

Collection and Utilization of ETC2.0 Probe Information

SETOSHITA Shinsuke, Head, Road Division, Road Traffic Department

KOBAYASHI Hiroshi (Ph. D.), Head, Road Safety Division, Road Traffic Department

IKEDA Yuji, Head, Intelligent Transport Systems Division, Road Traffic Department

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1. Outline of ETC2.0 System

ETC2.0 provides information service for avoiding traffic congestion and driving safely in addition to the automatic toll collection service, and enables road administrators to collect "ETC2.0 probe information" that includes travelling and behavior histories of automobiles. Road administrators developed a device for collecting / processing ETC2.0 probe information based on the specifications prepared by NILIM and have been operating it since April 2011, and the activity to use ETC2.0 probe information for the MLIT Productivity Revolution Project, including pinpoint congestion countermeasures, has begun.

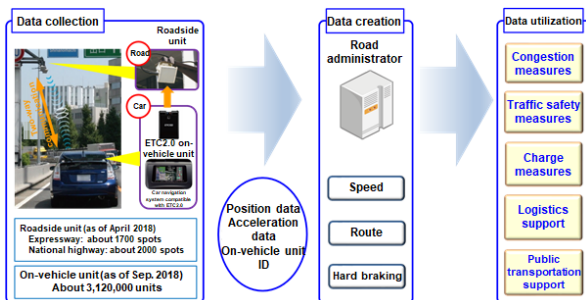


Fig. 1: Collection and utilization of ETC2.0 probe information

2. Upgrading of ETC2.0 probe information utilization

NILIM has been studying for advanced utilization of ETC2.0 probe information aiming at further efficiency increase in road management operation and facilitation / safety improvement of road traffic. This paper introduces part of our activities.

(1) Provision of operation management support service

NILIM established a mechanism of identifying vehicles and collecting probe information based on business operator's application, etc. NILIM has also conducted a social experiment of the operation management support service since 2016 to provide probe information on vehicles held by road administrators to logistics operators so that it may be utilized for increasing efficiency in operation management, securing the safety of drivers, etc. and organized results of the experiment. This service was formally introduced in FY2018 and has been widely provided to the public.

(2) Utilization for verification of the effect on measures for congestion due to tourist traffic

Since tourist traffic is an irregular traffic that does not occur frequently, it is considered difficult to collect data for analysis. NILIM has therefore been studying the method of verifying the effect of measures for congestion due to tourist traffic using the characteristic of ETC2.0 probe information that the traveling history of vehicles can be grasped constantly.

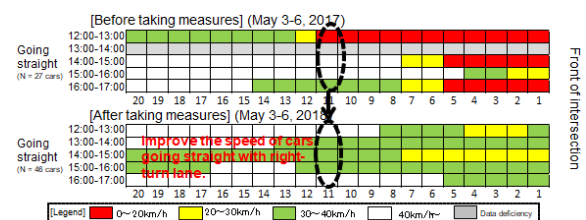


Fig. 2: Example of speed analysis at the intersection in the GW period

(3) Utilization for identifying traffic safety measures zones on the community road, etc.

For community road traffic safety measures, it is effective to conduct them integrally in an area where the risk of accident is high. As an indicator for accident risk assessment, sudden deceleration data, which is one of the behavior history of ETC2.0 probe information is useful for preventing inadvertence of potential hazardous areas. NILIM has therefore been studying a method of narrowing down areas with high risk of accident using ETC2.0 probe information and considering areal spread as well as a method of analyzing the effect of countermeasures.

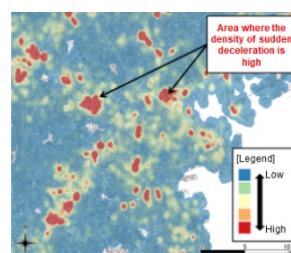


Fig. 3: Narrowing down areas where the risk of accident is high