



Preparation for Deployment of Automated Vehicles in Japan

March 27, 2019

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National Police Agency of Japan**

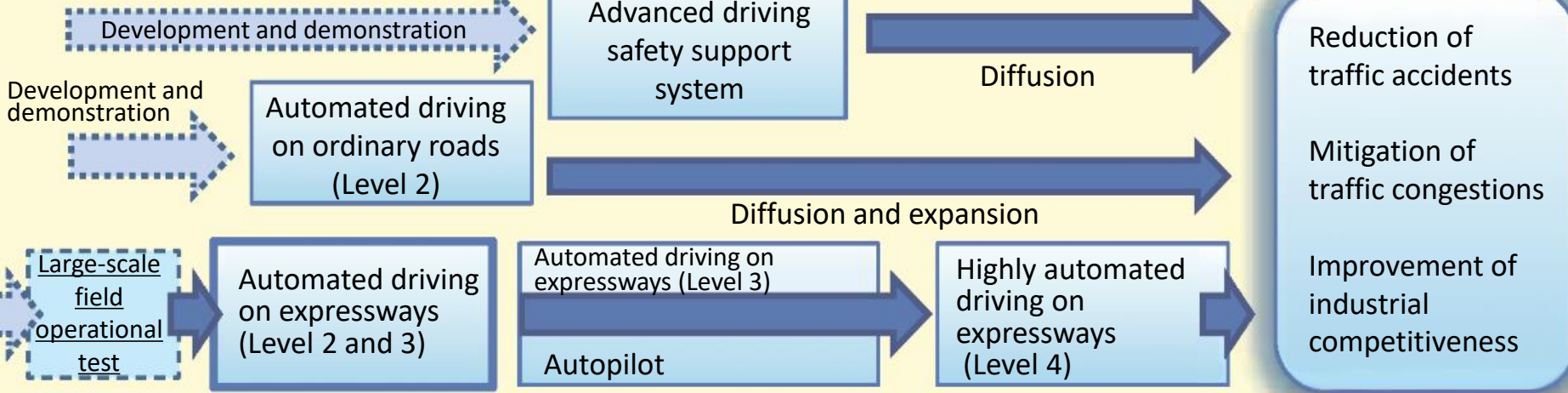
Japan's Roadmaps for Introduction of Automated Driving (2018)

By 2020

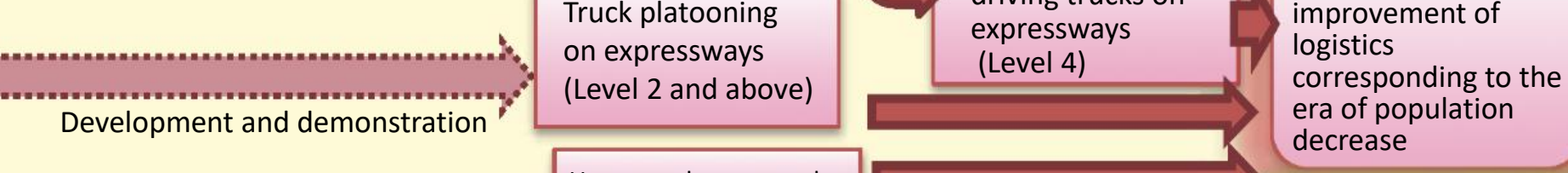
First half of 2020s

Around 2025

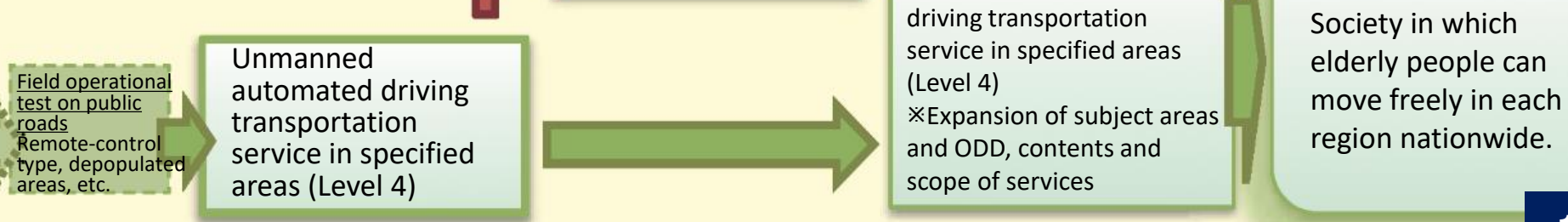
<Family cars>



<Logistics services>



<Transportation services>



Preparation for Public Road Testing regarding Traffic Rules

NPA's Approach to Automated Driving

Japanese police has taken various measures to support the development of the automated driving technology.

Preparation of Guidelines and Criteria for Public Road Testing

1 Guidelines for Public Road Testing of Automated Driving Systems (May 2016)

- ✓ Clarifying that testing of all levels of automated driving system is allowable under existing Road Traffic Act as long as driver inside the vehicle can take over the control of vehicle in emergency situations
- ✓ No permission/report is required on condition that the trial organization follows the Guidelines

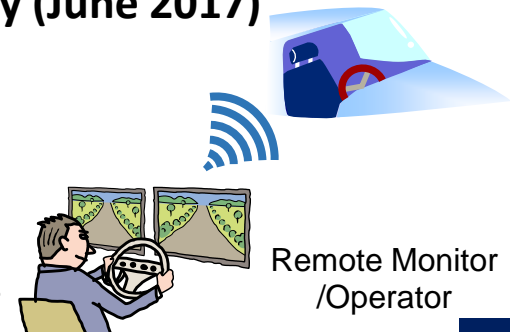


➔ Tests of technologies corresponding to level 3,4 have been conducted on public roads in various parts of Japan.

2 Criteria for the permission for use of roads for public road testing of Driving Automation System with Remote Control Technology (June 2017)

- ✓ For the permission given by the police, which is essential for the test of automated driving with remote control technology

➔ Public road tests of automated driving system with remote control technology have been implemented in 5 prefectures.



Proposed Amendment to the Road Traffic Act

Perspective on driver responsibilities when driving a motor vehicle employing ADS

【Prerequisites for Automated Driving Systems】 * Necessary to be legally ensured

- (1) Within ODD (Operational Design Domain), the system operates complying with traffic rules.
- (2) The system warns the driver to takeover driving operation in a way that he/she certainly recognize when it judges the continuation of automated driving as impossible due to trouble with the motor vehicle or exiting from ODD.

【Driver Responsibilities on the Road Traffic Act (In force)】

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.

【Driver responsibilities when employing automated driving system】

The system which satisfies prerequisite (1) 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 attention enough to recognize "warning" and remain sufficiently alert to stop using the system and takeover driving operation.

Proposed Amendment to the Road Traffic Act

Establishment of regulations to realize practical use of automated driving technologies of motor vehicles

(1) Establishment of regulations concerning definition of Automated Driving Apparatus (hereinafter referred to as ADA) (provisional name)

The act will newly define an automated driving system which substitutes for a driver all the capability of recognition, prediction, judgement, and operation as ADA. Also, the act will provide that to use a motor vehicle, employing ADA, is included in "driving" defined in the act.

(2) Establishment of regulations concerning driver responsibilities when driving a motor vehicle employing ADA

(a) If a certain condition of ADA (*) is not satisfied, the driver of the motor vehicle equipped with the apparatus will be prohibited from driving the vehicle employing the apparatus.

(*) The condition on which ADA substitute for a driver all the capability of recognition, prediction, judgement, and operation.

(b) Article 71, paragraph (5), item (v) (*) will not apply to a person who drives a motor vehicle employing ADA when they are ready to takeover driving operation immediately and appropriately in the event that the apparatus no longer meets the certain condition or other cases.

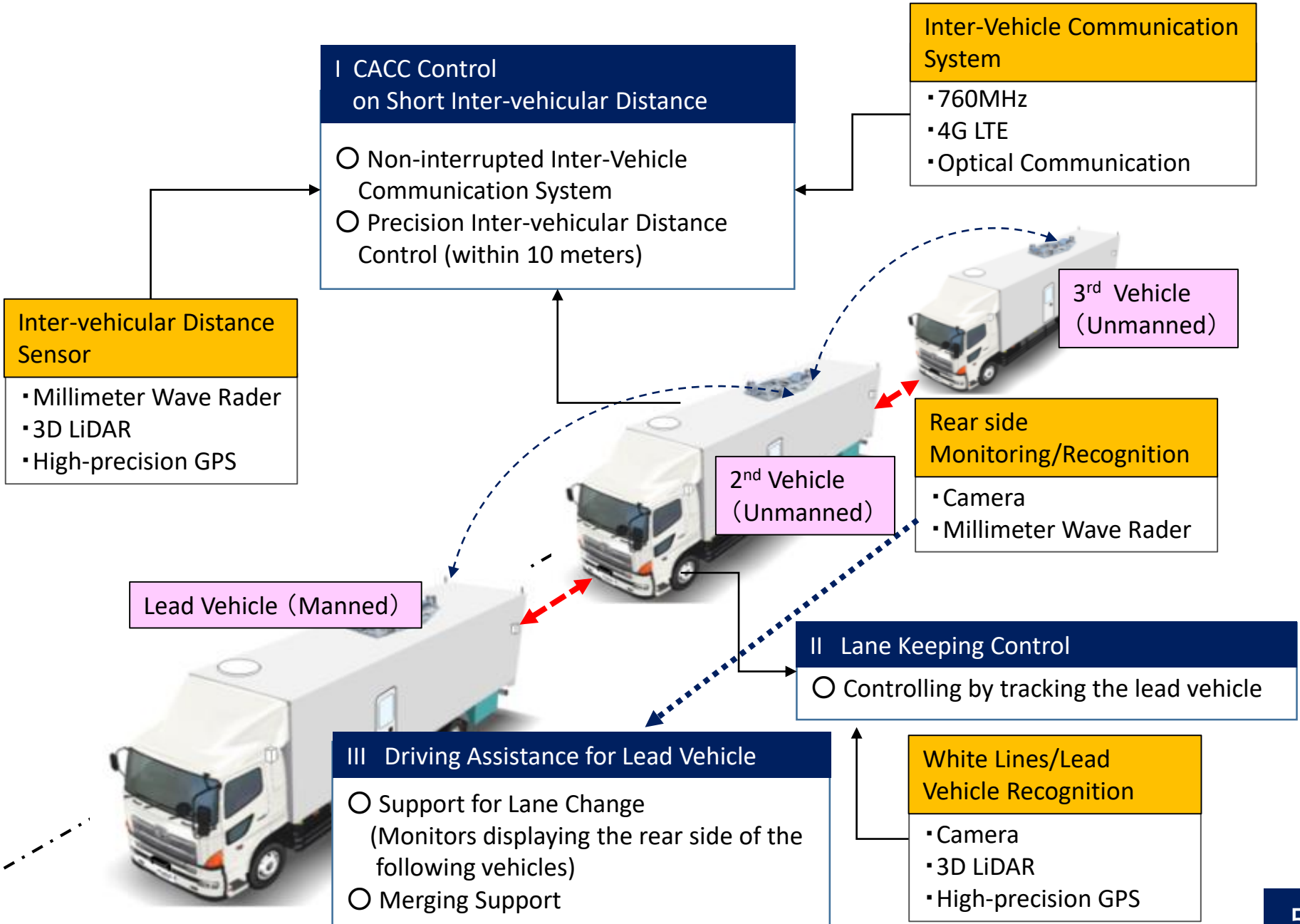
(*) Prohibition against holding and using a wireless telephone such as a cellular telephone and focusing attention on the screen of a device

(3) Establishment of regulations concerning recording by an Operation Status Recording Device (provisional name)

(a) The user and other related bodies of motor vehicles equipped with ADA will be prohibited from driving or having the drivers drive the vehicles if they are not equipped with a device for recording data necessary to check the operation status of the apparatus (referred to in item (b) as an "Operation Status Recording Device") and will be obliged to preserve the recorded data.

(b) When a motor vehicle is being driven that could be found to constitute an improperly maintained vehicle, a police officer will be enabled to request the driver to disclose the recorded data by the Operation Status Recording Device and ask the manufacturer of the motor vehicle to take necessary measures to read the recorded data.

System for Truck Platooning of Unmanned Vehicles Connected by Electronic Traction



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 (L2 to 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 (draft)

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.

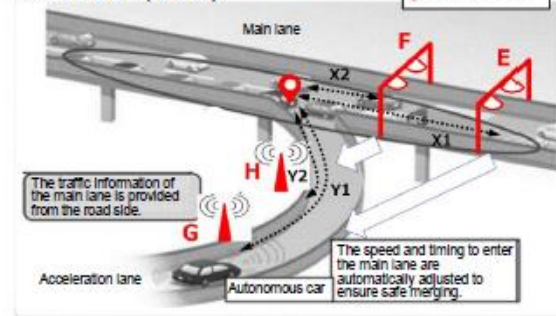


Public Road Testing:
July 6-12, 2020
(10 companies, 80 vehicles)

Merging assistance on the main lane of highways

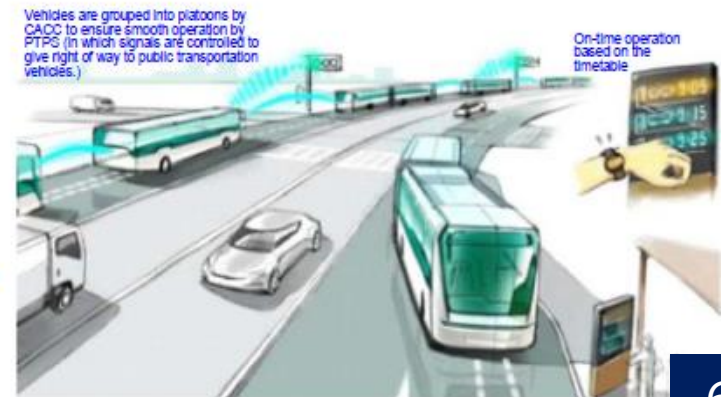
Providing vehicle information on the main lane

A vehicle detector is installed at two locations 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.





National Police Agency

Thank you for your kind attention.

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