



## NPA Initiatives Regarding Automated Driving

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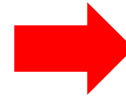
# Traffic accidents in Japan (1)

## Objectives Set for Road Traffic Safety

### <The Ninth Fundamental Traffic Safety Program>

By 2015

- Reduce the number of fatalities within 24 hours to **3,000 or fewer**



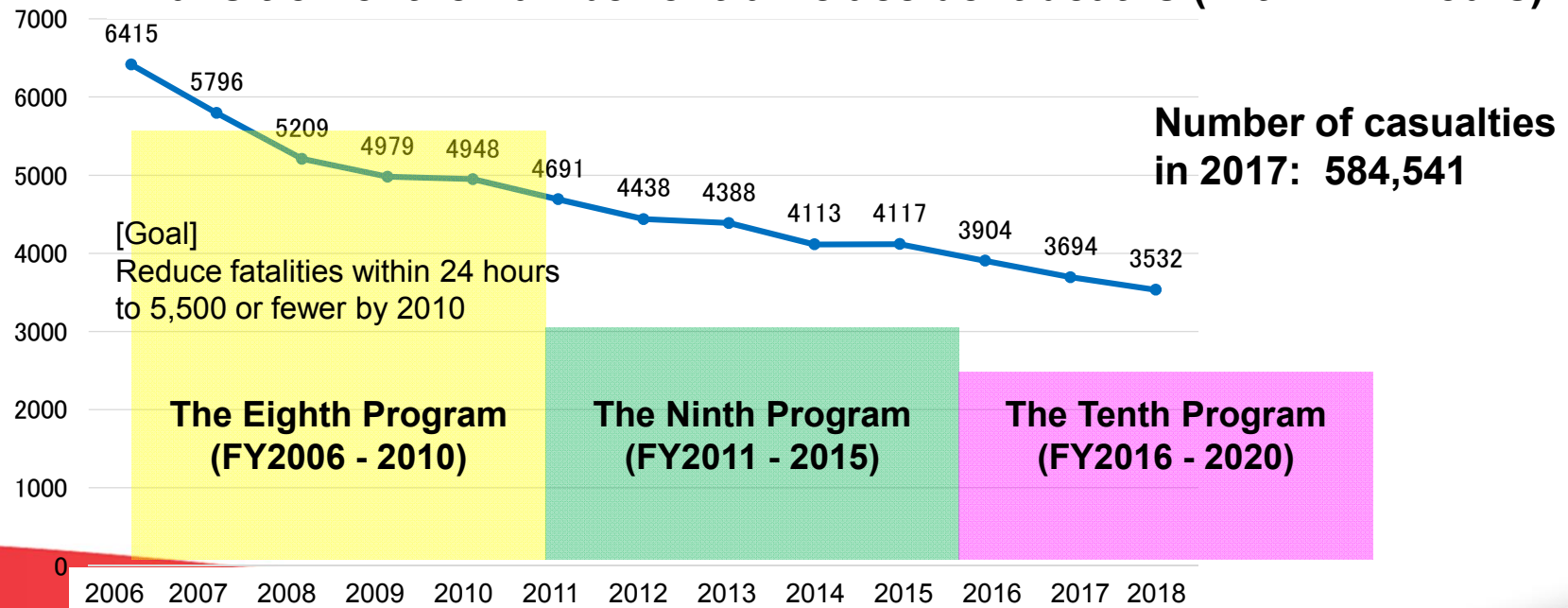
### <The Tenth Program>

By 2020

- Reduce the number of fatalities within 24 hours to **2,500 or fewer**

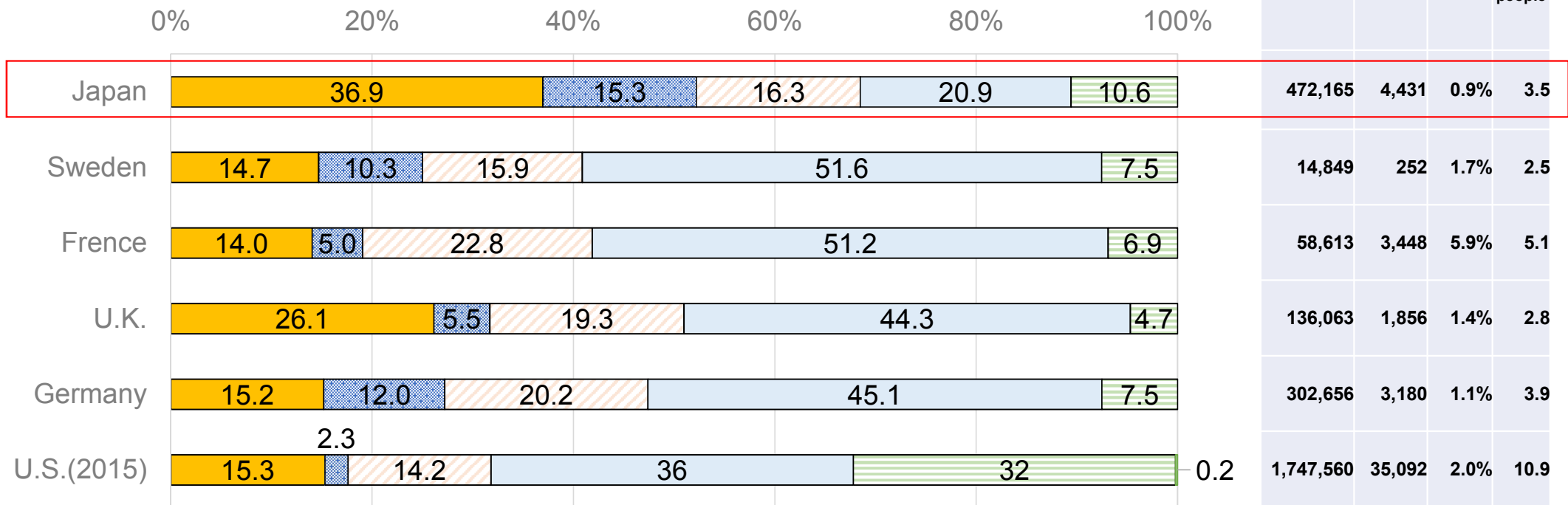
(No. of persons)

## Transition of the number of traffic accident deaths (within 24 hours)



# Traffic accidents in Japan (2)

## Traffic fatality rates by situation (in 2017)



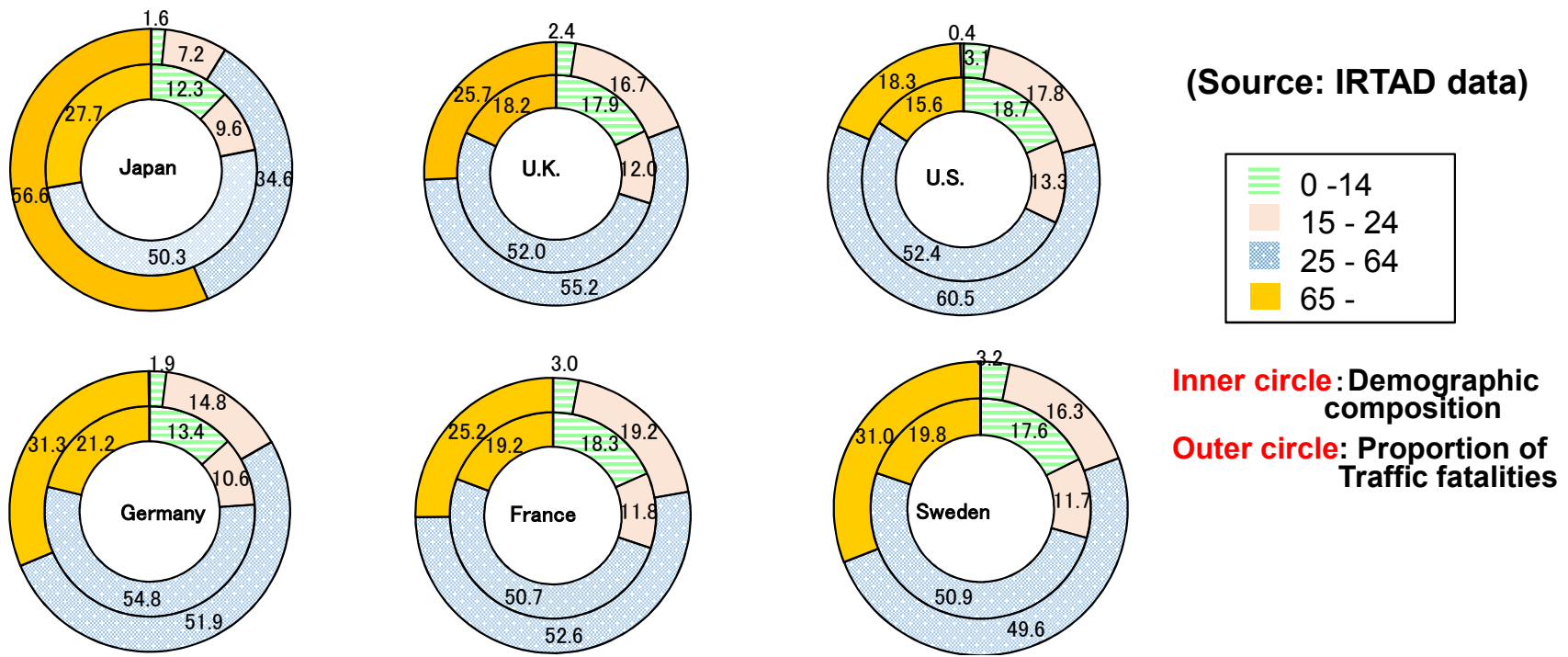
■ While walking  
 ■ On bicycles  
 ■ On motorcycles  
 ■ On cars  
 ■ Other  
 ■ Unknown

※ Fatalities are the number of deaths within 30 days of the accident

(Source: IRTAD data)

# Traffic accidents in Japan (3)

## Traffic fatality rates by age group and demographic composition (2017)



※ Fatalities are the number of deaths within 30 days of the accident

## The government's Charter for Improvement of legal system and environment

Level 1

- LKAS, ACC, etc. have already been put to practical use.

Level 2

- Realization of **the level 3 automated driving on expressways** by 2020

Level 3

- Realization of **unmanned automated-driving mobility services in selected areas** by 2020

Level 4

- Realization of **the Level 4 automated driving on expressways** around 2025

Level 5

※SAE : Society of Automotive Engineers

# Activities of National Police Agency

## In Japanese Government

### NPA

(National Police Agency)

#### Road Traffic Act:

providing traffic regulations

### MLIT

(Ministry of Land, Infrastructure, Transport and Tourism)

#### Road Transport Vehicle Act:

providing safety standards of vehicles

## NPA's Specific efforts

- Review of road traffic rules
- Preparation of the environments for public road demonstration
- Participation in international discussion
- Promotion of R&D and building of infrastructure

## Review of road traffic rules

# Amendment to the Road Traffic Act

### Definition of “driving”

“Driving” defined in the Road Traffic Act includes the case of using automatic operation devices (AOD).



### Driver responsibilities when using AOD

- ◆ The driver of a motor vehicle equipped with AOD must not drive the vehicle using such devices when use conditions of the AOD are not satisfied.
- ◆ Prohibition against holding and using a wireless telephone and focusing attention on the screen of a device shall not apply to the driver using AOD when any of the following items are applicable.
  - (i) The vehicle does not qualify as an improperly maintained vehicle.
  - (ii) The use conditions of the AOD are satisfied.
  - (iii) The driver is in a state of readiness to take over the operation of the vehicle when (i) or (ii) becomes inapplicable.



### Recording by Operational State Recording Devices (OSRD)

(※) OSRD: Devices for recording information necessary to confirm operational state of AOD

- ◆ The user of a motor vehicle equipped with AOD must record necessary information by OSRD and keep the recorded data.
- ◆ **When a vehicle** is being driven that could be found to constitute an improperly maintained vehicle, a police officer may ask the driver of the vehicle to present data recorded by OSRD.

## Review of road traffic rules

# Amendment to the Road Traffic Act

### Drivers Responsibilities

【Drivers driving a motor vehicle not employing AOD】

【 Drivers driving a monitor vehicle employing AOD】

#### A Responsibilities connected to driving operation

- Safe Driving Obligation
- Obligation to
  - obey traffic lights and other signals
  - obey the speed limit
  - maintain distance between vehicles etc.

#### B Responsibilities not connected to driving operation

##### B-1) Responsibilities to ensure stable implementation of A

- Prohibition against holding and using a wireless telephone such as a cellular telephone
- Prohibition against focusing attention on the screen of an image display device such as a car navigation system

Prohibition against drunk driving etc.

##### B-2) Other responsibilities

- Obligation to
  - aid injured persons in case of a traffic accident
  - carry and present a driver's license etc.

The system automatically implements Responsibilities A within ODD.

The driver can implement Responsibilities A by employing the system appropriately. (The driver remains under Responsibilities A.)

Withdrawal of both of the prohibition becomes possible because the driver no longer needs to pay attention constantly and to drive manually when employing the system appropriately.

The prohibition must remain because the driver can always be required to drive manually.

The responsibilities must remain because the system cannot implement them.

※ It is necessary to limit the use of the system within ODD.

※ Driver employing the system within ODD must at least pay enough attention to recognize "warning" and remain sufficiently alert to stop using the system and takeover driving operation.



Preparation of the environment for public road demonstration

## Guidelines for public road demonstration experiments of automated driving systems

■ May 2016

The guidelines clarified the details of the experiments that can be carried out without any special permission or reporting, including instructions stating that the driver operates the vehicle in the event of an emergency as necessary.

### <Points to be noted>

- **The vehicle complies with the requirements of the Safety Regulations for Road Vehicles**
- **The driver is seated in the driver's seat, monitors the surrounding traffic at all times, and operates the vehicle in the event of an emergency in order to ensure safety.**



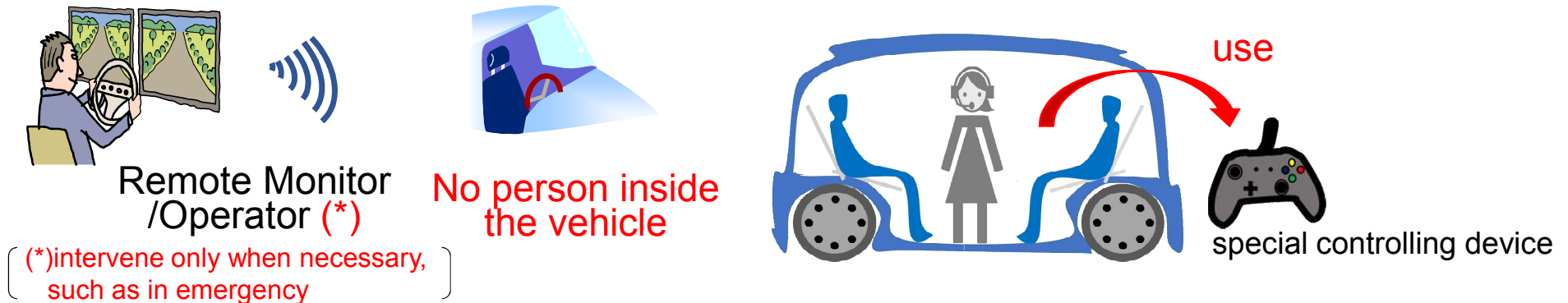
Public road demonstration experiments in various areas of the country

## Preparation of the environment for public road demonstration

# Criteria for the permission for public road testing of automated driving

### ■ September 2019

- ✓ For the permission by the police, essential for the test of automated driving with
  - remote control technology
  - unconventional vehicle with special controlling device (different from steering wheel and accelerator / brake pedal)

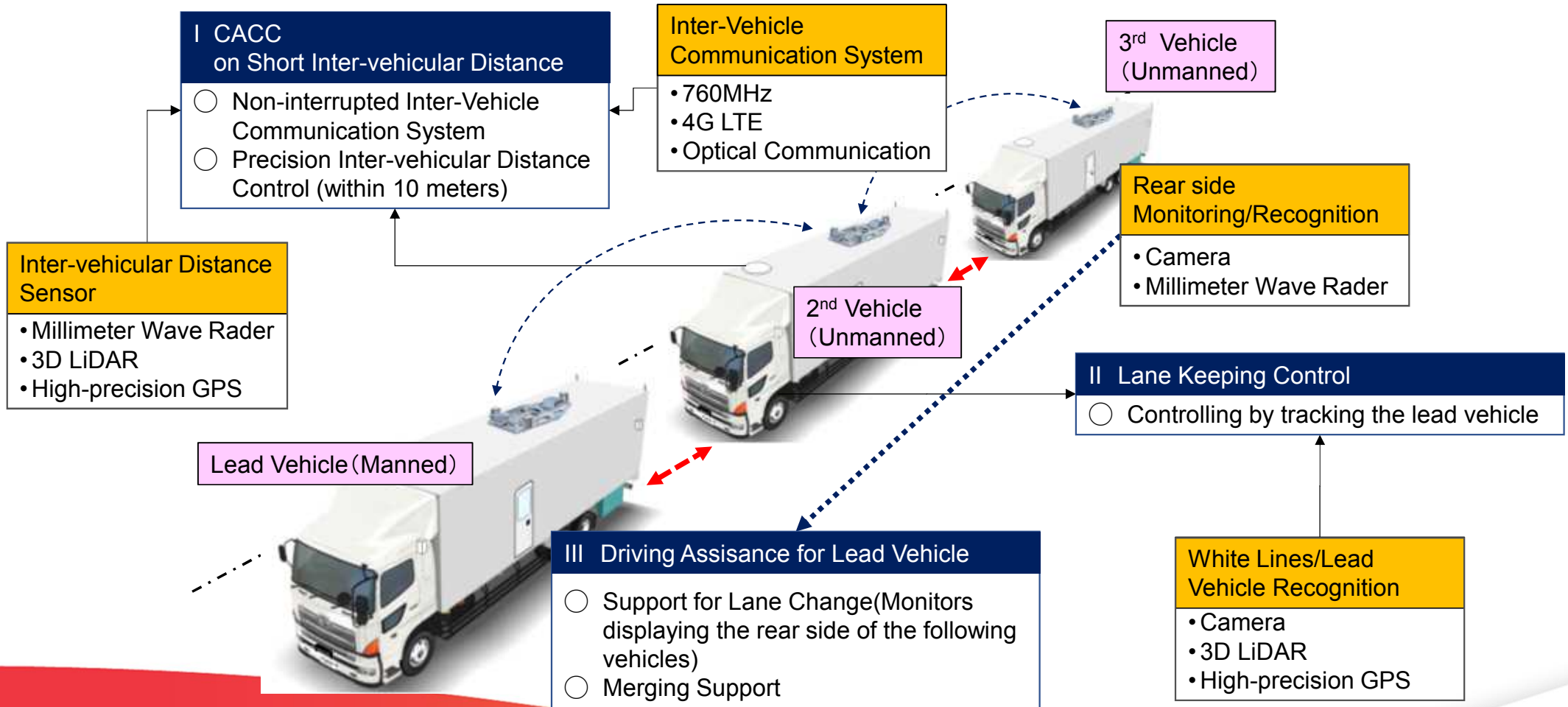


Public road tests of automated driving have been implemented

- in 5 prefectures (with remote control technology)
- in 4 prefectures (with unconventional vehicle)

## Preparation of the environment for public road demonstration

# System for Truck Platooning of Unmanned Vehicles Connected by Electronic Traction



Promotion of R&D and building of infrastructure

## **SIP (Strategic Innovation Promotion Program)**

- SIP was established in May 2014 as a program beyond the framework of government ministries to promote the development of technologies that serve as a key to the solution of social issues.
- “AD system” is one of the selected issues to be addressed by SIP R&D projects.



**Since FY 2016, the National Police Agency has been promoting R&D for AD based on SIP.**

## Promotion of R&D and building of infrastructure

# Provide signal information by v-n

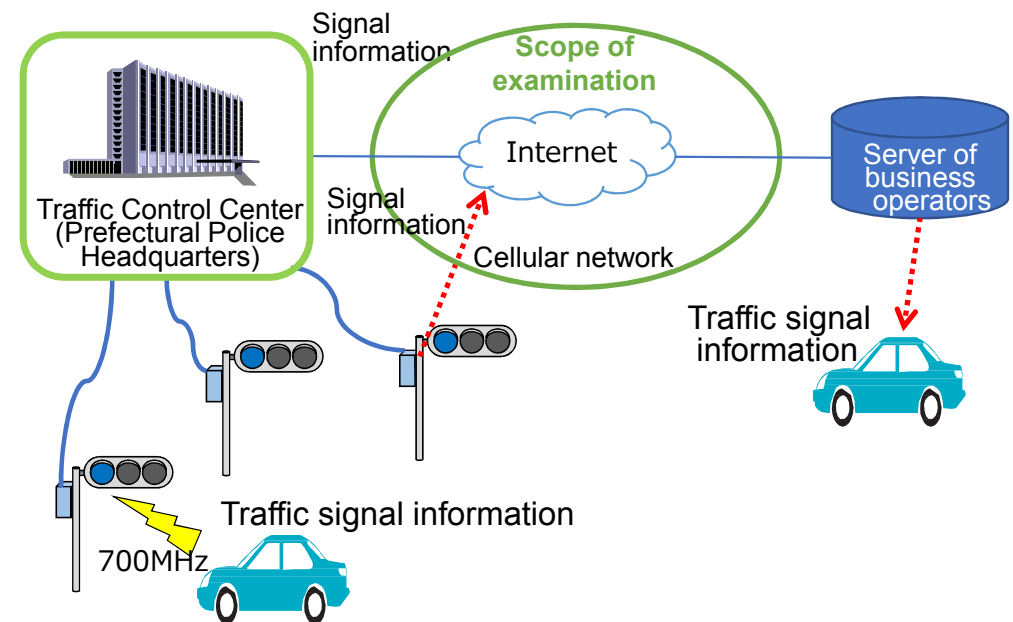
### Purpose

Examination of the provision of traffic signal information using methods other than direct communication from roadside equipment based on requests from private business operators

### Items to be examined

Investigation of cases in Japan and abroad and technology trends  
Technological examination including the examination of possible impacts on central computers and traffic signal controllers and the need for their upgrading

[Image of the provision of traffic signal information using cloud and other technologies]



Fiscal year 2019:  
Detailed examination of functional and technical requirements of provision means, etc.

## Promotion of R&D and building of infrastructure

# Examination of measures to utilize V2X information toward the realization of automated driving

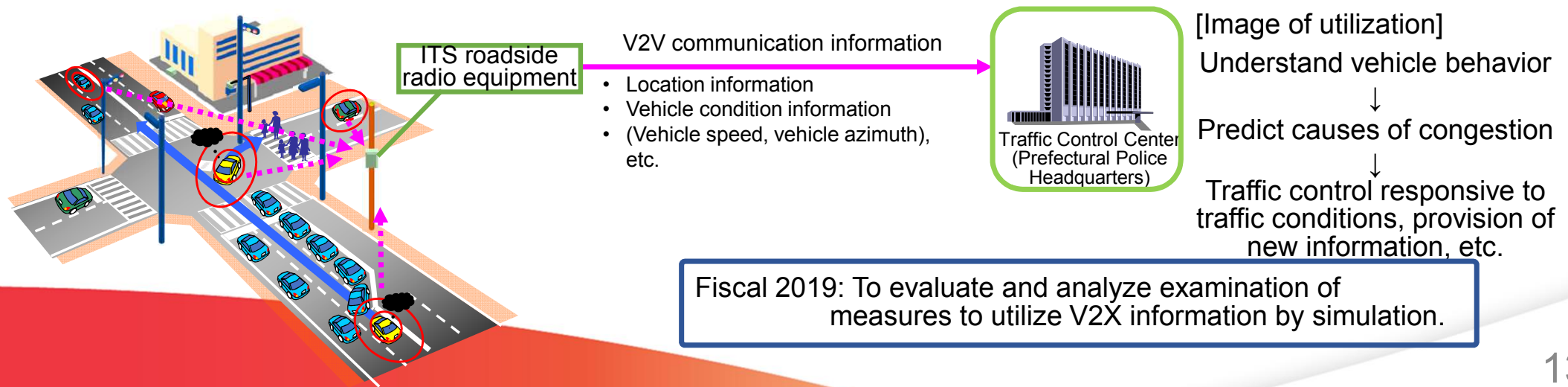
### Purpose

Examination of new information provision and traffic signal control system, etc. through analysis and utilization of V2V communication information and private-sector probe information collected from vehicles around intersection using ITS roadside radio equipment

### Items to be examined

Investigation of strategies, etc. for utilizing V2V communication information

Examination of information provision, etc., which are made possible through the analysis and utilization of V2V communication information and private-sector probe information





## Promotion of R&D and building of infrastructure

# FOTs related to 2020 Tokyo Olympic and Paralympic Games

■ FOTs will start in autumn 2019 in the Tokyo waterfront city area (general roads and Metropolitan Expressway in the Tokyo Waterfront City area/Haneda area) toward the Olympic and Paralympic Games Tokyo 2020 (in cooperation with Japan Automobile Manufacturers Association).

R&D in cooperative areas will be promoted to achieve early implementation of automated driving (L4 on highways and general public roads). Efforts will also be made to increase social acceptance by involving local government, the general public, etc.

### Details of FOTs 28 entities, 100 vehicles

#### Providing traffic signal information

Vehicles are allowed to pass through intersections safely and smoothly based on the **signal display and change timing information** even in environments where recognition is difficult using in-vehicle cameras.

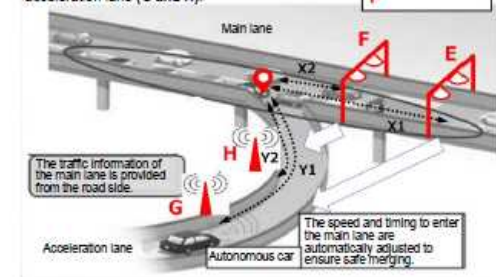


Public Road Testing:  
July 6-12, 2020  
(by JAMA)

#### Merging assistance on the main lane of highways

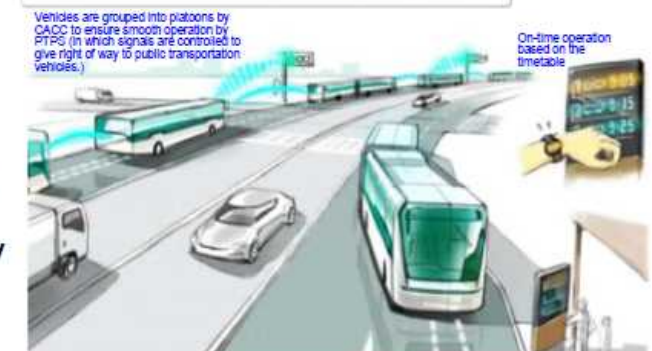
##### Providing vehicle information on the main lane

Before the merging reference point on the main lane (E and F). A roadside detector is installed at two locations before the merging reference point on the acceleration lane (G and H).



#### Public transport system (self-driving buses)

FOTs for the next-generation ART will be implemented on public roads by using automated driving technology in **mixed traffic flow**.



Other activity of NPA

## Points to be noted in practice for AD technology

### Examples of driving support systems

- **Adaptive Cruise Control (ACC)**
- **Lane Keeping Assist System (LKAS)**
- **Parking Assist System**

✘ In response to **the occurrence of traffic accidents caused by too much reliance on technologies**, the National Police Agency and the Ministry of Land, Infrastructure, Transport and Tourism issued **an alert** to automobile users and dealers.

Awareness was raised that **the driving support systems currently in use assume that the driver is responsible for safe driving** and are not AD systems in which the car autonomously performs safe driving operation on behalf of the driver.



The image features a solid red background with a vertical gradient, transitioning from a darker red at the top to a lighter orange-red at the bottom. Three stylized trees are positioned across the frame. Each tree has a thick, light-colored trunk that tapers slightly towards the top. The canopy of each tree is composed of a dense, intricate network of thin, white lines that radiate from the top of the trunk, resembling a complex network or a web. The trees are arranged with two larger ones on the left and right sides, and a smaller one centered between them.

**Smart Mobility,  
Empowering Cities**