

# Research Trends and Results

## Attempt to develop road structure data for travel support service

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### 1. Introduction

To realize a secure, safe, and comfortable travel support service, we need a map that expresses the detailed road space (in the following, we call this “road structure data”). As used here, the term road structure data does not refer to a map that would be recognized by people, but rather a map that can easily be recognized by an in-vehicle device and software associated with a travel support service, and which is sufficiently accurate and updated. To develop the road structure data, the use of road-based map information, which is a large-scale road map, is expected.

At the NILIM, we conducted collaborative research to establish a development procedure for the road structure data required for a travel support service, where road-based map information was utilized<sup>1)</sup>.

### 2. Devising development procedure for road structure data

In this collaborative research, we defined the requirements of the road structure data for a travel support service on expressways. Then, we drew up a requirement definition document for a map that contributes to the travel support service (draft) (in the following, we call this the “requirement definition document”). For the specification of the road structure data that satisfies the requirement definition document, we wrote up a product specification of the road structure data for the travel support service (draft) (in the following, we call this the “product specification”). In addition, as a development procedure for the road structure data in accordance with the product specification, we created a development guideline for the road structure data for the travel support service (draft) (in the following, we call this the “development guideline”).

### 3. Trial production of road structure data and usability assessment

In this collaborative research, we created a trial product of the road structure data for an expressway with a length of

440 km, following the development guideline (see Figure). We found that we could develop road structure data with sufficient accuracy in relation to the center line of each lane and its curvature, using road-based map information, without actually measuring the roads, if we complemented the data with point group coordinate data combined with the existing resources of electrical maps.

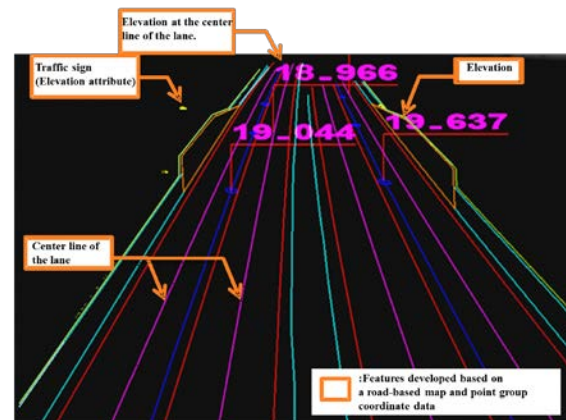


Figure Image of trial product of road structure data

Next, we conducted a driving experiment using the trial product of the road structure data for Hanshin Expressway and Sagami Jukan Expressway, and we found that the curvature of the roads included in the road structure data, and features such as the road signs and dividing lines were useful to control the speed and estimate the vehicle location.

### 4. Concluding remark

Future issues include establishing methods to update the road structure data, expand its application area (application to general roads), and develop, update, and manage the data continuously.

☞ Detailed information:

1) Technical note in NILIM No.848 (in Japanese)  
<http://www.nilim.go.jp/lab/bcg/siryou/tmn/tmn0848.htm>