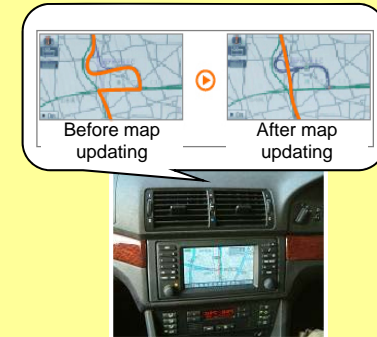
Cashless payment at parking facilities and drive-through windows



Expansion of content business, including music purchasing



Improved security in apartment buildings, office buildings, etc.



Automatic map updating allows flexible handling with regard to newly opened roads, discounted expressway tolls, etc.

Services and adoption of ITS on-board units will begin, primarily on expressways



Providing wide area traffic information and dynamic route searching



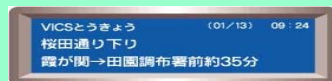
The current travel time to is about minutes.

Providing traffic information in audio form (highway radio)

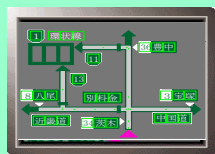


Distributing guidance and event information for tourist facilities and leisure facilities

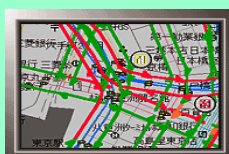
VICS services (existing)



Text display



Simple diagram display



Map display



Information on parking facilities, restrooms, and other facilities at service areas and parking areas.



Distributing electronic ads, etc. for outlet stores

Thank you !