Status Report of Japan

International Affairs Office,
Vehicle Regulation and International Affairs,
Division Logistics and Road Transport Bureau, MLIT

国土交通省

Ministry of Land, Infrastructure, Transport and Tourism

1. Master plan regarding Traffic Safety

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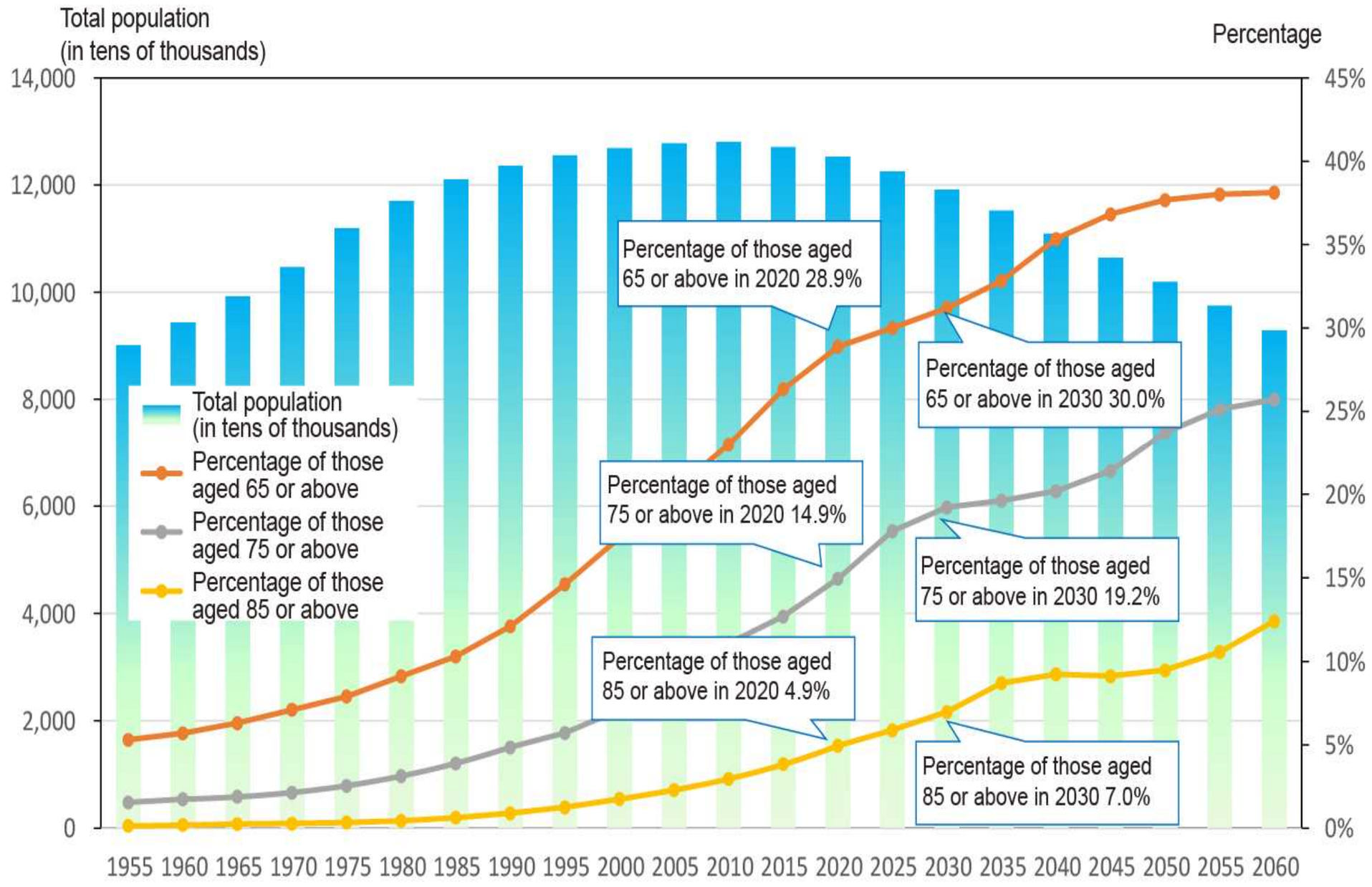
Ministry of Land, Infrastructure, Transport and Tourism

Acceleration of the aging society in Japan



Source: Up to 2015: National Census by the Ministry of Internal Affairs and Communications
From 2020 onward: Calculated by the RTB based on the Population Projections for Japan (as of October 2017), according to the medium fertility and medium mortality assumptions, by the National Institute of Population and Social Security Research

Overview of Traffic Accidents and the Government's Objectives

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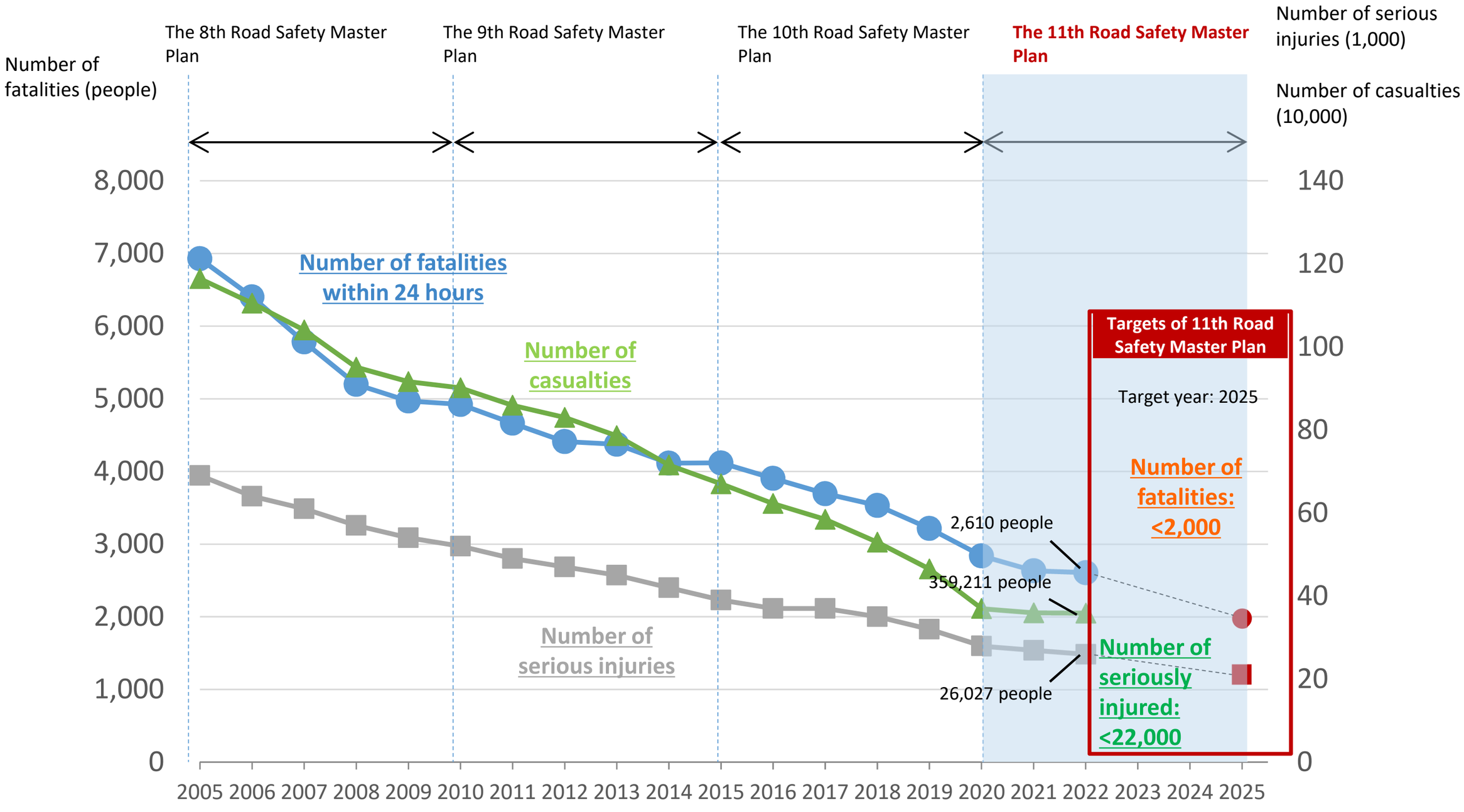

Relationship between Master Plan regarding Road Traffic Safety and Vehicle Safety Measures

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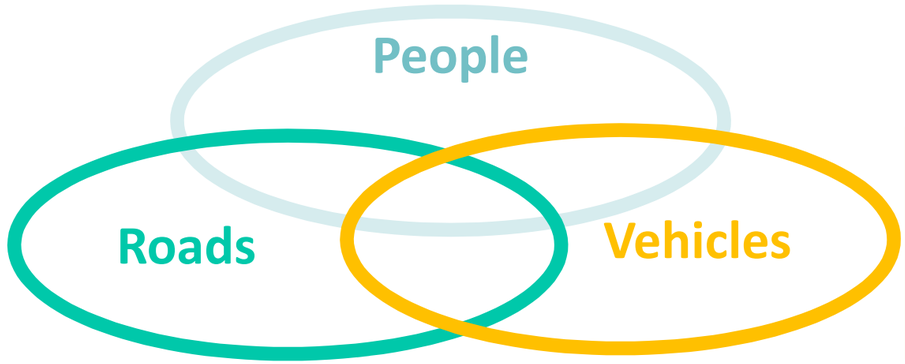
Master plan regarding road traffic safety (Road Traffic Safety)		Vehicle safety measures (Road Transport Bureau)
Government-wide promotion of traffic safety measures for the three elements of people, roads, and vehicles	Collaboration	Promote vehicle safety measures among the traffic safety measures
Plan duration: 5 years		Plan duration: 5 years
Examining body: Central Traffic Safety Council		Examining body: Transportation Policy Council (*2)

*2 Technical and Safety Working Group, Automobile Subcommittee, Land Transportation Division

- Formulate and enforce traffic rules
- Traffic safety education
- Driver's license system, etc.



- Develop safe and secure pedestrian spaces, where people on the streets going about their daily lives are prioritized, etc.
- Promote traffic safety measures on major roads
- Comprehensively develop the environment for bicycle use, etc.

- Formulate vehicle safety regulations
- Promote the widespread use of safer vehicles
- Promote the introduction of the latest safety technologies, etc.

Promotion System for Vehicle Safety Measures

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- Vehicle safety measures are executed by combining ① the expansion and enhancement of safety regulations, etc., ② the ASV Promotion Plan, and ③ vehicle assessments.

Vehicle safety measures

Vehicle Safety Measures Consideration Group
- Considers the vehicle safety items
- Considers the response methods (considers measures not limited to just the development of regulations)
- **Enhancing and expanding safety regulations** based on the results of accident analysis

Accident Investigation and Analysis Consideration Group
- Expands the accident investigation system
- Develops the accident analysis methods
- Identifies the issues through accident analysis

The groups collaborate in the development of safety regulations/promotional measures based on new technologies

The groups collaborate to ensure the widespread use and promotion of safety regulations through the provision of information

ASV technology

ASV Promotion Consideration Group
- Promotes the ASV technology by industry, academia, and government
- Promotes the next-generation ASV technology development
- ASV 7th phase (5 years from FY2021)

The groups collaborate to ensure users understand new technologies

Vehicle assessments

Vehicle Assessments Consideration Group
- Considers the expansion of vehicle assessments and evaluation methods
- Executes the comparative safety performance tests and provides information
- Provides information on the correct use of safety equipment, equipment status, and the results of effectiveness analysis

Japan New Car Assessment Program
JNCAP

Current Status and Goals of Automated Driving Technology

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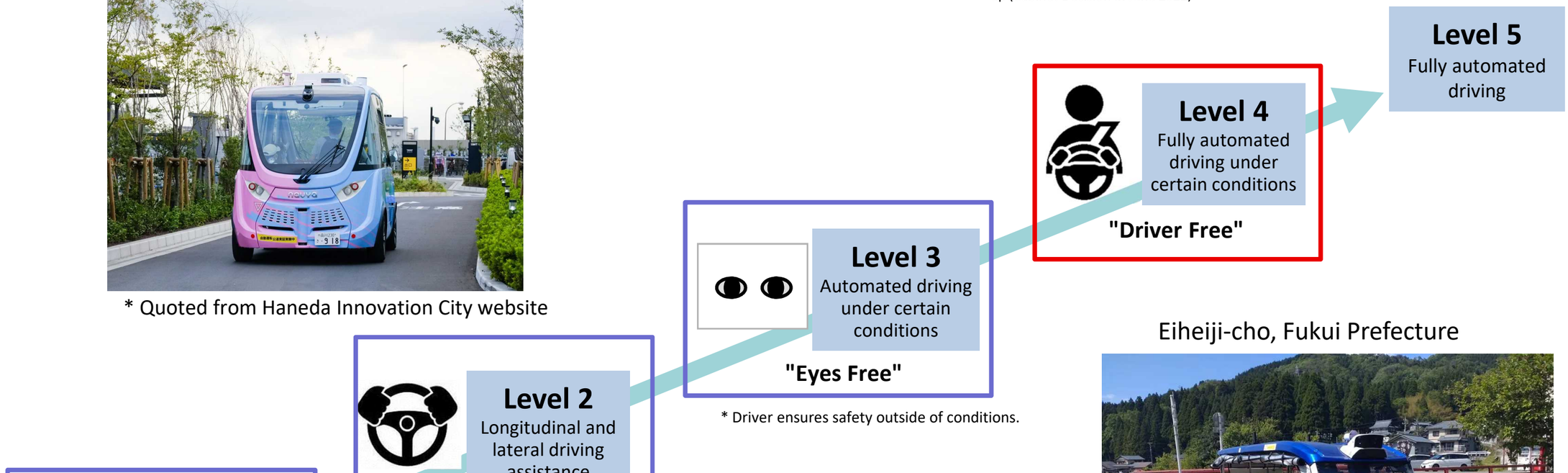
- ○ Steady technological progress has been made <u>with the realization of Level 3 for private vehicles and Level 4 for mobile services.</u>
- ○ <u>Expanding the widespread use of Level 4</u> has been set as the next goal.

[Government Targets] * By FY2022, realization of Level 4 mobile services ⇒ By FY2025, expansion to 50 locations nationwide
By FY2025, realization of Level 4 on highways

HANEDA INNOVATION CITY

* Quoted from Haneda Innovation City website

* Comprehensive Strategy for the Digital Garden City National Strategy (Cabinet Decision, December 2022), Grand Design and Action Plan for a New Form of Capitalism and Follow-up (Cabinet Decision in June 2022)



* Driver ensures safety outside of conditions.

Eiheiji-cho, Fukui Prefecture

* Quoted from ZEN Connect website.

2. Master plan regarding Environmental Conservation

Current Status of CO2 Emissions

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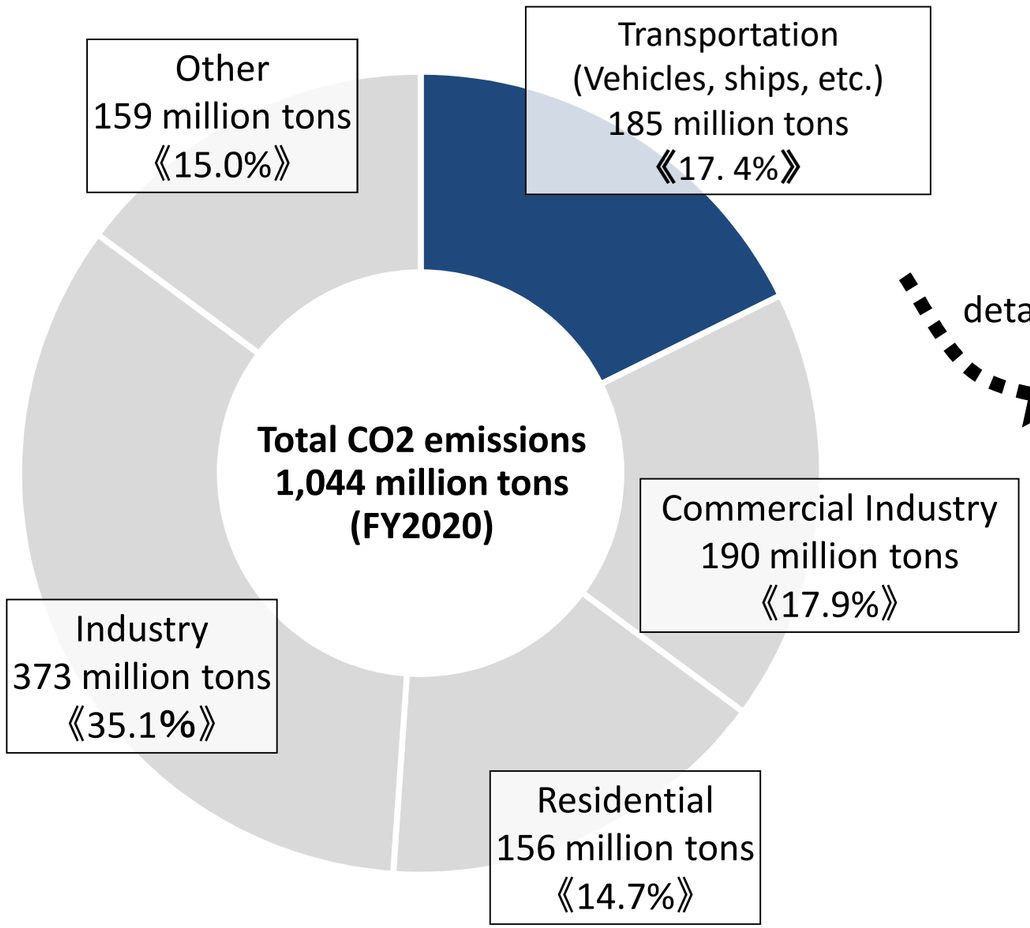
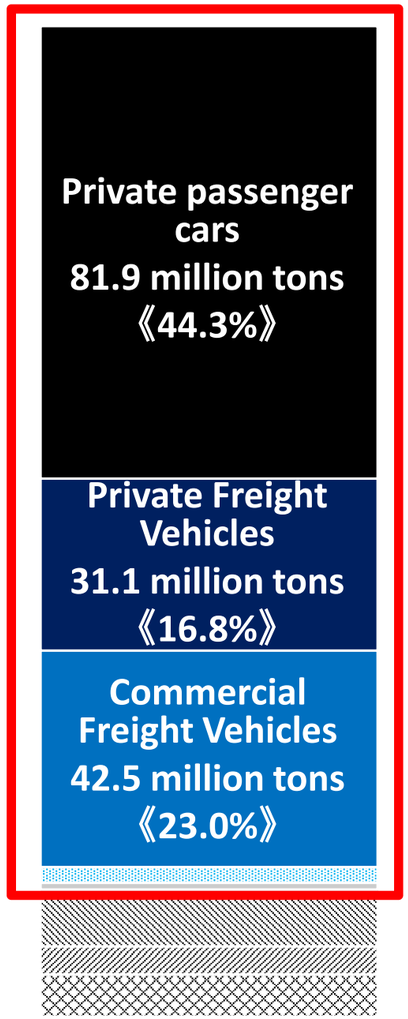
○**Transportation sector accounts for 17.4%** of Japan's carbon dioxide emissions (FY2021)
○Overall, motor vehicles emit **86.8% of the transportation sector's** emissions **(15.1% of Japan's total)**

Carbon dioxide emissions by sector in Japan



Carbon dioxide emissions in the transportation sector

details



The overall vehicle sector (private passenger cars, private freight vehicles, commercial freight vehicles, buses, taxies, and motorcycles) account for 86.8% of the transportation sector (15.1% of Japan's total)

- Buses
  2.89 million tons《1.6%》
- taxies
  1.25 million tons《0.7%》
- Motorcycles
  0.74 million tons《0.4%》
- Domestic vessels
  10.1 million tons《5.5%》
- Domestic Airplanes
  6.82 million tons《3.7%》
- Railroads
  7.51 million tons《4.1%》

Source: "Japan's Greenhouse Gas Emissions Data (FY1990-2021), Fixed Figures" (2023)

Government Goal for Electrification of Vehicles

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“With the aim of realizing the carbon neutral (CN) vehicles, Japan will take advantage of all the available options of technologies."

"Japan will develop next-generation batteries and motors, hydrogen, and synthetic fuels, which all hold the key to the spread of electrified vehicle."

〇Prime Minister Kishida's speech:
November 1, 2021 at COP26 (Glasgow, UK)

(Government goal for electrification of vehicles)

- **Passenger vehicles**
  - Achieve the target that 100% of new vehicle sales will be electrified vehicles* by 2035.
    * “Electrified vehicles" include Electric Vehicles, Fuel Cell Vehicles, Plug-in Hybrid Electric Vehicles, and Hybrid Electric Vehicles.

- **Heavy-duty trucks and buses (over eight tons)**
  - In advance, 5,000 electrified vehicles will be introduced in the 2020s.
  - The goal in 2040 for spreading electrified vehicles shall be set by 2030.

- **Light-duty trucks and buses (eight tons or less)**
  - Achieve the target that 20 to 30% of new vehicle sales will be electrified vehicles by 2030.
  - Achieve the target that 100% of new vehicle sales will be electrically powered or decarbonized fuel vehicles by 2040.

Measures to Promote Widespread Use of Electrified Vehicle

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● The intention is to **improve the environmental performance** of electrified vehicles and **promote their widespread use** through the **formulation of fuel efficiency regulations** for automobiles, **the international harmonization of regulations**, and **subsidies and tax incentives**.

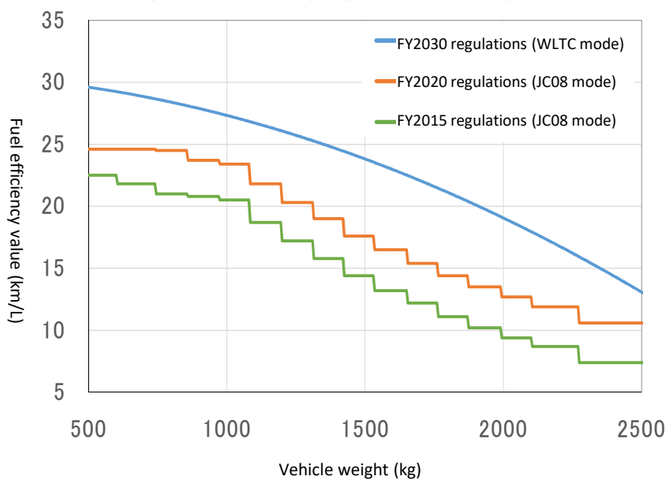
Formulation of fuel efficiency regulations

■ Formulation of ambitious fuel efficiency regulations

○Passenger vehicle
2020: Enhancement of fuel efficiency regulations (regulations for FY 2030)

○Heavy duty vehicle
2006: Formulation of the world's first fuel efficiency regulations
2019: Enhancement of fuel efficiency regulations (regulations for FY 2025)

Changes in Fuel Efficiency Regulations for Passenger Vehicles



International harmonization of regulations (WP29)

■ International harmonization of regulations for electric vehicles, etc.

○ Japan takes the lead in promoting the formulation of international regulations

United Nations (UN)

Economic Commission for Europe (UNECE)

World Forum for Harmonization of Vehicle Regulations (WP29)

- **General Safety Provisions (GRSG)**
- **Passive Safety (GRSP)**
- **Automated and Connected Vehicles (GRVA)**
- **Pollution and Energy (GRPE)**
- **Noise and Tires (GRBP)**
- **Lighting and Light-Signaling (GRE)**

Subsidies and tax incentives

■ Assistance for introduction of electrified vehicles

○ Subsidies for the purchase of vehicles with excellent environmental performance

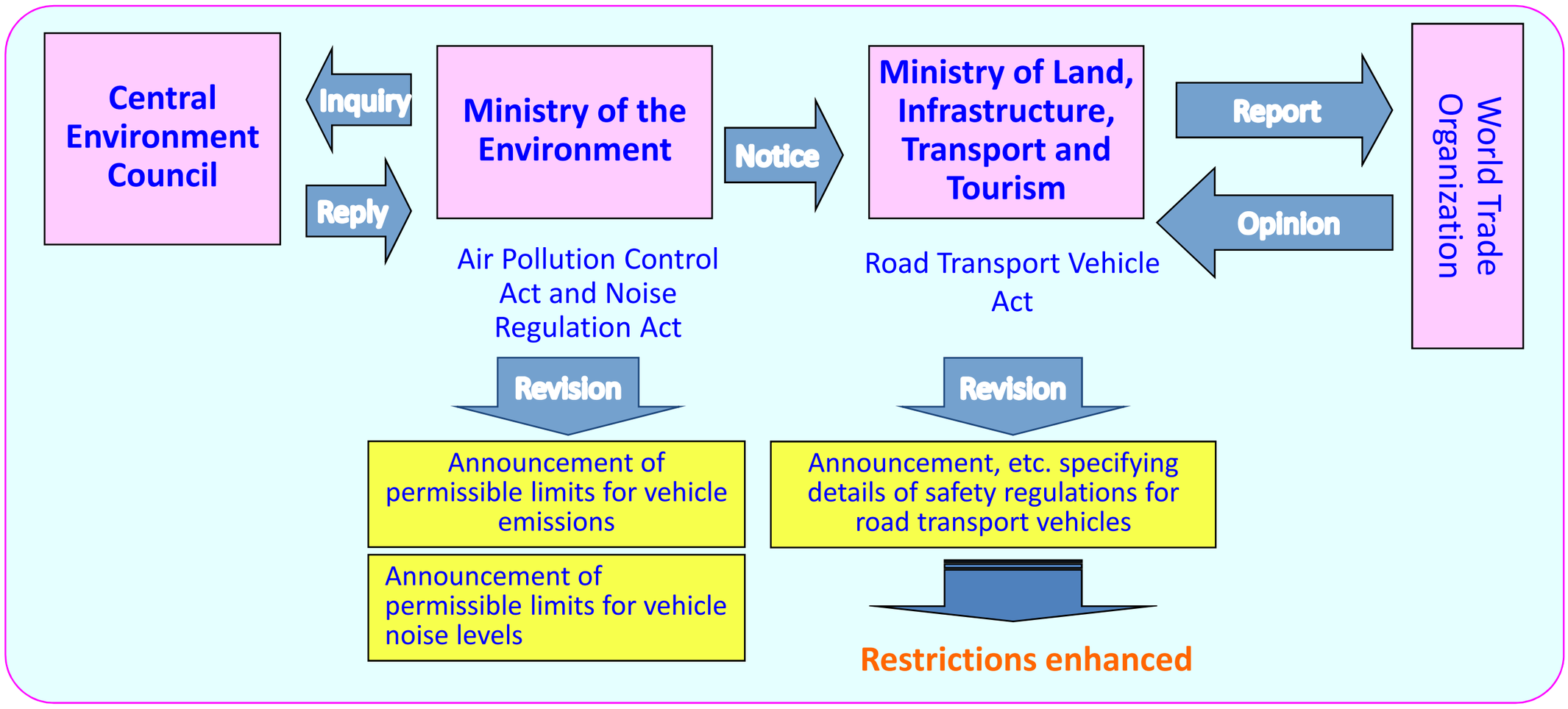
■ Tax incentives (e.g., “Eco-car tax reduction")

○ Exemption for electric vehicles, etc.
○ Exemption based on fuel efficiency, etc.

Electric truck

Fuel cell bus

Flow of Automobile Emission and Noise Restrictions



*** Air Pollution Control Act, Article 19**

1. **The Minister of the Environment must specify permissible limits for vehicle emissions.**
2. **The Minister of Land, Infrastructure, Transport and Tourism shall take into consideration the permissible limits to be ensured when establishing necessary matters concerning vehicle emission restrictions.**

*** Noise Regulation Act, Article 16**

1. **The Minister of the Environment must specify permissible limits for vehicle noise.**
2. **The Minister of Land, Infrastructure, Transport and Tourism shall take into consideration the permissible limits to be ensured when establishing necessary matters concerning vehicle noise restrictions.**

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Future Responses to the 14th Report from the Central Environment Council

○ Measures to reduce emissions from gasoline and LPG special-purpose vehicles (forklifts trucks, etc.)

- **Add the transient mode tests considering the actual conditions of use**

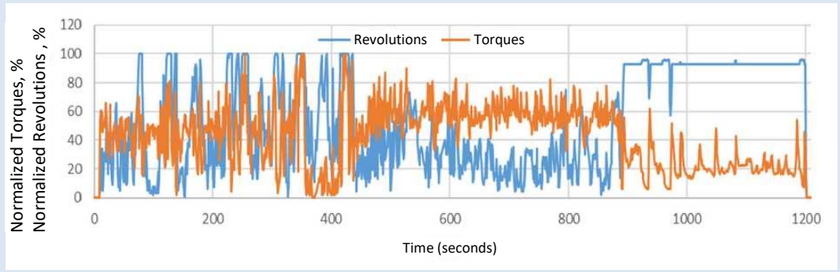
  * Currently, only steady mode testing is applied.

- **Enhance the restriction values (target permissible limit values)**

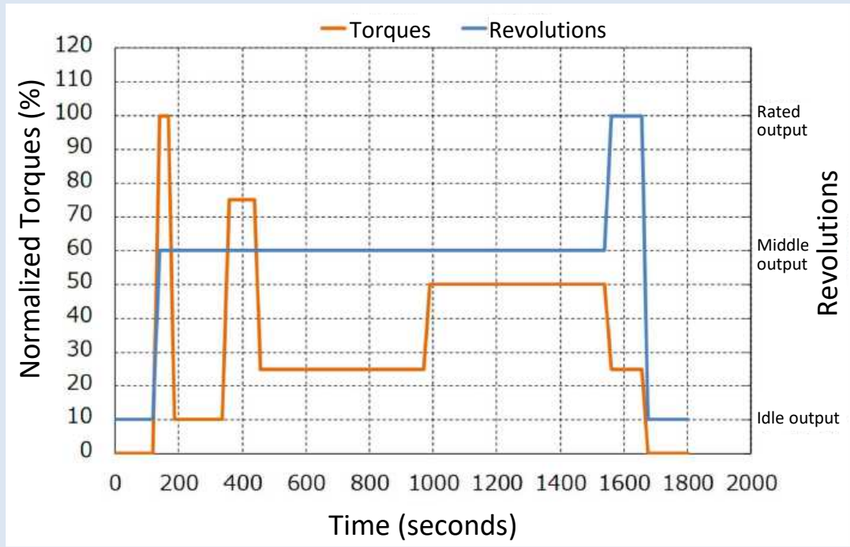
Overview of New Regulations

Type	Testing mode	Start of application
Gasoline/LPG special-purpose vehicles rated output of 19 kW or more but less than 560 kW	Transient mode	Until the end of 2024
	Steady mode	

Announcement for Revised Details of Security Regulations: Around January 2024



Transient mode



Steady mode

Future Priority Issues for Consideration

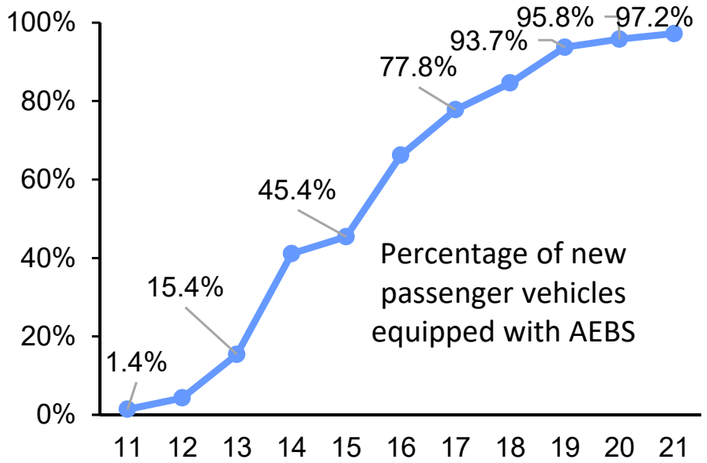
- Measures for fine particulate matter, etc.
- Measures for brake dust and tire dust
- Emission Reduction Measures for Diesel Special-purpose Vehicles

3. Recent domestic regulations trends

Overview of OBD inspections

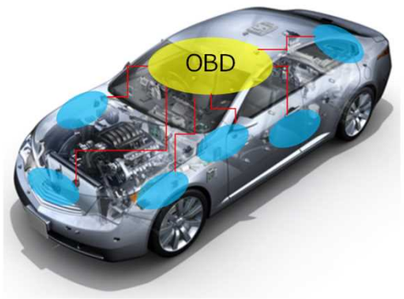
(Background)

- Although the number of motor vehicles equipped with AEBS*, etc. has increased and accidents have occurred due to malfunctions of electronic devices, conventional vehicle inspections do not support checking the functionality of these electronic devices.
- After repeated deliberations by a study group from 2017 to 2018, it was decided that "on-board diagnostics devices (OBD) inspections" to check the function of these electronic devices during vehicle inspections would begin in October 2024.
- Since then, we have been preparing for the amendment of the Road Vehicle Act (May 2019) and the development of the system at the National Agency for Automobile and Land Transport Technology (NALTEC).



*AEBS = Advanced Emergency Braking System

What is OBD inspection?

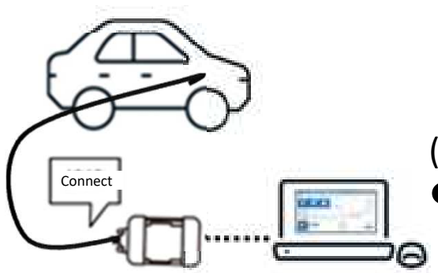


(What is OBD?)

- Motor vehicles are equipped with on-board diagnostics (OBD) that monitor the status of electronic devices and record malfunctions.
- Diagnostic Trouble Code (DTC) can be read out with a scan tool.

(What is OBD inspection?)

- Failure codes are read out at the time of a vehicle inspection, and if "failure codes that do not conform to regulations (Registered DTC (R-DTC))" remain, the vehicle fails the inspection.



Failure code reading

(Inspection start date)

- October 2024 (October 2025 for imported vehicles)

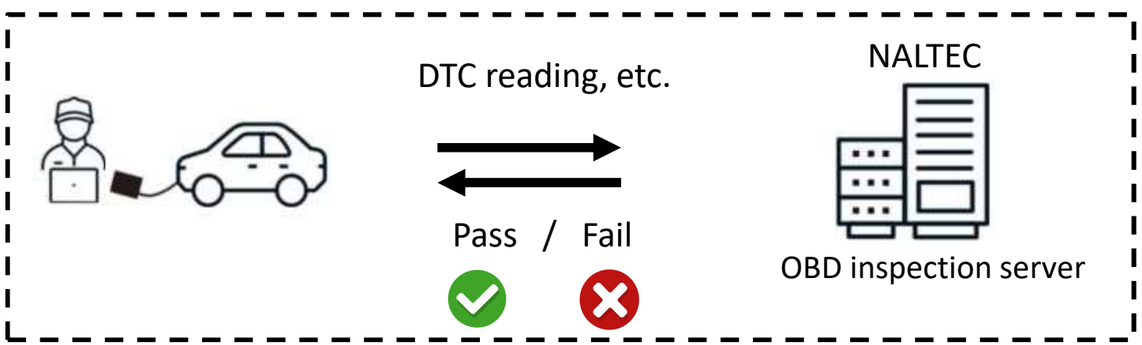
* New models from October 2021 onward are subject to the OBD inspection

How to perform an OBD inspection

- OBD inspections are conducted by the NALTEC or a designated garage (private vehicle inspection station).

  → Designated garages must prepare "inspection scan tools," etc.

- R-DTCs are read out by a scan tool and sent to the OBD inspection server managed by the NALTEC. The server determines whether it is a pass or fail.



- The OBD inspection practice period (pre-operation) will be implemented from October 2023.

Overview of Revised Regulations for AEBS for Heavy-Duty Vehicles, Etc.

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Background of Revision of Regulations, etc.

- The AEBS for trucks, buses, and other heavy-duty vehicles has become widespread due to the efforts of manufacturers and mandates that are based on the United Nations Regulations (UNR 131) that were enacted in 2013, leading to a reduction in traffic accidents caused by heavy-duty vehicles.
- The expert meetings of the UN World Forum for Harmonization of Vehicle Regulations (WP.29), co-chaired by Japan and Germany, had been working to revise these UN regulations, and the proposal for their revision to enhance performance requirements was made at WP.29 in June 2022.
- Based on the agreement at WP.29, this UN Regulations were domestically introduced at the same time as the enforcement of them in January 2023.

Major requirements

1. Operating range

It shall operate in the range of 10 km/h to the maximum speed (at least 20 to 60 km/h for pedestrians) when empty and fully loaded (for buses, both when empty and all seats are occupied).

2. Alarm

It shall give an alarm at least 0.8 seconds before the start of emergency braking (for pedestrians, before the start of emergency braking).

3. Emergency braking

- Performance testing of vehicles and pedestrians shall be executed to meet prescribed braking requirements (see figure on the right).
- When running at 60 km/h or less, it shall slow down by 40 km/h or more relative to the vehicle in front or stop.

Application time

- ✓ New model : **September 2025 -**
- ✓ Continued production model : **September 2028 -**

Major braking requirements and test methods

(Red letters: Enhanced in this revision)

① Testing vehicles

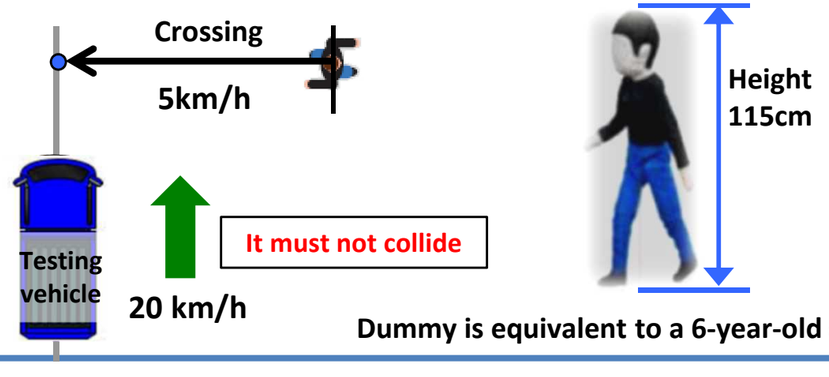
Enhanced deceleration at relative speeds of 80 km/h or more

Relative speed of 80 km/h
(Deceleration 20 km/h → 52 km/h or more)

Relative speed of 90 km/h
(No deceleration mandated → 48 km/h or more)

Relative speed of 100 km/h
(No deceleration mandated → 46 km/h or more)

② Test against pedestrians (newly added)



Dummy is equivalent to a 6-year-old child

Overview of Regulations for Blind Spot Information System (BSIS)

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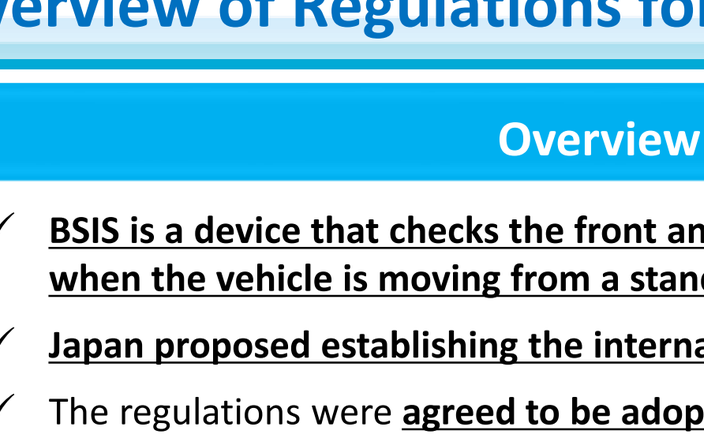
Overview and Background of Revision of Regulations

- ✓ **BSIS is a device that checks the front and side blind spots of a vehicle to prevent accidents involving contact with pedestrians when the vehicle is moving from a standstill.**
- ✓ **Japan proposed establishing the international regulations** and **led the discussion** while chairing the UN's expert meeting.
- ✓ The regulations were **agreed to be adopted as UN regulations** in November 2022 and **became effective in June 2023.**
- ✓ For the remaining issues (e.g., impact mitigation requirements) that are based on the domestic regulations, discussions at WP29 will continue.

Image of the device



Visual image by camera monitor

Checking mirror

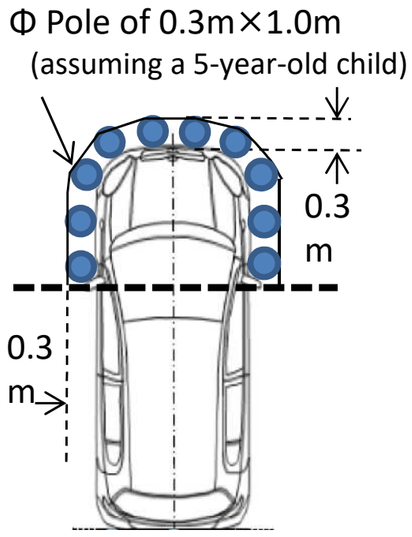
Subject vehicle models

Passenger vehicles　　Light duty truck

Example of the device performance requirements

When obstacles in the defined area immediately in front of and to the side of the vehicle **are not directly visible, the obstacle shall be visible and detectable** by one or a combination of the followings.

- **Camera monitor**
- **Detection system (such as sonar)**
- **Mirror**



Overview of Regulations on Device for Checking Immediately Behind Vehicles Going Backwards (Rear-View Camera System)

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Overview and Background of Revision of Regulations

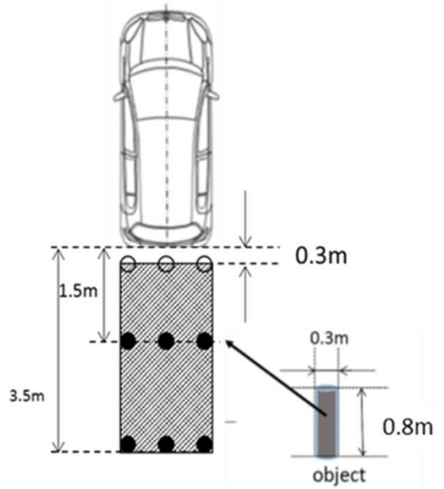
- ✓ Japan proposed international regulations for a **device that checks immediately behind vehicles that are going backwards** to **prevent accidents that occur when they are going backwards,** and they were **adopted as new UN regulations** in November 2020.
- ✓ Based on the establishment of these regulations, the domestic regulations were revised in June 2021, **making it mandatory for passenger vehicles, buses, and trucks* to be equipped with such a device on new vehicles in a stepwise manner.**

* Motorcycles, etc. are exempted.

- ✓ The revision of the domestic regulations in September 2023 **enabled the device certification of rear-view camera systems**.

Performance requirements for the device for checking immediately behind vehicles going backwards

- ➢ When going backwards, the **obstacles in the defined area** immediately behind the vehicle **shall be visible**.
- ➢ Checking methods shall be any of the followings or a combination thereof.
  - **Camera monitor**
  - **Detection system (such as a sonar)**
  - **Mirror**



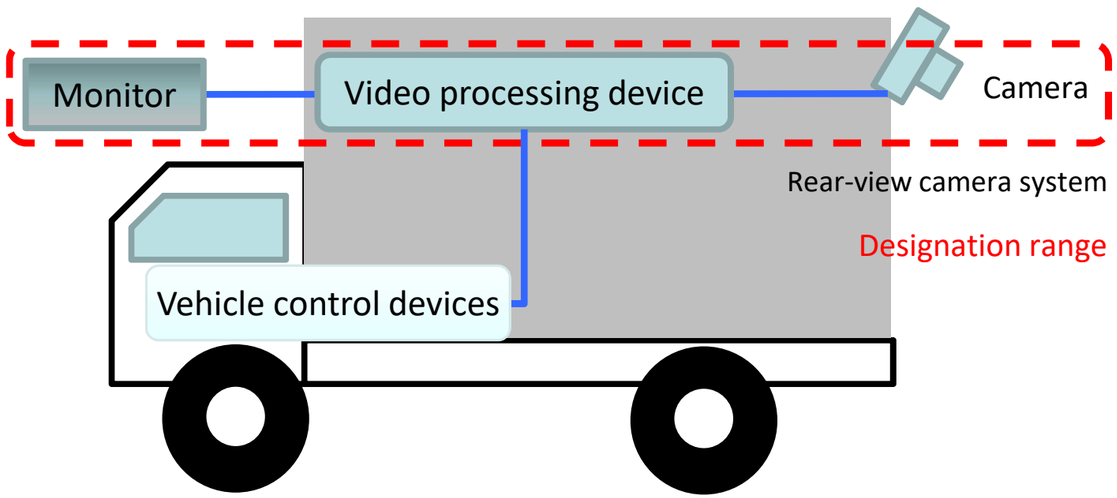
Example of the checking area in the test (in the case of a rear-view camera system)

Application time

- ✓ New model : **May 1, 2022 -**
- ✓ Continued production model : **May 1, 2024 -**

Device certification of rear-view camera systems

The system consisting of a camera, monitor, and video processing device is allowed to be certified as the specific device (device type designation).



* By checking in advance that the rear-view camera system complies with the regulations and simplifying the procedure to check the compliance of each vehicle at the new inspection, the options for certification will be expanded, and the use of safer rear-view camera systems will be further promoted.

Thank you for your attention!