

Research Trends and Results

Development of probe data utilization method for traffic safety countermeasures

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(Key words) ETC2.0, probe data, traffic safety countermeasure

1. Introduction

To effectively and efficiently implement traffic safety countermeasures, it is necessary to properly identify hazardous spots or areas, accurately analyze accident factors, and properly plan and implement countermeasures based on these. In addition, it is necessary to evaluate the effect in an early stage, and implement any additional countermeasures in the early stage, as needed.

On the other hand, using the ETC2.0 service, the Ministry of Land, Infrastructure, Transport and Tourism has been collecting and accumulating probe data such as the moving paths (in the following, we call this “ETC2.0 probe information”) from vehicles equipped with special devices.

In the Road Division, we are examining a method to use ETC2.0 probe information for a traffic safety countermeasure.

2. Identification of area containing community road with high risk of danger

Here, we introduce a research trend for a method to identify the areas with a high risk of danger from areas containing community roads, using the ETC2.0 probe information.

The ETC2.0 probe information contains data on the traveling routes of vehicles (traveling route data) collected as point data. Figure 1 shows the distribution of the traveling route data collected in the region surrounded by the purple frame.

On community roads, traffic safety issues are due to vehicles passing through the area, and vehicles traveling at a fast speed. Here, we divided the region surrounded by the purple frame in Figure 1 into several areas separated by boundaries formed by roads in which there are multiple roadways separated from a sidewalk, and we counted the number of vehicles that passed through each area (see Figure 2). A large amount of traffic passed through the area surrounded by the blue circle in Figure 2. In this way, using the ETC2.0 probe information makes it possible to grasp the traffic situation for vehicles passing through an area, which is a traffic safety issue on a community road. We can identify the areas with a high risk of danger using such information.

3. Future issues

Using the ETC2.0 probe information makes it possible

to grasp the traffic situation for vehicles passing through a area, as well as the speeds of such vehicles and the occurrence of sudden braking. In addition, the probe information could be used for various purposes such as to identify hazardous spots on arterial roads and evaluate the effect. In the future, we plan to conduct research to develop these methods.



Figure 1 Distribution of traveling route data



Figure 2 Number of vehicles that pass through each district