

Research Trends and Results

Development of an efficient bicycle traffic survey method

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1. Introduction

In November 2012, the Guideline to the Creation of Safe and Comfortable Bicycle Utilization Environments¹⁾ was published. It indicated the importance of clarifying the characteristics of local bicycle use and preparing a bicycle network plan in order to improve bicycle use environments.

This research was undertaken in an attempt to develop a method of efficiently surveying bicycle traffic in order to support the preparation of bicycle network plans.

2. Outline of the bicycle traffic survey method

We developed a survey use application(Bicycle Planner) to clarify bicycle traffic routes etc. using GPS positioning data obtainable using a smartphone. The application is easy to use, because the test subject simply taps the screen of the smartphone when starting to travel, when changing traveling method, and when reaching the destination and so on, permitting surveying with a small burden on the test subjects (see Fig. 1). It is also a low cost survey method, because the survey devices used are smartphones owned by the test subjects. It can analyze the characteristics of local bicycle use by clarifying purpose of use of the bicycles, and the sex and age group of each bicycle user (see Fig. 2).

3. Uses of the survey results

This survey can clarify the routes traveled by the test subjects, number of cyclists using each route (see Fig. 3), the average traveling speed of the bicycles, trip length, and so on. These data can be used for a variety of purposes: to study using routes with heavy bicycle traffic as routes forming part of the bicycle network plan, verifying the effectiveness of creating a new bicycle traffic route by comparing the traffic routes before and after its creation, and using the traveling speed, trip length etc. as planning goal indices when planning the bicycle network.

4. Conclusions

In the future, we will propose and support the use of this survey method by local governments that are

studying the preparation of a bicycle network plan.

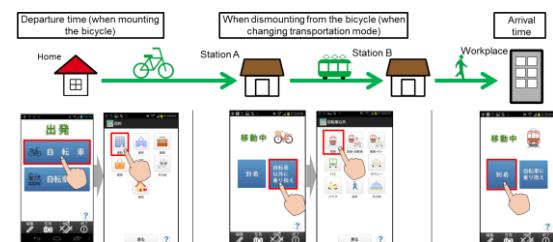
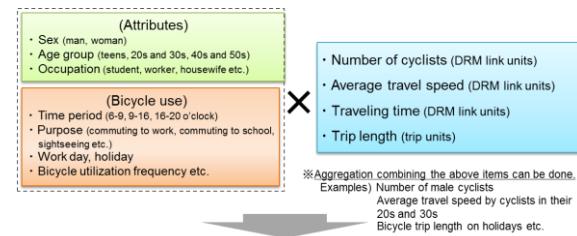


Figure 1. Image of Operation of the Application



Clarification of local bicycle traffic conditions

Figure 2. State of Bicycle Traffic can be Clarified with Major Survey Items

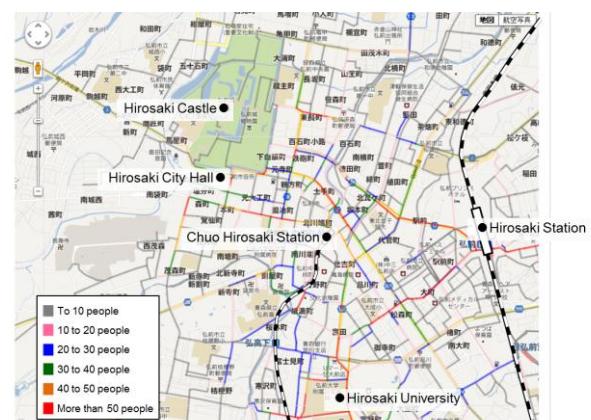


Figure 3. Example of Display of Total Bicycle Traffic [Sources]

Ministry of Land, Infrastructure, Transport and Tourism, Road Bureau web page
<http://www.mlit.go.jp/road/road/bicycle/pdf/guideline.pdf>