A study of methods of creating and updating large scale road maps by government-private sector joint research

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1. Introduction

Large-scale (1/1,000 or higher) road maps are counted on to used for various purposes in private, academia, and government; to advance road administration and cruise assist systems for example. The Ministry of Land, Infrastructure, Transport and Tourism began to apply road works completion drawings etc. preparation instructions to paving works etc. to provide the fundamental geospatial data of road as large-scale road maps in FY2006. A strong point of this provision method is that immediately after the work is completed, a renewal cycle which creates road maps is established. But because it is time-consuming to construct all lines, maps are now provided for about 30% of government managed roads. Expanding this to a variety of usage situations requires early realization of the construction of the road network.

So the NILIM began to perform two years of private, academia, and government joint research intended to establish methods of providing and updating large scale road maps using existing resources such as electronic maps, point group coordinates data, aerial photographs etc. owned by the government and private sector. This paper reports on part of the contents and progress of the joint research[1)].

2. Contents of research on large-scale road map provision and updating methods

The joint research set the following two research themes based on users' needs for large-scale road maps[2)].

- Theme 1: establishing methods of providing and updating the fundamental geospatial data of road using existing resources (Fig. 1)
- Theme 2: Establishing methods of using the fundamental geospatial data of road and existing resources to provide and update large scale road maps necessary to provide cruise assist services (Fig. 2).

3. State of initiatives in this fiscal year

As Theme 1, special features of each existing resource were analyzed to actually use existing resources to summarize provision methods which can realistically be executed by making a prototype of natural features in the fundamental geospatial data of road.

As Theme 2, essential conditions and necessary natural features of large scale road maps and their precision required for cruise assist services were defined, and provision methods completed by trial production of each natural feature.

4. Conclusions

In the future, we will consider large scale road map updating methods to verify their usefulness by making maps in conformity with provision and updating methods. And Large Scale Road Map Provision and Updating Rules (Proposed) for each theme will be compiled.

Figure 1. Image of Provision and Updating of the Fundamental Geospatial Data of Road Using Existing Resources

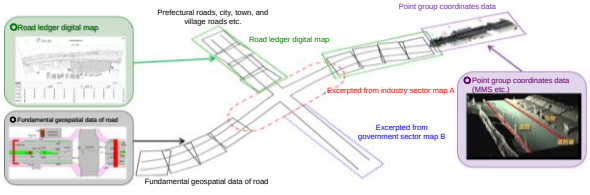
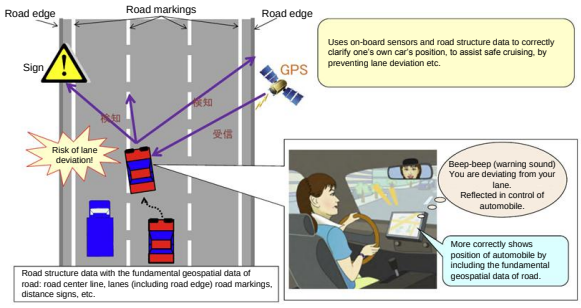


Figure 2. Image of Cruise Assist Services Using Large Scale Road Map



[Sources]
1) Imai, R., Fukada, M., Shigetaka, K.: A study of a method of creating and updating large scale road maps by public private partnerships, *the GIS Association of Japan*, Vol. 22, 2013
2) Imai, R., Matsui, S., Shigetaka, K., Sasaki, Y.: Experimental release of the fundamental geospatial data of road: Needs concerning large scale road maps of industry and academia, *the GIS Association of Japan*, Vol. 22, 2013