



November 13, 2018

Director General for Science, Technology and Innovation Policy
Cabinet Office

FOTs in the Tokyo Waterfront Area
– Cross-Ministerial Strategic Innovation Promotion Program –
Innovation of Automated Driving for Universal Services (SIP-adus)

In the second phase of the Cross-Ministerial Strategic Innovation Promotion Program – Innovation of Automated Driving for Universal Services (SIP-adus), field operational tests (FOTs) will be conducted on the platform technologies for the driving environment (e.g., providing traffic signal information and merging support information from the traffic infrastructure) on public roads, etc. such as general roads and expressways from 2019 to accelerate the implementation of automated driving (refer to the attached document).

The plan for FOTs will be announced in line with the fifth SIP-adus Workshop 2018, an international workshop on automated driving organized by SIP, to create opportunities for internationally open FOTs.

1. Background

In the second phase of SIP-adus, R&D on common issues (cooperative areas) to be addressed through industry-academia-government collaboration has been promoted to implement and spread automated driving, contribute to solving social issues (e.g., reduce traffic accidents and congestion, provide mobility for vulnerable road users, alleviate the shortage of drivers and reduce the cost of logistics/mobility services, and thereby improve the quality of life for all people.

At the Growth Strategy Council – Investing for the Future (March 2018), Prime Minister Abe stated: “We will implement automated driving during the 2020 Summer Olympic/Paralympic Games in Tokyo. We will step up efforts through various projects, such as creating a demonstration site for increasing the safety of automated driving by transmitting traffic signal information to vehicles in the Tokyo waterfront area.”

To achieve these goals, we have conducted surveys and reviews on specific areas to conduct FOTs in the Tokyo waterfront area as well as the functions and layout of necessary traffic infrastructure, etc. in cooperation with the Japan Automobile Manufacturers Association, Inc., industries, Tokyo Metropolitan Government, and ministries and agencies, etc.

2. Overview of FOTs in the Tokyo waterfront area

The traffic environment on general roads is complicated. As the traffic includes vehicles, pedestrians, bicycles, etc., it is difficult to achieve automated driving based solely on information from vehicle sensors, etc. On expressways, it is difficult to continue automated driving at junctions where the merging area is too short for self-driving cars, etc. To solve these issues, technical verification will be conducted in actual traffic environments on public roads with the participation of automakers, etc. in the Tokyo Waterfront City area, Haneda Airport area, and an expressway that connects Haneda Airport with the Tokyo Waterfront City area, etc. on the occasion of the 2020 Summer Olympic/Paralympic Games in Tokyo.

A driving environment for safer and more comfortable automated driving will be built based on vehicle-infrastructure cooperative automated driving technologies that utilize the traffic signal information and merging support information, etc. from traffic infrastructure, in addition to the dynamic map implemented in the first phase of SIP-adus. FOTs will be conducted to help solve issues related to technologies, systems, and social acceptance, thereby accelerating implementation and deployment.

Manufacturers, universities, venture companies, etc. outside Japan will be invited to participate in the internationally open FOTs in order to promote international cooperation and coordination, etc. The FOTs are a pioneering initiative to verify traffic infrastructure, etc. required to achieve safer automated driving in addition to automated driving using vehicle sensors, etc. based on the assumption that automated driving will be implemented on general roads that are characterized by complicated traffic environments.

To promote public understanding of automated driving, etc., FOTs of automated driving that utilizes traffic infrastructure will be opened to the public, and test ride events will be held, etc. in cooperation with the Japan Automobile Manufacturers Association, Inc.

An overview (plan) of the FOTs is as follows.

- 1) Period: from the latter half of 2019 to the end of FY2022 (The details of the period will be announced separately.)
- 2) Areas
 - Tokyo Waterfront City area (general roads)
 - Haneda Airport area (general roads)
 - Expressway that connects Haneda Airport with the Tokyo Waterfront City area, etc. (and general roads around the expressway)
- 3) Participants
 - Automakers, components manufacturers, universities, research institutions, etc. in and outside Japan are expected to participate.
 - The details of the technology specifications and participation guidelines for the

FOTs (e.g., conditions and procedures to participate) will be released in around January 2019. The specific conditions and safety management requirements, etc. of the FOTs will be coordinated with the parties concerned.

4) Main items ^(Note)

➤ Tokyo Waterfront City area (general roads)

Demonstration, etc. of mobility services and automated driving of privately owned vehicles in mixed traffic environments with intersections involving pedestrians and bicycles, etc. and general (non-self-driving) cars

- Verification of technologies to provide and recognize traffic signal information required to achieve automated driving, etc.
- Verification of the layout of traffic infrastructure (e.g., roadside wireless communication equipment that transmits traffic signal information) that is required to achieve automated driving

➤ Haneda Airport area (general roads)

Demonstration of unmanned transport services, etc. based on vehicle-infrastructure cooperative automated driving in limited areas such as airports (e.g., buses [public transport], vehicles for transporting a small number of passengers)

- Verification of traffic infrastructure, etc. that is required for buses and transport services for a small number of passengers in mixed traffic, etc.
- Verification of technologies and traffic infrastructure required for next-generation public transport systems
- Verification of social acceptance, etc. of mobility services using remote monitoring, exclusive lanes, etc.

➤ Expressway that connects Haneda Airport with the Tokyo Waterfront City area, etc. (and general roads around the expressway)

Demonstration of merging from general roads to expressways and branching from expressways to general roads, etc. to expand the areas where automated driving can be applied from expressways to general roads

- Review of merging with the expressway main lane with a short acceleration lane and traffic infrastructure, etc. that is required to help pass through ETC gates, etc.
- Verification of automated driving support technologies for smoothly merging with an expressway, etc.
- Verification of technologies to provide traffic information (about lane closures, congestion, etc.)

(Note) These items will be implemented in stages during the period.

3. Others

In addition to the FOTs announced in this press release, the Cabinet Office will also conduct demonstrations on the use of automated driving technologies, etc. in local areas and new town areas in order to promote measures for coping with road traffic issues in local cities.

In these initiatives, FOTs will be promoted in cooperation with relevant ministries and agencies.

[Attached document]

Overview of FOTs in the Tokyo Waterfront Area in the Second Phase of the Cross-Ministerial Strategic Innovation Promotion Program – Innovation of Automated Driving for Universal Services (SIP-adus)

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Overview of FOTs in the Tokyo Waterfront Area in the Second Phase of the Cross-Ministerial Strategic Innovation Promotion Program – Innovation of Automated Driving for Universal Services (SIP-adus)

Overview of the FOTs in the Tokyo Waterfront Area

1. Organizer

Cross-Ministerial Strategic Innovation Promotion Program – Innovation of Automated Driving for Universal Services (SIP-adus) Promoting Committee

2. Objective and outline of the FOTs

- Verification of automated driving technologies in cooperative areas that utilize traffic infrastructure (e.g., traffic signal information on general roads, merging support information on expressways)
- Promotion of research and technology development in Japan by providing opportunities and space for FOTs that utilize traffic infrastructure as well as necessary demonstration equipment, etc.
- Evaluations in open spaces by involving many experts to give feedback to future R&D
- Solicitation of organizations in and outside Japan (e.g., manufacturers outside Japan) to participate, promotion of international standardization, enhancement of industry-academia-government coordination, and raising of social acceptance, etc.

3. Schedule

[November 13, 2018 (today): Overview of the FOTs is announced.]

Late November to December 2018: The details of the experiment plan (technology specifications) will be determined, the participation guidelines will be created, and coordination with the parties concerned will be ensured.

Around January 2019: Participation will be solicited (public offering), and on-site preparations will be made.

Around latter half of 2019 to the end of FY2022: FOTs will be conducted.

(The details of the schedule will be announced separately.)

4. Planned areas

- (1) Tokyo Waterfront City area (general roads)
- (2) Haneda Airport area (general roads)
- (3) Expressway that connects Haneda Airport with the Tokyo Waterfront City area, etc. (and general roads around the expressway)

5. Participants (expected)

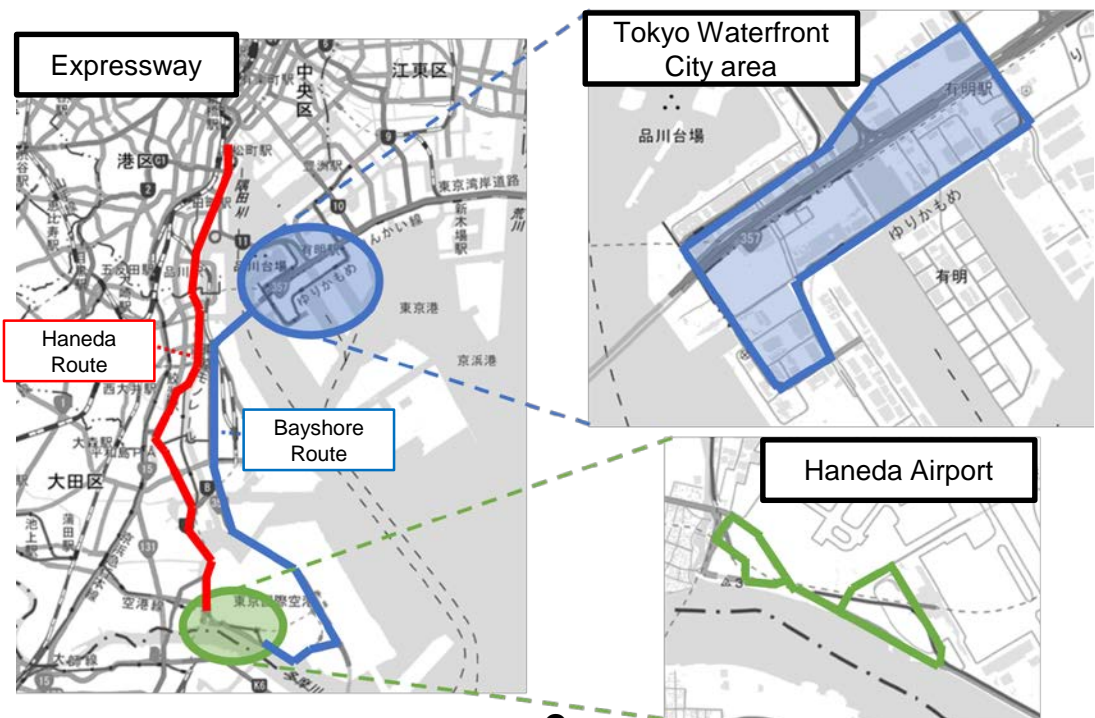
Automakers, components manufacturers, universities, research institutions, etc. in and outside Japan

(The cost including the vehicles used, personnel expenses for testing, and vehicle insurance premiums will be paid by respective participants.)

6. Main items to be implemented in the FOTs

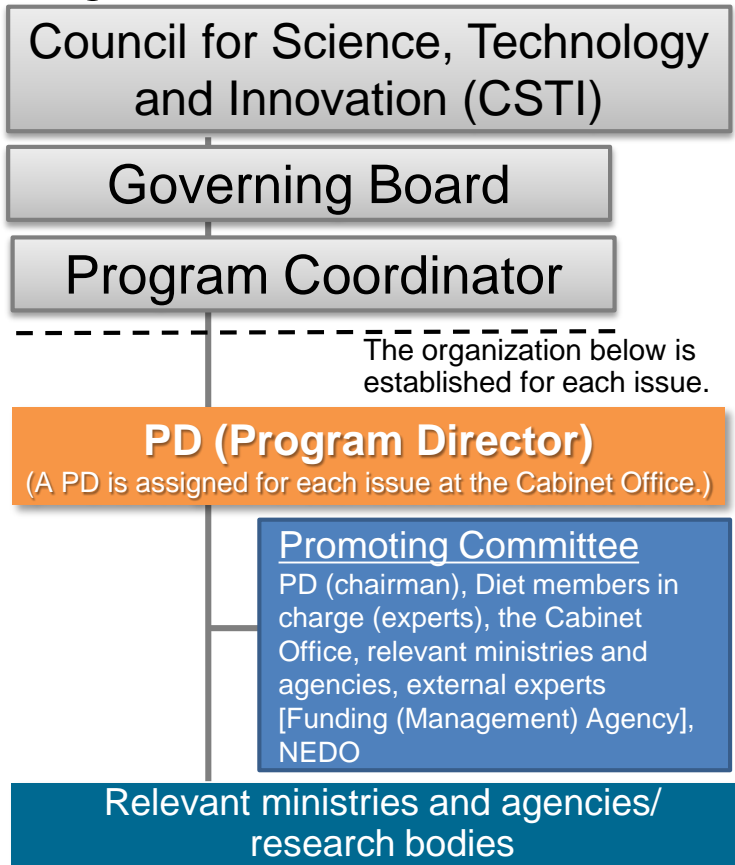
	Environments for the FOTs (planned)	Items to be demonstrated by participants (examples)
Tokyo Waterfront City area (general roads)	<ul style="list-style-type: none"> An environment to provide traffic signal information from traffic signals (roadside wireless communication equipment) High-definition 3D maps linked with traffic signal information, etc. 	<ul style="list-style-type: none"> Verification of smooth automated driving technologies using traffic signal color cycle information Verification of coordination and conformity with the high-definition map
Haneda Airport area (general roads)	<ul style="list-style-type: none"> An environment to provide traffic signal information from traffic signals (roadside wireless communication equipment) Routes with magnetic markers embedded Temporary bus stops Exclusive lanes, etc. 	<ul style="list-style-type: none"> Verification of driving control by utilizing traffic signal information from traffic infrastructure Verification of the system for measuring the position of one's own vehicle using magnetic markers and precise docking Verification of acceleration/deceleration control for standing passengers
Expressway that connects Haneda Airport with the Tokyo Waterfront City area, etc. (and general roads around the expressway)	<ul style="list-style-type: none"> An environment that provides merging support information An environment that provides ETC gate information An environment that provides traffic regulation information for each lane 	<ul style="list-style-type: none"> Verification of requirements such as vehicle detectors in order to provide merging support information to enter the expressway main lane Verification of the appropriateness of information about available ETC gates and the timing of providing such information Verification of utilization of traffic regulation information for each lane
Common	<ul style="list-style-type: none"> Onboard equipment (e.g., traffic signal information, merging support information) (only for applicants) 	<ul style="list-style-type: none"> Verification of self-position estimation technologies utilizing signals from quasi-zenith satellites in some FOTs

Areas



[Reference] Cross-Ministerial Strategic Innovation Promotion Program – Innovation of Automated Driving for Universal Services (SIP-adus)

[Organization]



➤ **SIP-adus**
Cross-Ministerial Strategic Innovation Promotion Program
Innovation of Automated Driving for Universal Services

➤ R&D budget, etc.
FY2018: about 3 billion yen

[promoted through cooperation of relevant ministries and agencies (e.g., National Police Agency, Ministry of Internal Affairs and Communications, Ministry of Economy, Trade and Industry, Ministry of Land, Infrastructure, Transport and Tourism), etc. under the initiative of the PD]

SIP-adus Project (subject to review)

