

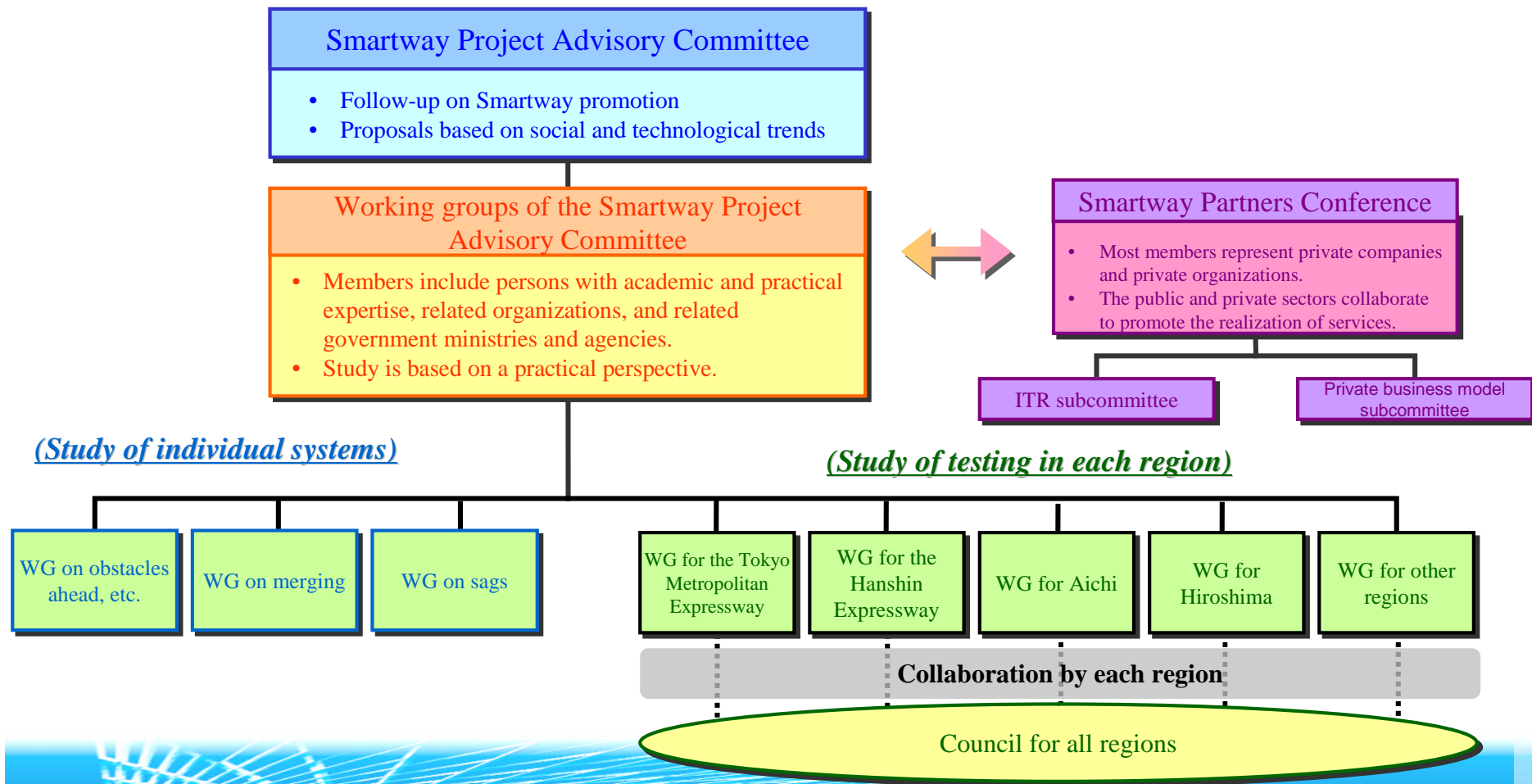


Future Development and Issues (Draft)

May 2007

1. System for promotion of Smartway 2007

- Working groups with expert members in fields such as traffic engineering and HMI were formed to study specific ways to provide information (including timing and displays), evaluation methods, and other aspects of each subsystem of assisting for safe driving system, from a technical standpoint.
- Working groups with members from public and private organizations in each region, including the Hanshin Expressway, Aichi, and Hiroshima in addition to the Tokyo Metropolitan Expressway, were formed to study ways to promote testing in each region, in collaboration with the advisory committees of each region.



2. Efforts in each region (Case 1)

1) Testing on the Hanshin Expressway

- About half of all accidents on the Hanshin Expressway occur at the ten locations with the highest accident rates.
- Three of these are curves; four are tollgates on main routes; and three are merge points.
- These frequent accident locations have been selected as priority locations for traffic accident countermeasures. The use of ITS technologies to reduce the accident rates is being studied.

Table: Frequent accident locations on the Hanshin Expressway, FY 2001-2005

| Rank | Curve or merge/demerge point | Route | Total number of accidents |
|----------------------------------|---|---|---------------------------|
| 1 | Tollgate on the main Ashiya Line | Route 3, Kobe Line (away from Tokyo) | 587 |
| 2 | Moriguchi Line merge point | Route 1, Loop Line | 460 |
| 3 | Tollgate on the main Nagata Line | Route 13, Higashi-Osaka Line (toward Tokyo) | 388 |
| 4 | Tollgate on the main Yamato-Gawa Line | Route 14, Matsubara Line (toward Tokyo) | 333 |
| 5 | Sakai-Loop Line crossover merge point and Minato-cho entrance | Route 1, Loop Line | 313 |
| 6 | Wakamiya Curve | Route 3, Kobe Line (toward Tokyo) | 309 |
| 7 | Tollgate on the main Amagasaki Line | Route 3, Kobe Line (toward Tokyo) | 291 |
| 8 | Shiomi Curve | Route 15, Sakai Line (away from Tokyo) | 287 |
| 9 | Senba, merge point D connecting to No. 3 construction zone | Dobuike-Nishi Line | 285 |
| 10 | Nishide No. 2 Curve | Route 3, Kobe Line (away from Tokyo) | 283 |
| Total for the top 10 locations | | | 3,536 |
| Total for the Hanshin Expressway | | | 35,674 |

Source: Hanshin Expressway Co., Ltd.

Priority locations for traffic accident countermeasures

- At curves
- At merge points
- At tollgates on main routes

Study of countermeasures using ITS technologies

2. Efforts in each region (Case 2)

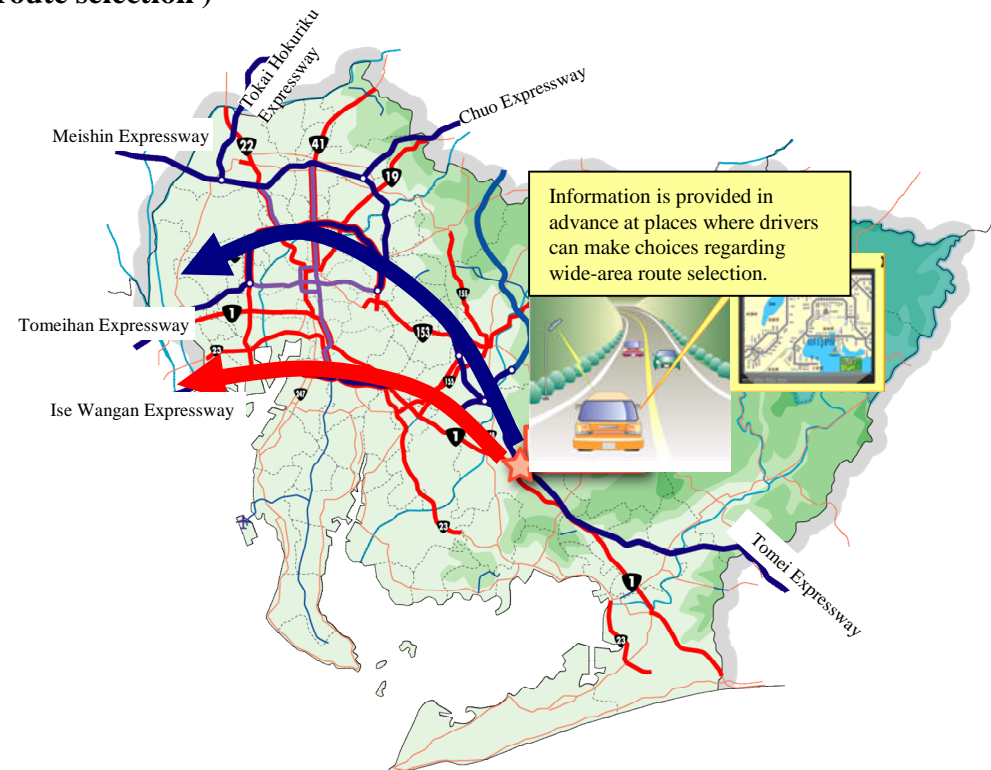
2) Testing in the Aichi region

- The Aichi region includes the Nagoya Expressway, which carries traffic within the city, and the Tomei and Meishin Expressways, which carry wide-area traffic.
- In central Nagoya on the Nagoya Expressway, there are several curves with poor visibility. To prevent rear-end collisions with vehicles beyond a curve which are moving slowly or stopped because of congestion, information will be provided just before the curve to inform drivers of congestion ahead.
- On the Tomei Expressway, road traffic information ahead of the driver's direction of travel will be provided to support wide-area route selection.

(Conceptual illustration of providing information just before a curve with poor visibility)



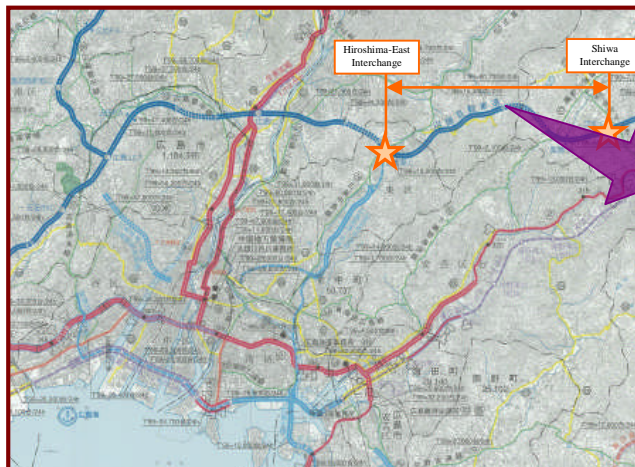
(Conceptual illustration of providing information to support wide-area route selection)



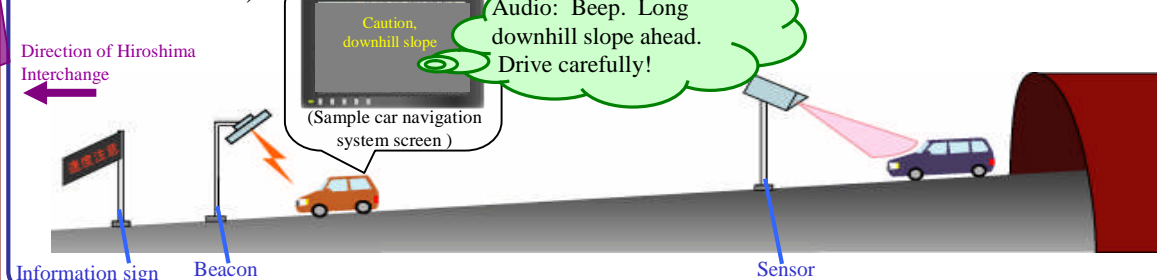
2. Efforts in each region (Case 3)

3) Testing in the Hiroshima region

- In the Hiroshima region, testing plans are being studied by a council composed of academic experts and related local organizations (road managers, prefectural police, carmakers, etc.).
- On the Sanyo Expressway, which passes through a mountainous region, there are significant changes in longitudinal gradients and weather conditions due to changes in elevation. Road traffic conditions are determined using a roadside sensor, and information is provided in order to alert drivers and inform them about road surface conditions and weather conditions ahead.



(Conceptual illustration of providing information in order to alert drivers regarding road traffic conditions)



3. Future issues

- Steady implementation of Smartway in each region, based on the results of testing.
- Early determination of service effectiveness and promotion of widespread adoption, based on synergy through public-private involvement.
- Promoting efficient service deployment in collaboration with related government ministries and agencies.

(Issues regarding promotion)

◆ Steady spread and acceptance of next-generation road services

- Promoting the testing and trial operation of next-generation road services and formulation of next-generation road service development plans in each region
- Stronger collaboration with related government ministries and agencies
- Supporting deployment in services by the private sector

◆ Tactics to support regional utilization of ITS

- Studying ways to support the resolution of problems faced by each region

◆ Promoting international strategy

- Market expansion through international standardization and ITS technical support to foreign countries

4. Scenario for the deployment of new road-vehicle cooperation systems

- Active promotion of systems to support safe driving, including public road tests in Japan's three largest urban areas, based on test results.
- Successive deployment of other ITS services as well, based on the sharing of roles with expressway companies.
- Promoting private use and widespread adoption of on-board units.

