

Simplification of passage permission for oversize/overmass vehicles equipped with ETC2.0

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1. Introduction

Taking measures to deal with the aging of road facilities is an urgent issue. In particular, it is assumed that vehicles that weigh more than a specific value have a significant influence on the degradation of road facilities. Thus, it is desirable to regulate the passage of such vehicles. On the other hand, because the shortage of drivers has become serious, there is a desire to make physical distribution more efficient and save manpower by increasing the size of vehicles and decreasing the burdens of freight companies¹⁾. In our division, we are examining the travel routes for oversize/overmass vehicles utilizing ETC2.0 and weigh-in-motion (WIM) data, with the goal of developing a method to grasp their situations. In this article, as an effort to use roads wisely, we explain an attempt to simplify passage permission for oversize/overmass vehicles, using intelligent transport systems (ITS) technology, to simultaneously optimize physical distribution and adjust the passage of oversize/overmass vehicles.

2. Technology to monitor passage of oversize/overmass vehicles using ETC2.0

In ETC2.0, using high-speed and large-capacity communication between an ETC2.0 on-board unit and a roadside unit, we can collect probe data, including the travel route record of each vehicle. In addition, after obtaining the consent of a freight company, we can collect probe data that include information to identify an individual vehicle.

Utilizing ETC 2.0, road administrators can confirm the travel route of an oversize/overmass vehicle equipped with an ETC2.0 on-board unit. In addition, by combining the weight measurement data obtained from WIM all over the country for oversize/overmass vehicles and the travel routes obtained by ETC2.0, we can confirm the weight of a running vehicle equipped with ETC2.0 (Figure 1).

Using this technology, we can confirm the passage on a permitted route and the conditions for a vehicle that weighs more than the general weight limit determined by

the cabinet order on vehicle restrictions, such as an oversize/overmass vehicle whose total weight is 20 tons or more.

3. Simplification of passage permission for oversize/overmass vehicles

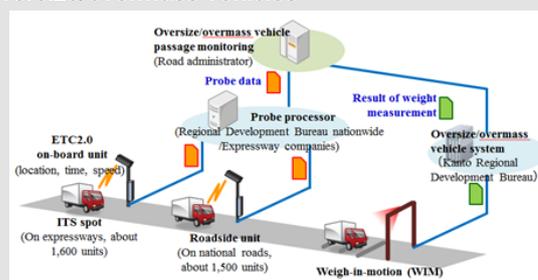
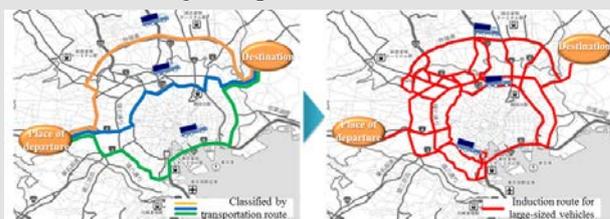


Figure 1 ETC2.0 oversize/overmass vehicle passage monitoring

The Ministry of Land, Infrastructure, Transport and Tourism is considering the introduction of a system to simplify passage permission for oversize/overmass vehicles equipped with ETC2.0 (in the following, we call this “gold permission”). Previously, to obtain passage permission for an oversize/overmass vehicle, an application for each transportation route was required. However, in the gold permission system, if a vehicle is equipped with an ETC2.0 on-board unit, a user policy and so on are agreed upon, and the vehicle information is



registered, permission is given and a travel route can, in principle, be freely chosen from about 34,000 km of induction routes nationwide for large-sized vehicles (Figure 2). We think that the implementation of this system will make transportation more efficient and smoother because a route can be flexibly chosen by considering road traffic information and so on, while it

will simultaneously regulate the passage of
oversize/overmass vehicles.

Figure 2 Simplification of passage permission for
oversize/overmass vehicles

4. Concluding remarks

The gold permission system began to be used in 2016, considering Public Comments collected by the Ministry of Land, Infrastructure, Transport and Tourism. At the NILIM, we will attempt to develop a technology that can support a system to establish a win-win relation for the passage of oversize/overmass vehicles between freight companies and road administrators, to promote efforts to use roads wisely in the future.

[Reference]

1) Press release of Ministry of Land, Infrastructure, Transport and Tourism: Basic directions and so on for physical distribution policies in the future (report) (in Japanese)

<http://www.mlit.go.jp/common/001114704.pdf>