【Attachment 2】

内閣府
Cabinet Office, Government of Japan

Second Phase of the Cross-Ministerial Strategic Innovation Promotion Program
Automated Driving for Universal Services
(SIP-adus)

the outline of the Tokyo Waterfront Area Field Operational Test report

SIP
戦略的イノベーション創造プログラム

1．Background of the FOTs*

*FOTs Field Operational Tests

(1)Objectives

○To verify common technologies in inter-sectoral collaboration for the development of automated vehicles with dynamic environmental information provided through infrastructures such as traffic signal data on general roads and merging support information on expressways, along with to evaluate impact of these technologies on mixed traffic conditions.

○ To promote international cooperation and standardization and others, by organizing and reviewing worldwide and open forums.

(2) Implemented

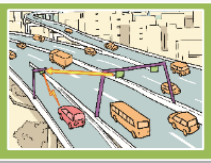
○ from October 2019 to the end of March 2021

(3) Infrastructures and on-board units installed

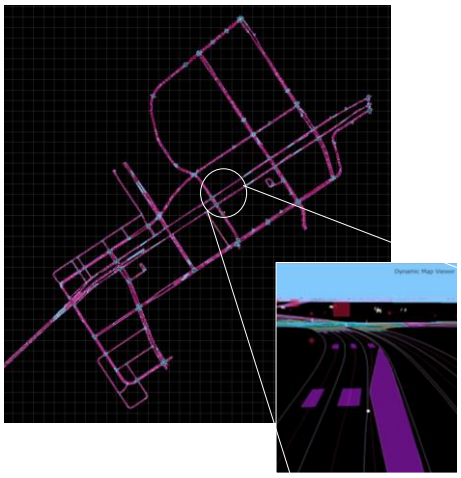
Each color on the map corresponds to the test area descriptions

Waterfront city area with
- Traffic signal data from deployed ITS roadside units
- High Precision 3D map linked with the traffic signal data
- others

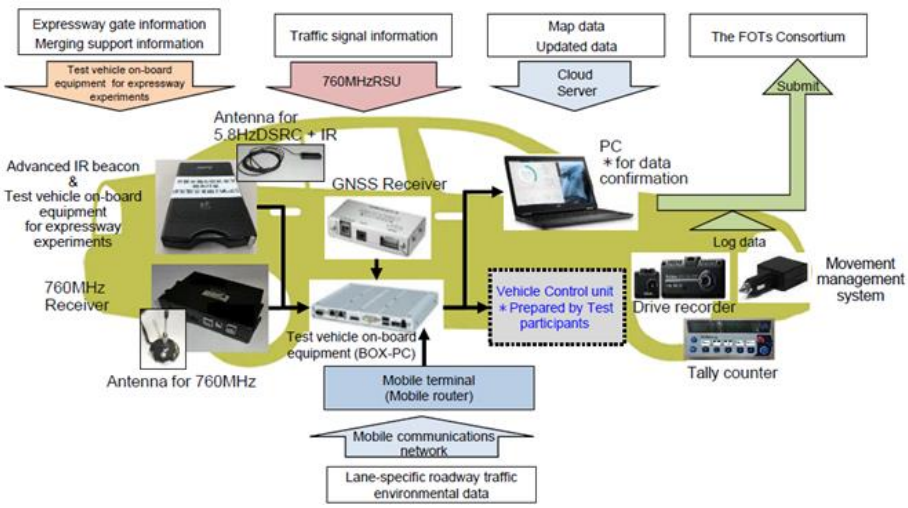
Haneda airport area with
- Traffic signal data from deployed ITS roadside units
- Lanes magnetic markers disposed, provisional bus stops *
- Reserved lanes*



Expressways connecting HND and Waterfront city area with
- Merging support information
- ETC gate status information
- Lane-level traffic regulation information and others



High Precision 3D map image in Waterfront city area



Network structure for On-board unit in FOTs

(4) Participants

○29 institutions including domestic and foreign automobile manufacturers, auto parts suppliers, universities, start-ups and others

先進モビリティ
AISAN TECHNOLOGY CO.,LTD.
BMW MINI
BOLDLY
BOSCH Invented for life
中部大学
Continental
DAIHATSU
epitomical
Field.auto
HINO
HONDA
JTEKT
金沢大学 KANAZAWA UNIVERSITY
mazda
名城大学 MEIJO UNIVERSITY
MITSUBISHI ELECTRIC Changes for the Better
MITSUBISHI MOTORS
名古屋大学 NAGOYA UNIVERSITY
NISSAN MOTOR CORPORATION
SAIKO 埼工大
SOMPO 損保ジャパン
SUBARU
SUZUKI
Tier IV Intelligent Vehicle
TOYOTA
Valeo
VOLKSWAGEN AKTIENGESELLSCHAFT

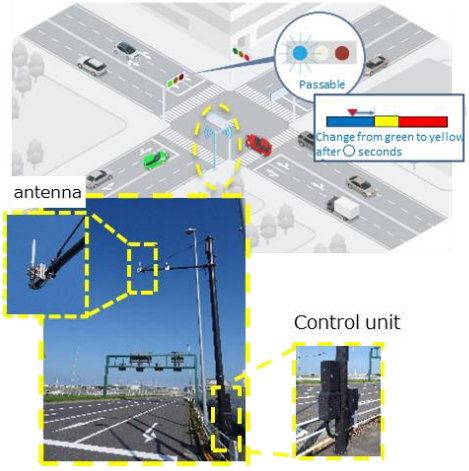
Alphabetical order. A total of 29 institutions

2．Waterfront City area (traffic signal information)

Goal A society with traffic safety secured by minimum accidents

How

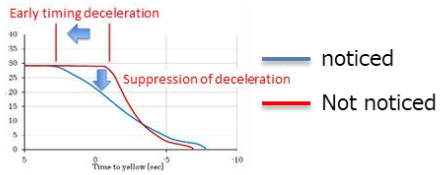
Distribution of data for:
- Real time signal color
- Time in seconds remaining to a next color



Result

- Systems successfully recognized the signal colors even under bad weather, backlight and other indistinct circumstances

- Vehicles safely and smoothly stopped without hard breaking, by noticed timing of signal color change

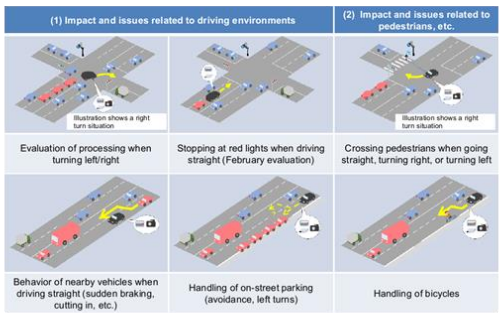


3．Waterfront city area （Impact assessment)40,

Goal Smooth merging to general roads under mixed traffic for automated vehicles

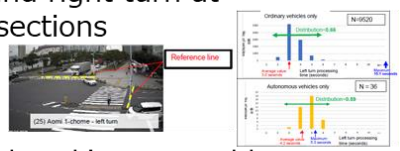
How

- Clarification of impact caused by merging automated vehicles under actual traffic mixed with conventional vehicles and pedestrians



Result

- No significant change found on traffic volume and pedestrian behaviors for automated cars' left and right turn at intersections



- Hard breaking caused by vehicles following automated cars, of which the drivers made another decision at dilemma zone

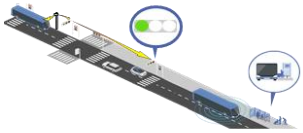
4. Haneda Airport area (next generation public transportation system)

Goal

- **Friendly bus for elderlies and people with disabilities, realizing right positioning at stops and slower accel-brake control**
- **Punctual and express transport service with bus priority signal**

How

- Deployment of magnetic markers for position estimation and auto start-stop-turn control
- Application of bus priority policy with PTPS for signal information distribution and "Go" signal time extension by network communication and with reserved lanes



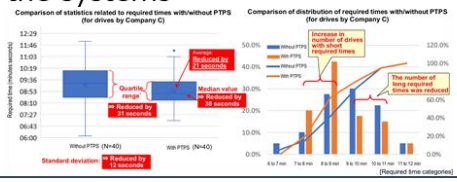
Magnetic marker

Bus lane

Result

- Positioning of bus realized at stops right and close enough for wheelchair access without support

- Shorter average travel time and more punctuality realized with the systems



* FOTs for "Next generation transport system" with Level 4 closed in Nov. 2020

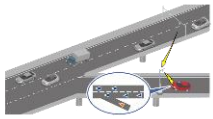
5. Metropolitan Expressway (merging support / ETC gate information)

Goal

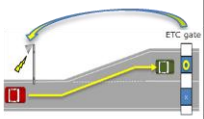
Smoother driving at merging points on Expressways

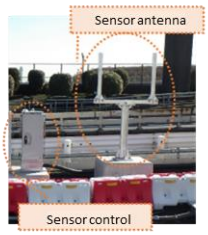
How

- Distribution of information about traffic to merge into as support data toward vehicles on merging lane



- Distribution of status information of ETC gates at blind spot





Roadside sensor

Roadside radio unit

Result

- Traffic correctly recognized enough in advance even at merging points with walls blocking the view

- ETC gate status data caught and resulted to define a lane to get into before recognizing the oncoming gate