

# TRANSPORT, ROADS AND TRAFFIC

This article presents an overview of the main trends and outlook in Japan among the Ministry of Land, Infrastructure Transport and Tourism (MLIT) and other road administration authorities between January and December 2019.

## 1 Designation of Major Transport Road Sections Not Requiring Passage Permits for Special Vehicles<sup>(1)</sup>

In the March 2018 revision of the Road Act, the Minister of Land, Infrastructure, Transport and Tourism designated critical road transport networks as major transport roads, introducing measures allowing international marine container vehicles (40 ft containers) to travel without requiring a passage permit, and creating a system enabling the national government to step in to open roads and initiate disaster recovery in the event of an emergency. Some roads in service were designated as major transport roads in April 2019 (major transport roads: 35,118 km, alternative or complementary roads: 15,302 km). Doing so formulated a new wide area transportation vision and plan for the enhanced nationwide network of high-standard arterial roads and high-standard regional roads shown in Fig. 1. In addition, other roads planned or already under construction were designated as major transport roads in 2019. At the same time, a measure to allow the passage of international marine container vehicles (40 ft containers) without a permit was introduced for major transport roads with sufficient structural strength (about 80% of the total).

## 2 Revisions to the Road Sign Installation Standards<sup>(2)</sup>

Since the 2015 revisions to the standards for installing road signs, the Order on Road Sign, Road Line, and Road Surface Marking has been amended three times following the installation of new signs such as the expressway signs with route numbers mandated by the expressway

numbering system and signs prohibiting access to vehicles without tire chains. However, the need for specific measures to address amendments to the Order on Road Sign, Road Line, and Road Surface Marking and the Road Structure Ordinance, as well as the necessity of extending initiatives to improve signs to the entire country in preparation for the Tokyo Olympic and Paralympic Games and the goals set for the number of visitors to Japan (40 million in 2020, 60 million in 2030) led to a draft revision of the road sign installation standards in October 2019. The proposed revisions consist of (a) adding the handling of the revised Order on Road Sign, Road Line, and Road Surface Marking and Road Structure Ordinance contents, (b) achieving effective guidance through the formulation of installation plans and initiative guidelines, (c) providing extensive guidance for pedestrians, and (d) expanding the areas where the installation of *michi-no-eki* signs is allowed. With respect to revision (a) on adding the handling of the revised Order on Road Sign, Road Line, and Road Surface Marking and Road Structure Ordinance contents, the current standards do not comply with the amendments made to that Order. Consequently, as shown in Fig. 2, an installation plan and initiative guidelines to revise the standards to comply with the latest Order were disseminated throughout Japan.

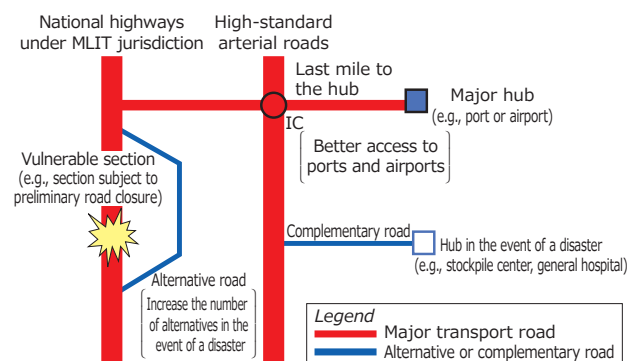


Fig. 1 Visualization of Major Transport Road Network



Fig. 2 Examples of New Road Signs

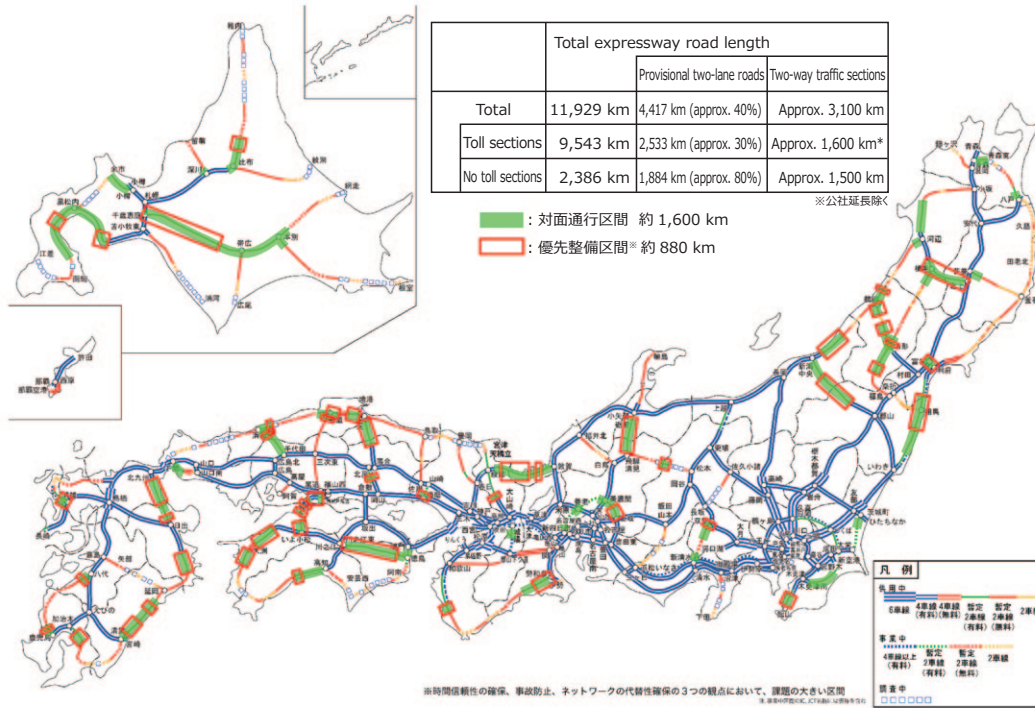


Fig. 3 Priority Sections for Provisional Two-Lane Sections (Draft)

### 3 Formulation of the Basic Plan for Safety and Security on Expressways (Draft)<sup>(3)</sup>

In Japan, the horizontal development of the roads connecting the expressway network is largely complete. It is now necessary to move to the next stage, which involves enhancing functionality in terms of improving safety, reliability and ease-of-use. In September 2019, the *Basic Plan for Safety and Security on Expressways (Draft)* (covering a period of ten years or so) and including the standard level of service to achieve was formulated to steadily advance measures concerning safety and security. The concrete measures in this basic plan are (a) eliminating provisional two-lane sections, (b) adapting highways to address autonomous driving and other innovations, (c) achieving the safest expressways in the world, (d) sharply increasing the reliability of the net-

work, and (e) improving ease-of-use based on user needs.

Notably, although approximately 85%, or 11,900 km of the planned total length of 14,000 km of the four high-standard arterial road expressway networks in Japan has been opened, some 40% of opened roads remain provisional two-lane sections, a situation unheard of in other countries. The majority of those provisional two-lane sections consist of two-way traffic roads, leading to approximately accidents per year caused by crossing into the oncoming traffic lane. The plan therefore calls to reduce provisional two-lane sections on toll roads in half over 10 to 15 years (and eliminate them in the longer term). In addition, sections with major issues that must be given priority in establishing expansion projects (priority sections) have been selected to systematically advance the expansion of provisional two-lane sections to four lanes (Fig. 3).

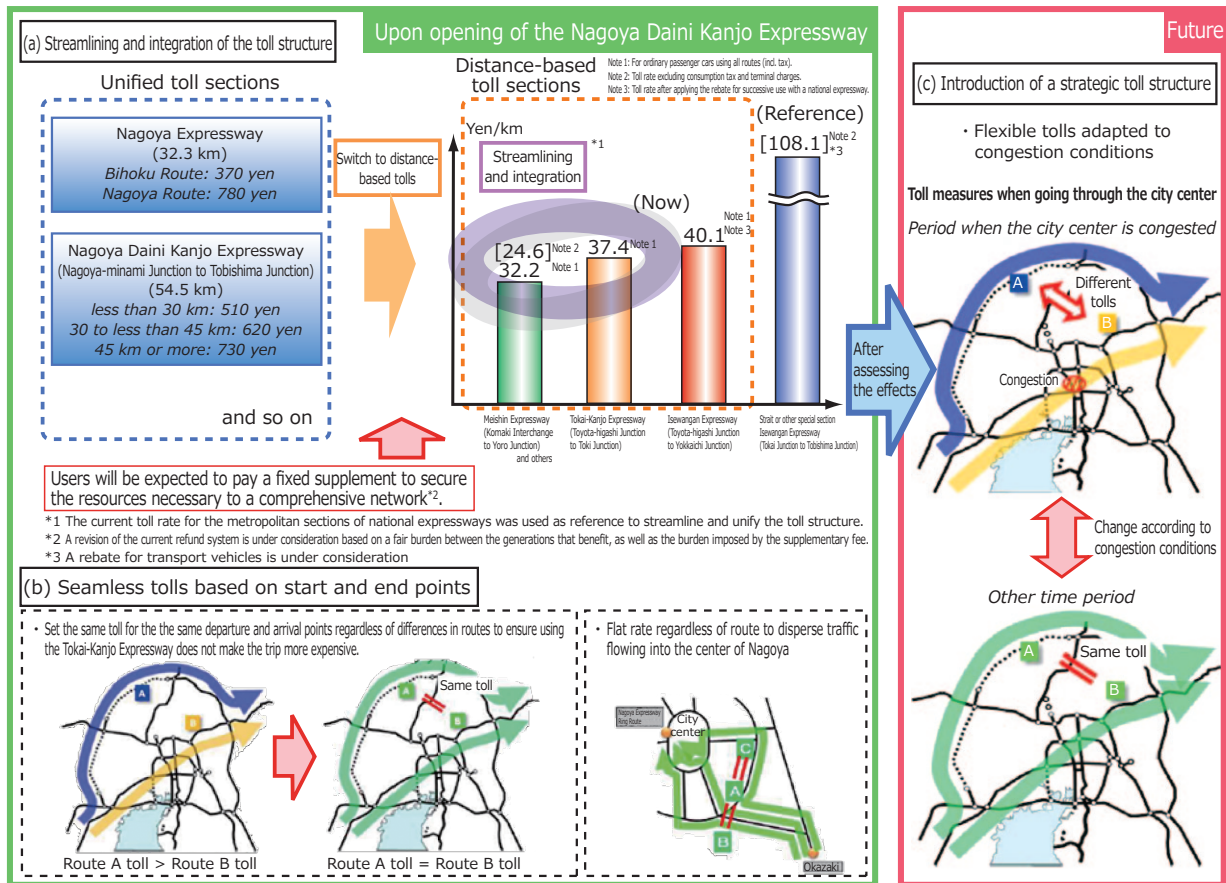


Fig. 4 Toll Structure for the Intelligent Use of the Chukyo Area Expressways

## 4 Measures Concerning Expressway Tolls

### 4.1. Toll Structure for the Intelligent Use of the Chukyo Area Expressways<sup>(4)</sup>

A new expressway toll structure was introduced in April 2016 in the Tokyo metropolitan area and in June 2017 in the Kinki area. This had positive results such as redirecting traffic to outer ring roads and dispersing traffic flowing into the city center. Based on the debates for the Tokyo metropolitan and Kinki areas, and in conjunction with the advancement of the network, a basic policy for a toll structure encouraging intelligent use of the Chukyo area expressways was prepared in December 2019. The policy establishes a strategic toll system and initiative to achieve the next step with respect to the three principals of intelligent fees consisting of (a) a fair toll structure based on actual use, (b) a simple and seamless cross-operator toll structure, and (c) optimized traffic fluidity (Fig. 4).

#### (1) Streamlining and Integration of the Toll

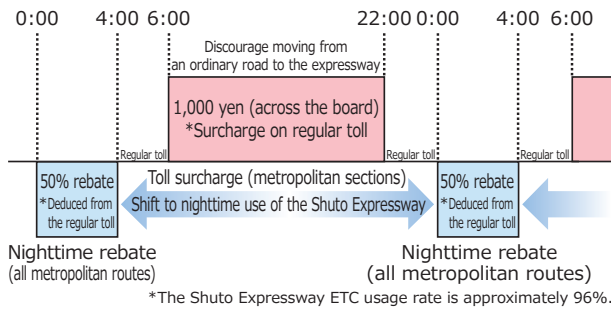
**Structure** Unify toll rates and vehicle categories based on distance. The current metropolitan section standard rates will serve as a reference, and the Chukyo area-specific issue of securing resources for a full-fledged network will be taken into account to determine the specific toll rates.

**(2) Setting Seamless Toll Based on Start and End Points** Set the same toll for the the same departure and arrival points regardless of differences in routes to ensure using outer ring roads does not make the trip more expensive. Set a flat rate regardless of route to disperse traffic flowing into the center of Nagoya.

**(3) Strategic Toll Structure** After the new toll structure coinciding with the opening of the Nagoya Daini Kanjo Expressway is introduced, its effect on traffic will be examined and a fee policy reflecting congestion by route or time period will be assessed.

### 4.2. Shuto Expressway Toll Policy for the 2020 Tokyo Olympic and Paralympic Games<sup>(5)</sup>

In May 2019, the committee in charge of transport and



**Fig. 5** Nighttime Rebate for ETC-Equipped Vehicles and Toll Surcharge

traffic for the Tokyo 2020 Olympic and Paralympic Games proposed (draft) guidelines on traffic management aimed at providing both safe and smooth transportation for spectators and people involved in the event, and stable logistics and other urban activity.

The three pillars called for in the guidelines are travel demand management (TDM), which calls for corporate and public understanding and cooperation in mitigating, dispersing, and leveling the volume of traffic, traffic system management (TSM), which makes the most efficient possible use of the road infrastructure while performing advanced traffic supply and demand management, and public transportation management, which uses the transport capacity capacity of rail roads and other forms of mass transit to safely and smoothly transport spectators. The attendant measures include the six core concepts of (a) balancing transportation for the event and urban activities in an enhanced traffic environment, (b) traffic demand management (TDM), (c) traffic system management (TSM), (d) public transportation management, (e) extensive preparations and flexible responses, and (f) creating and transmitting a legacy.

The proposal also the following goals to achieve during the event. Uniformly reduce the volume of ordinary road traffic in the greater Tokyo region by 10% before the Games. In key event areas (the 16 areas where competition venues are concentrated or where traffic passes through high congestion road and railway locations), reduce incoming and outgoing traffic by 30%. Reduce the volume of traffic by up to 30% on the Shuto Expressway, which forms the core of the Tokyo Metropolitan Olympic Route Network (ORN) to create a favorable traffic environment comparable to that on non-business days (achieved through TDM and additional measures). For public transportation, apply pinpoint measures against congestion to maintain the current level of safe and smooth transportation.



**Fig. 6** Scope of toll surcharge (ETC-equipped vehicles)

In the summer of 2019, one year before the Games, the Tokyo Olympic and Paralympic Games Organizing Committee, in cooperation with transport and road administration organizations, carried out comprehensive tests of the initiatives designed to alleviate congestion on expressways and a subset of ordinary roads, using targets matching those set for the actual event. Specifically, the test involved TDM measures such as telework, staggered commuting hours, and changes in the delivery periods of products and goods, as well as restricting vehicular access to the city center from both expressway toll gates and from Ring Road No. 7 for ordinary roads on Wednesday July 24 and Friday July 26. The test raised the following points: (a) traffic was reduced to some extent (approximately 4% on ordinary roads, but only 0.4% compared to the previous year on the expressway for days with only TDM measures in effect), (b) effective TSM operation requires a substantial reduction in the volume of traffic, (c) during the actual Games, the number of vehicles related to the event and ramifications on other traffic are expected to increase, and (d) the impact of a prolonged strong TSM on economic and urban activity is a concern.

With these results indicating the need for additional

measures and a further reduction in traffic based on TDM in preparation for the actual Games, the nighttime tools were reduced by half to encourage a shift toward using the expressway at night, and the first application of road pricing in Japan (a 1,000 yen surcharge on the toll) was introduced to discourage drivers from using the Shuto Expressway instead of ordinary roads (Figs. 5 and 6).