

Strategic Innovation Promotion Program (SIP) Phase Two - Automated
Driving (Expansion of Systems and Services)
Overview of Guidelines for Participating
in the Tokyo Waterfront City Area Field Operational Test

January 2019

< Table of Contents >

1. Background and Purposes of the Tokyo Waterfront City Area Field Operational Test....	1
2. Field operational test implementation overview.....	2
2.1. Implementation overview	2
2.2. Implementation period.....	2
2.3. Test participants.....	3
2.4. Implementation areas	3
2.5. Implementation area details	4
2.6. Verification contents.....	5
2.7. Roles of participants.....	6
2.8. Overview of test equipment.....	6
2.9. Test scheme.....	7
3. Requirements for Participation, Application Documents, and Selection	8
3.1. Conditions related to test participants	8
3.2. Submission procedure	8
3.3. Application documents.....	8
3.4. Notes on application documents.....	8
3.5. Participant selection	9
3.6. Application period	9
3.7. Notification	10
3.8. Participant briefing	10
4. Where to submit applications and inquiries.....	11

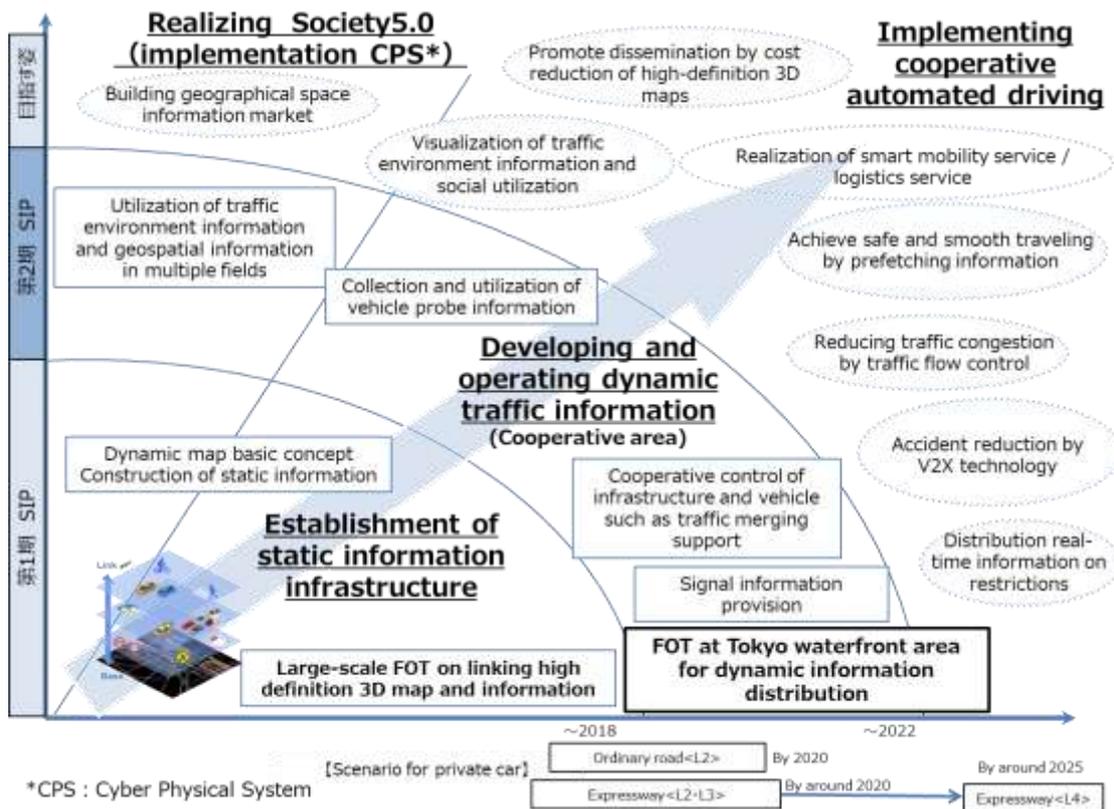
Appendix: Participation Rules for Tokyo Waterfront City Area Field Operational Test

1. Background and Purposes of the Tokyo Waterfront City Area Field Operational Test

SIP Phase Two - Automated Driving (Expansion of Systems and Services) seeks to contribute to the solving of societal problems, such as reducing the number of traffic accidents and the amount of traffic congestion, securing mobility for those with restricted transportation access, alleviating driver shortages and reducing costs for logistics and mobility services, by commercializing and promoting the greater adoption of automated driving. By doing so, it aims to create a society in which all people can enjoy high quality lives. To accomplish this, it promotes research and development on common issues (collaborative areas) by industry, academia, and government.

At the Council on Investments for the Future(held in March 2018), Prime Minister Abe declared that "Automated driving will be achieved by the Tokyo 2020 Olympic and Paralympic Games. We will further enhance our initiatives, with an eye towards deployment in a diverse range of business applications, such as preparing a verification area in the Tokyo Waterfront City area in which traffic signal information will be sent to vehicles to help achieve even greater automated driving safety." In order to accomplish this, the Japan Automobile Manufacturers Association and related members of the industrial sector, the Tokyo Metropolitan Government, related ministries, and other parties have coordinated together to study matters such as which specific areas to perform the Tokyo Waterfront City area field operational test, in which transportation infrastructure functions will be necessary, and the locations where these functions will be installed.

The objectives of this field operational test are the creation of systems and methods for using traffic environment information, such as traffic signal information and merging support information provided by traffic infrastructure, and the rapid practical implementation of advanced automated driving. (Fig. 1)

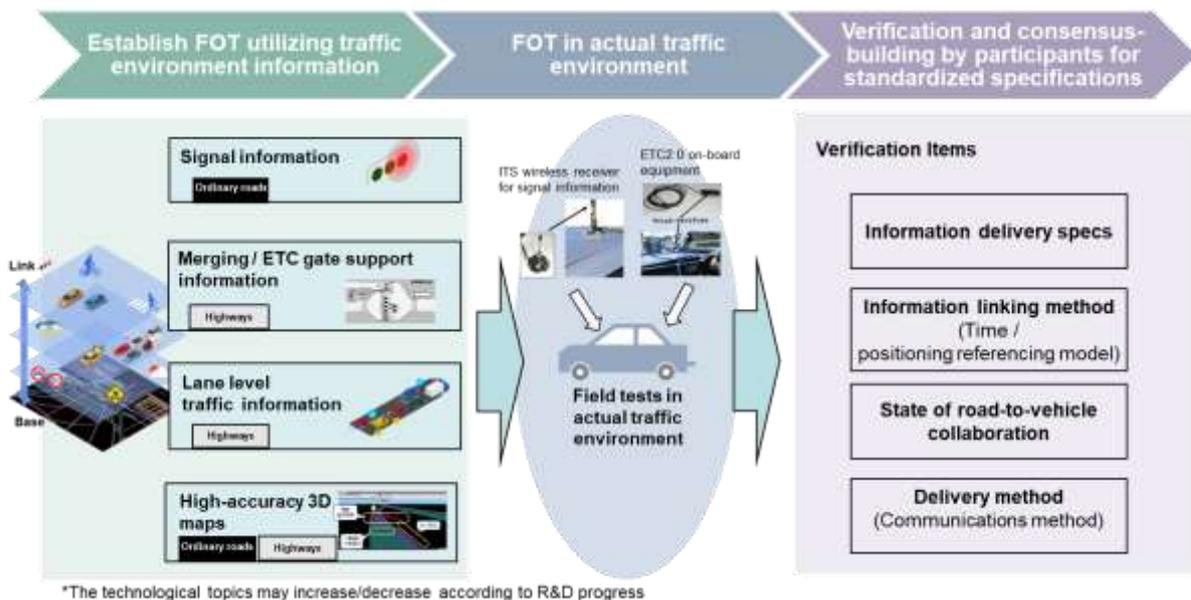


(Fig. 1) Road map for the creation of traffic environment information

2. Field operational test implementation overview

2.1. Implementation overview

A test environment will be provided that uses the high-accuracy 3D map information realized during SIP Phase One - Automated Driving Systems together with an infrastructure collaboration system that uses traffic signal information, merging support information, and other information provided by traffic infrastructure. The field operational test will be carried out in mixed traffic environments in order to verify and develop a consensus regarding the issues involved in the standardization of collaborative area technologies and the development of collaborative area technology specifications, and to thereby promote practical implementation and standardization. We are also calling for overseas manufacturers and the like to participate. By providing an open, international field operational test, we will promote international cooperation and collaboration. (Fig. 2)

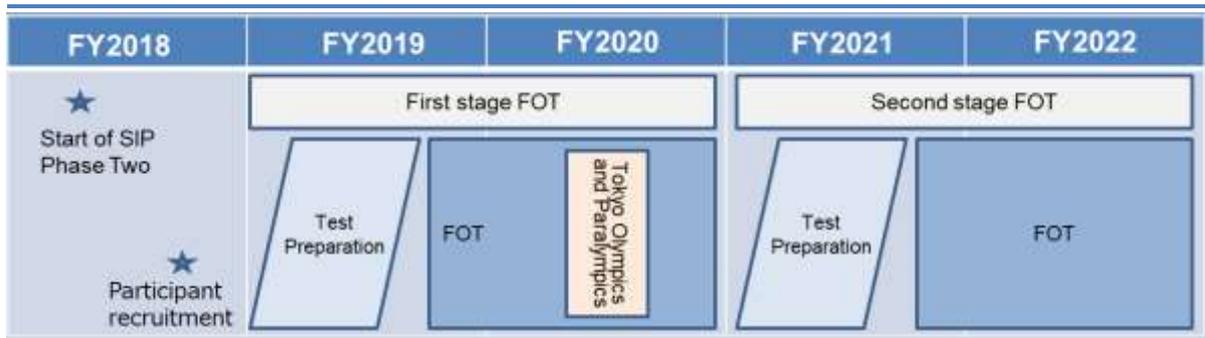


(Fig. 2) Field operational test implementation overview

2.2. Implementation period

SIP Phase Two - Automated Driving (Expansion of Systems and Services) will be implemented from 2019 to 2022. The field operational test will be composed of a first stage field operational test (2019 to 2020) and a second stage field operational test (2021 to 2022).

This call is for the first stage field operational test. An additional call is planned once the second stage field operational test details are finalized.



(Fig. 3) Implementation period

2.3. Test participants

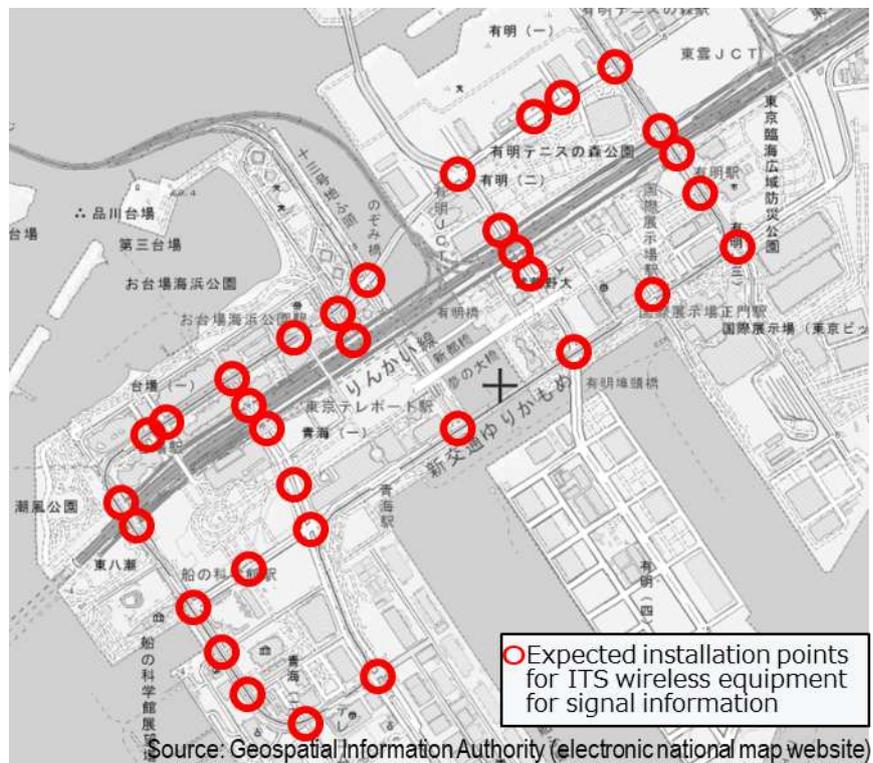
Japanese and foreign motor vehicle manufacturers, suppliers, venture capital companies, universities, and other corporations and research institutions performing automated driving technology research and development.

2.4. Implementation areas

- Waterfront City area
- Haneda Airport area
- Metropolitan Expressway routes connecting Haneda Airport and the Waterfront City area, etc. (including ordinary roads)

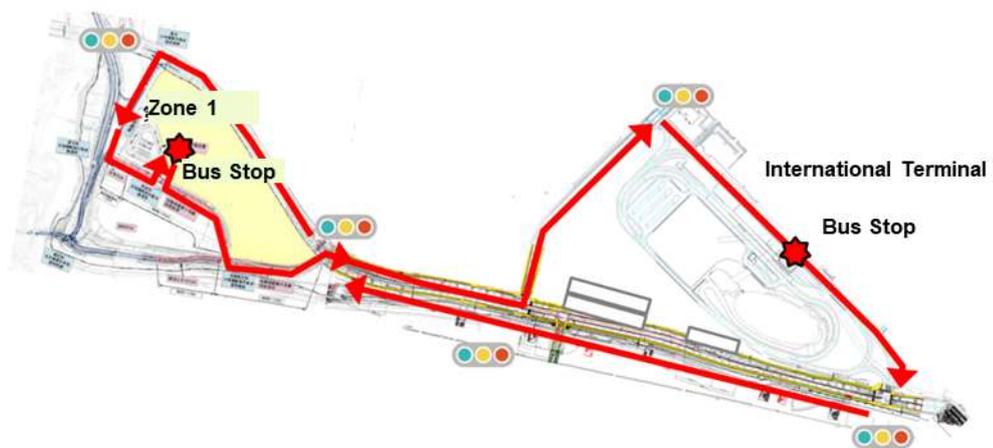
2.5. Implementation area details

➤ Waterfront City area



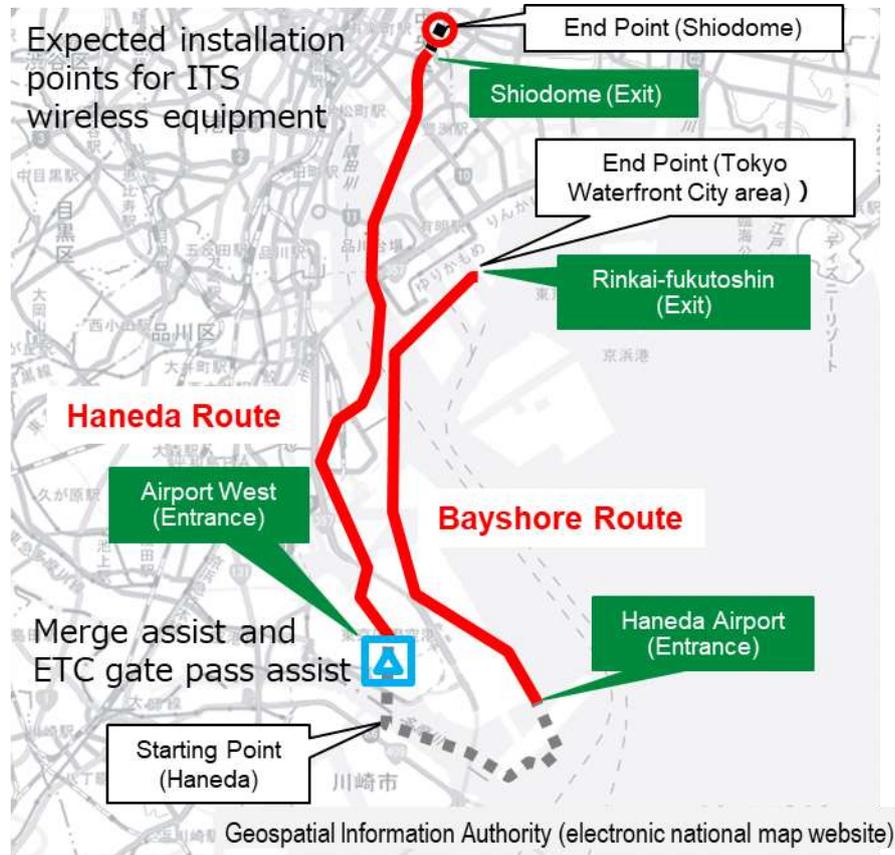
(Fig. 7) Waterfront City area

➤ Haneda Airport area



(Fig. 8) Haneda Airport area

- Metropolitan Expressway routes connecting Haneda Airport and the Waterfront City area, etc. (including ordinary roads)



(Fig. 9) Metropolitan Expressway routes connecting Haneda Airport and the Waterfront City area, etc.

2.6. Verification contents

Field operational tests will be performed in three different areas, envisioning three different scenarios.

Test participants can participate in field operational tests in one or more areas.

- Waterfront City area

We envision the verification of transportation services and automated driving by privately owned vehicles in mixed traffic environments which contain intersections, have pedestrian and bicycle traffic, and include ordinary, non-autonomous vehicles

<Technologies to be verified>

- * Intersection driving support using delivered traffic signal information
- * Driving using high-accuracy 3D map information
- * Assessment of impact of infrastructure collaboration automated driving on road transport
- * Assessment of locations of traffic infrastructure needed for automated driving (wireless ITS spots delivering signal information, etc.)

➤ Haneda Airport area

We envision the verification of unmanned transportation services, etc., in limited areas, such as airports, using infrastructure collaboration automated driving control such as public busses and small transport vehicles

<Technologies to be verified>

- * Automated driving technologies for achieving accessibility and comfort
- * Bus speedy transportation and regularly scheduled transport support using PTPS (Public Transportation Priority Systems)
- * Intersection driving support using delivered traffic signal information
- * Assessment of locations of traffic infrastructure needed for automated driving (wireless ITS spots delivering signal information, etc.)

➤ Metropolitan Expressway routes connecting Haneda Airport and the Waterfront City area, etc. (including ordinary roads)

This test is envisioned for merging from ordinary roads to highways and diverging from exit interchanges to ordinary roads, etc.

<Technologies to be verified>

- * Driving support using road-to-vehicle integration such as information provision of merging support and ETC gates on highways
- * Delivery of road traffic information by lane on highways
- * Driving using high-accuracy 3D map information

2.7. Roles of participants

Participants will prepare autonomous vehicles, etc., verify infrastructure collaboration automated driving technologies using loaned test equipment, and report test results and data. Participants will also help decide on collaborative area technology specifications in field operational test participant working group meetings held by contractors and share opinions related to a state of road-to-vehicle collaboration, and standardized specification.

2.8. Overview of test equipment

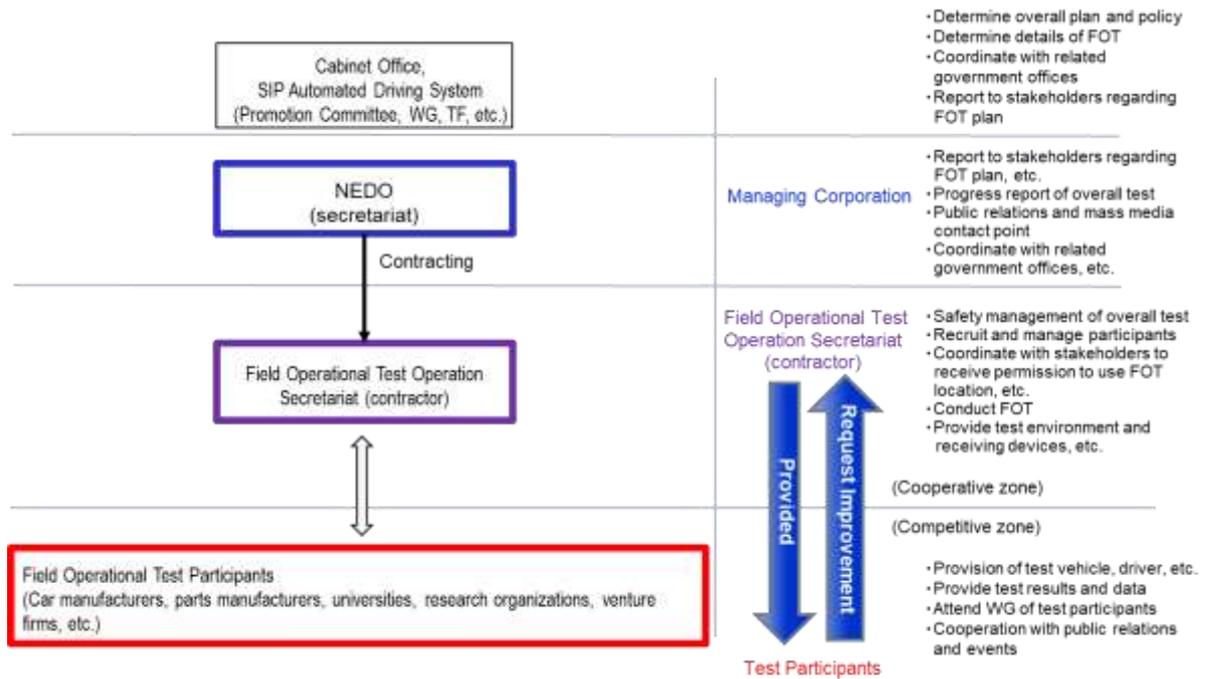
The contractor will lend out the equipment to receive information distributed via the infrastructure collaboration systems in this test. Participants will provide their own test vehicles. Refer to the "Participation Rules for Tokyo Waterfront City Area Field Operational Test" regarding the division of duties involved in preparing test equipment.

Details regarding the information supplied by the infrastructure collaboration systems (output formats, information provision locations, etc.) and details regarding test equipment will be provided as necessary by

the Secretariat or the contractor at participant briefings, progress report meetings, information-sharing sessions, etc.

2.9. Test scheme

The test scheme for this field operational test will be as indicated below.



(Fig. 11) Test scheme

3. Requirements for Participation, Application Documents, and Selection

3.1. Conditions related to test participants

Potential test participants include corporations and organizations, excluding local governments, that have corporate status and whose representatives, activity details, and asset management methods, etc. can be verified based on articles of incorporation. Furthermore, candidates must be engaged in research and development related to autonomous vehicles and able to effectively utilize the validation data obtained from the Tokyo Waterfront City Area Field Operational Test. Additionally, they must agree to the Participation Rules for the Tokyo Waterfront City Area Field Operational Test in the Appendix.

3.2. Submission procedure

- 1) Basic information entry
- 2) Submission of participation application documents to the Operation Executive Secretariat
- 3) Screening by the Operation Executive Secretariat
- 4) Notification of screening results
- 5) Briefing session for FOT
- 6) Declaration of interest in participation from applicants
- 7) Decision of official participants

3.3. Application documents

- 1) Application documents for participating in the test
 - (1) Basic information
 - Name of corporation, representative, and address
 - Name of person in charge, contact information (telephone number, email address)
 - Field operational test area to be participated in
 - Confirmation of contents of participation rules

* After the basic information has been received, the submission destination for (2) will be communicated.

3.4. Notes on application documents

- 1) Submitted application documents that are not completely filled out may not be accepted.
- 2) When applying to be a test participant, submit one copy each of the specified forms.
- 3) If many applicants apply, test participants will be selected based on the "Selection and screening criteria" describe in Section 3.5.
- 4) Submit your vehicle information and driving plan after your company or organization has been selected to participate in the test.
- 5) During the screening process, you may be asked to submit other documents in addition to those

listed above. As a rule, submitted documents will not be returned.

- 6) As a rule, test participant selection will be based on submitted application documents. Therefore, application documents (all documents including attachments) must clearly describe the details to be implemented.
- 7) Submitted documents must be written in Japanese.
- 8) The Operation Executive Secretariat will separately select a Field Operational Test contractor with an ability of conducting the secretariat functions. Once it has been selected, the Operation Executive Secretariat will appropriately transfer all application documents to the contractor.

3.5. Participant selection

Based on the submitted application documents, the Secretariat or the contractor will screen and select test participants.

Applicants will be interviewed regarding the submitted application documents when necessary.

The following screening standards are defined with the purpose of recruiting participants.

Screening criteria

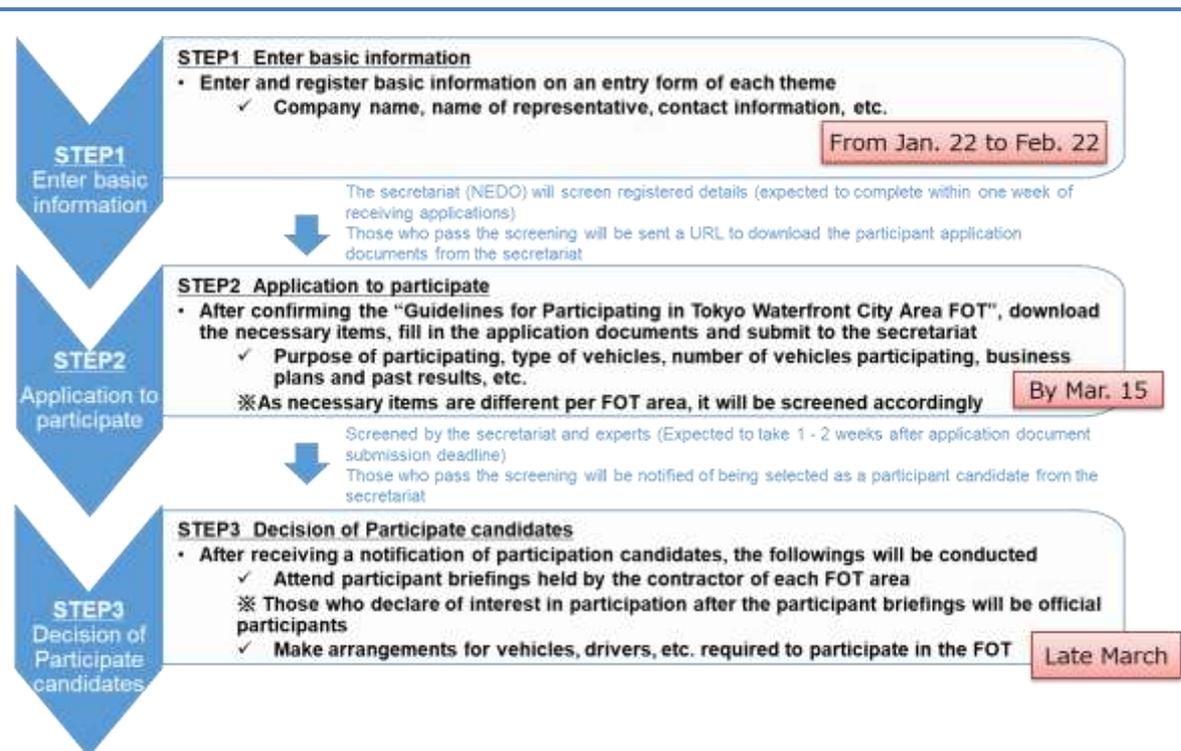
- 1) The applicant shall have a commercialization plan for practical implementation of automated driving. This does not apply to universities or public research institutes, etc.
- 2) The applicant shall possess superior technologies related to automated driving.
- 3) The applicant shall have implementation and information management systems capable of carrying out testing.
- 4) The applicant shall be fully capable of establishing the safety management system required for tests.
- 5) The applicant shall recognize that even if it satisfies criteria (1) to (4) above, the Secretariat may possibly limit its participation due to a request from Cabinet Office, and test management and control policies.

3.6. Application period

Application period begins on January 22 (Tuesday), 2019

Basic information entry deadline is February 22 (Friday), 2019

The application document submission deadline is March 15 (Friday), 2019 (all documents must arrive by this date)



(Fig. 12) Recruitment process

3.7. Notification

Applicants will be notified of selection results in late March 2019.

3.8. Participant briefing

A participant briefing is planned for April 2019.

4. Where to submit applications and inquiries

[Inquiries] Operation Executive Secretariat for Strategic Innovation Promotion Program (SIP)
Phase Two - Automated Driving (Expansion of Systems and Services)/ Tokyo
Waterfront City Area Field Operational Test

New Energy and Industrial Technology Development Organization (NEDO) Robot and Artificial
Intelligence Technology Department

Group responsible: Mobility Group

Address: MUZA Kawasaki Central Tower, 19F, 1310 Omiya-cho, Saiwai-ku, Kawasaki City,
Kanagawa 212-8554 Japan

Tel: 044-520-5241

E-mail: sip-adus-fot@ml.nedo.go.jp

Telephone reception hours: 10:00 a.m. to 5:00 p.m.

Participation Rules for Tokyo Waterfront City Area Field Operational Test

These participation rules (hereafter referred to as "these Rules") define rights and obligations related to a Tokyo Waterfront City Area Field Operational Test (hereafter referred to as the "Field Operational Test") conducted by the Tokyo Waterfront City Area Field Operational Test Operation Executive Secretariat (hereafter referred to as the "Secretariat"), the operational field test contractor (hereafter referred to as the "Contractor"), and a test participant (hereafter referred to as "participant"). Before participating in this Field Operational Test, the participant must read the full text of these Rules and agree to them.

Article 1 Objective

By defining the matters necessary for ensuring mutual cooperation in carrying out the field operational test between the Contractor and the participant, these Rules are intended to ensure that the Field Operational Test is properly and smoothly executed.

Article 2 Mutual cooperation

The Secretariat, the Contractor, and the participant agree to cooperate with each other in carrying out the Field Operational Test.

Article 3 Administrative procedures

1. If administrative procedures accompanying the installation of devices, etc., or consultation or negotiation with the managers of other public facilities are necessary in order to carry out the Field Operational Test in accordance with these Rules, such procedures, consultation, and negotiation shall as a rule be carried out by the party that manages said devices, etc.
2. If a procedure requires cooperation from a party other than the party that manages said devices, etc., this matter shall be negotiated between the Executive Secretariat and the participant in order to obtain the necessary cooperation.

Article 4 Assignment of responsibilities and expense allocation related to the Field Operational Test

1. The participant agrees to develop a vehicle operation plan for the test and operate/manage its test vehicles during testing.
2. The participant agrees to collect data related to vehicle operation and cooperate with the Contractor in its analysis and evaluation.
3. The vehicles to be used in the Field Operational Test shall be provided at the participant's expense.
4. The allocation of expenses and arrangements for the vehicle-mounted devices used in the Field Operational Test shall be borne as indicated in Table: Responsibility assignment and expense allocation (role assignment). Any expenses not listed in said table shall be allocated upon mutual consultation between the Contractor and the participant.
5. Additionally, the allocation of detailed expenses shall be in accordance with Table: Responsibility assignment and expense allocation (role assignment). Any expenses not listed in said table shall be allocated upon mutual consultation between the Contractor and the participant.

Table: Responsibility assignment and expense allocation (role assignment)

Item	Equipment, Software, Work, etc.	Contractor	Participant
Provide cooperative infrastructure system	Prepare communications equipment (ITS wireless receivers, ETC 2.0 vehicle equipment, mobile communications devices), HDD costs, and communication equipment transportation charge	○	-
	Building cost of CAN output function for delivery data (quasi-static and quasi-dynamic data)	○	-
	Preparation costs for various related hardware (PCs, etc.)	○	-
	Build information delivery function	○	-
	Viewer software (Delivered data is superimposed on maps)	○	-
Evaluate and confirm delivered data	Cost to confirm and evaluate delivered data	-	○
	PC for confirming delivered data	-	○
Prepare test vehicle and systems	Preparation costs for vehicle and systems (Used to provide cooperative infrastructure system delivery data to vehicle control and drivers)	-	○
	Vehicle transport and storage costs	-	○
	Convert map data to company format	-	○
	Convert when using CAN message	-	○
Prepare vehicle drivers	Cost of drivers	-	○
Assess and confirm quasi-static and quasi-dynamic data	Cost to evaluate data (vehicle fuel costs, highway toll fee, etc.)	-	○
	Cost of evaluation result report	-	○
Dynamic management of test vehicles	Cost of operating dynamic management system (including GPS and acceleration sensor)	○	-
	Cost to prepare drive recorder	-	○
	Cost of installing equipment (equipment for impact assessment, etc.) for dynamic management system and other requested installations	-	○

Article 5 Test vehicle driving locations

1. When driving autonomous vehicles within the specified public road segments in order to validate the matters described in the preceding article, the test participant shall perform driving in accordance with the driving plan submitted in advance by the participant to the Contractor.
2. The Contractor may specify part of the driving route or how the vehicle should be driven.

Article 6 Test vehicles

1. Test vehicles must meet the Safety Standards of the Road Transportation Vehicles (Ministry of Transport Order No. 67 of 1951). (Includes vehicles that are approved as special exemptions by the director of the Regional Transport Bureau as specified in Section 1, Article 55 of said ordinance or by the Minister of Land, Infrastructure, Transport and Tourism as specified in Section 4, Article 56.) In accordance with the Road Transport Vehicle Act, the vehicle must have an automobile registration number certificate issued by the Minister of Land, Infrastructure and Transportation or an automobile registration number certificate issuer and shall be allowed to travel on public roads.
2. Test vehicles must be those to which needed operations can be done by test driver to ensure safety in case of emergencies.
3. The Field Operational Test is designed to evaluate and verify the technical issues and effectiveness of traffic signal information provision technologies, automated driving support technologies that use road-to-vehicle integration on highways, and infrastructure collaboration next-generation public transport systems. Therefore, the vehicle used in the Field Operation Test shall be one which uses data distributed by the infrastructure collaboration system for automated driving and safe driving assistance.
4. The vehicle must be equipped with a function that can install map data into a PC or on-board ECU and estimate the vehicle's own position on the map based on the information obtained from the on-board sensors.
5. If a vehicle equipped with automated driving functions is to be used for this test, the participant must test the vehicle in advance at a facility such as a proving ground to ensure that it can be driven safely.
6. The test vehicle must clearly indicate system switching, such as issuing an alarm when automated driving is starting or ending.
7. If it is detected that the automated driving function has reached or is about to reach its functional limit, or if a system failure is detected, the system must ask the driver to take control of vehicle operation with a sufficiently advance warning. However, if driving operation is not or cannot be transferred to the driver, the vehicle must be brought safely to a stop.

Article 7 Test vehicle drivers

1. Test vehicles shall be driven by drivers, provided by the participant, fulfilling the legal obligations including Road Traffic Act.
2. Test driver shall sit on a driver's seat of a test vehicle to always watch surrounding road traffic condition and vehicle's state, and in case of emergencies take needed operations to ensure safety and not to cause damage to others.
3. The test drivers described in the paragraph 1 shall follow the Guidelines for Testing Automated Driving Systems on Public Roads (hereafter referred to as the "Guidelines") and, regardless of whether the automated driving functions of the test vehicle will be used and regardless of the automated driving level that will be used, must agree to the content of the Guidelines and notes related to testing.
4. The test drivers shall satisfy conditions listed below:
 - Drivers must have a driver's license required by regulations for a type of test vehicle and have a considerable amount of driving experience.
 - Drivers must thoroughly understand the framework and characteristics of the automated driving system of the test vehicle and be proficient in taking emergency actions for the test vehicle. (Education and training must be provided, as needed.)
 - Drivers must be able to cooperate in questionnaire-based surveys, etc., following field operational tests.
 - Drivers must be capable of fulfilling the legal obligations of drivers, and in case a traffic accident, etc. occurs, always be aware of the responsibilities of driver.
5. Drivers must be capable of reliably taking the necessary actions following an accident or during an emergency, such as giving the highest priority to aiding the victims and, afterward, notifying the police, etc. of the situation.
6. Additionally, drivers must be capable of fulfilling their obligations as drivers, including taking the necessary actions following an accident and abiding by traffic regulations.

Article 8 Safety management of test vehicles

1. The participant must safely manage its test vehicles and strive to prevent traffic accidents, etc.
 2. The Secretariat and Contractor shall assume no responsibility whatsoever for any traffic accidents, etc. caused by the participant during the Field Operational Test.
 3. Test vehicles must record and save various types of data according to the Guidelines in order to enable follow-up examinations of any traffic accidents or traffic violations that may occur during testing.
 4. The various types of data collected by sensors related to the test vehicle and the sensors' operational states must be recorded and saved for use in post-accident analysis, etc., when necessary.
-

-
5. Since the static high-accuracy 3D maps to be provided are merely prototypes, the participant must strive to safely proceed with the Field Operational Test without relying on these maps.
 6. For safety management purposes, the Secretariat shall monitor test vehicles using a cloud-based movement management system. The participant agrees to register its test vehicles in said system and allow them to be monitored.
 7. A drive recorder, event recorder, etc., that will record the conditions surrounding the test vehicle and its status must be installed in test vehicles. (It is desirable to record not only the conditions ahead of vehicles, but also those behind and inside vehicles.)
 8. The driver must be seated in the driver's seat so that s/he can constantly monitor the surrounding road conditions and take necessary actions should an emergency situation occur.
 9. Matters with which all parties involved must be familiar, such as procedures for handling emergency situations, communication structure, etc., must be documented and made known to all.
 10. In addition to mandatory vehicle liability insurance, the participant must take out voluntary automobile insurance that satisfies the items and insured values indicated in the appendix. The cost of automobile insurance shall be borne by the participant.

Article 9 Items to be submitted in advance

1. The required information must be entered in the driving plan form provided by the Contractor, and the filled-out form must then be submitted to the Contractor by the specified date.
2. If the content of the driving plan changes after its submission, the participant must promptly submit the details of the change to the Contractor.

Article 10 Test reporting

1. Unless there are special reasons for the contrary, the participant agrees to submit a test report and data by the date specified by the Contractor, in accordance with details to be specified separately.
2. Any data problems discovered during the test must be reported to the Contractor.
3. The Contractor may send questionnaire-based surveys to the participant and its drivers or inquire about the test results. Unless there are special reasons for the contrary, the participant agrees to respond such requests.
4. The participant must submit to the Contractor all log data for test equipment lent by the Contractor.

Article 11 Provision of test data to third parties

In order to evaluate test results, Cabinet Office SIP, affiliated ministries, secretariat and the Contractor may disclose driving data from tests and other investigation results to companies

subcontracted to perform analysis work or to related organizations. Permission will be received in advance from participants before disclosing individual company names in materials.

Article 12 Public disclosure and distribution of results

1. The Secretariat and the Contractor shall be permitted to statistically process the collected test data such that individual vehicles and individual participants cannot be identified and to publicly disclose or distribute the processed results as the results of the Field Operational Test.
2. The specifications of the data and systems used in the tests and security-related information must not be made public or distributed.
3. The methods for handling the information distributed via the infrastructure collaboration system during the Field Operational Test shall be stipulated by the Secretariat in participant briefings, progress report meetings, information-sharing sessions, and other meetings held by the Secretariat or Contractor as necessary. The participant shall use the stipulated methods.
4. The participant must obtain permission from the Contractor before publicly disclosing test data or outcomes.

Article 13 Patent application

If the Contractor and the participant develop an invention based on the results of the Field Operational Test and wish to apply for a patent for said invention, all parties shall negotiate the details in good faith.

Article 14 Compensation for damages and losses

1. Any loss incurred by the Contractor or the participant as a result of implementing the Field Operational Test shall be borne by the participant, except when the Contractor is responsible for said loss. If loss is incurred by a third party due to a cause attributable to the participant, the test participant shall take necessary measures, such as compensating for the loss, at its sole expense.
2. Should a complaint be received from a third party in relation to the implementation of the Field Operational Test, the Contractor and the participant shall consult each other and, except in urgent cases, the participant shall, as a rule, take necessary measures. The expenses incurred in the course of taking measures shall be borne by the participant, except when the Contractor is responsible for the complaint.
3. If equipment failures, etc., makes it impossible to perform testing, the Contractor shall not provide restitution, etc., to participants.
4. If a defect in the information output from a device provided by the Contractor causes a traffic accident, the participant shall be responsible for it.

Article 15 Asset ownership

Assets, such as testing devices, etc., that have been installed in accordance with these Rules, shall belong to the party that bore the expenses for them.

Article 16 Field Operational Test period

The Field Operational Test is planned to run from fall of 2019 to the end of 2020.

Article 17 Suspension of participation in the Field Operational Test

1. If the participant wishes to suspend its participation in the Field Operational Test for its own reasons, it may do so based on consultation with the Contractor. Once suspended, the participant cannot resume participation in the Field Operational Test.
2. During implementation of the Field Operational Test, if any of the conditions listed below becomes applicable to the participant, the Contractor may ask the participant to immediately suspend the test.
 - 1) All or some of the information in the application form are determined to be false.
 - 2) The test participant no longer satisfies the requirements for participating in the Field Operational Test.
 - 3) The test participant is discovered to have a relationship with antisocial forces.
 - 4) Instruction from Cabinet Office
 - 5) The Secretariat determines for any reason that participation in the Field Operational Test by the participant is no longer appropriate.

Article 18 Changes to the Rules

If it becomes necessary to change the details of these Rules, the Secretariat shall change them and obtain the participant's agreement to the changed rules.

Article 19 Cooperation

1. As a rule, the participant must attend various meetings to be held as needed by the Secretariat or the Contractor, such as participant briefings, progress report meetings, and information-sharing sessions.
2. If the Contractor requests that the participant reports its test results at progress report meetings, information-sharing sessions, etc., held as necessary by the Contractor, the participant shall cooperate in reporting on its test results, etc.
3. The Contractor and the participant agree to cooperate in the filming of PR video for the Field Operational Tests, participating in media events, etc., and other evaluation requests (such as impact assessments) from the Secretariat or the Contractor.

Article 20 Confidentiality

The participant must not disclose any secondary information it may obtain, other than test results, etc., to outside parties.

Article 21 Handling of lent equipment

The participant may not reverse engineer equipment lent by the Contractor. The participant must manage this equipment appropriately in accordance with export management laws.

Article 22 Other

Any matter not stipulated in these Rules or any dispute arising with respect to any provision of these Rules shall be set forth or resolved upon mutual consultation among the Secretariat, the Contractor, and the participant.