

Research Trends and Results

Development of a road management support system using road infrastructure map information

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1. Introduction

Road management spans many categories of work, including administrative counseling, road inspections, and pavement management. Various kinds of information are handled to perform each category of work, but much of this information is related to maps. Road infrastructure map information consists of large scale (1/1,000 or higher) road maps that represent 30 road structures such as traffic lanes with graphics, and they are prepared using road work completion diagrams. If there were mechanisms able to link various kinds of information used for road management and perform superimposition display on road infrastructure map information, it would permit spatial searching, statistical processing, analysis etc. and would be counted on to contribute to more efficient and more advanced work.

The NILIM has developed a prototype of a road management support system using road infrastructure map information (called "Road Web Map") which has been trial operated by a road manager.

2. Outline of the Road Web Map

A characteristic of the Road Web Map is that it shares various categories of information about road management using road infrastructure map information as a sharing infrastructure (see Fig. 1).

Figure 2 is an image of the functions of the Road Web Map. The infrastructure for each type of work includes map searching and other sharing functions and a user's management function. Individual functions specialized for each work type are added to this infrastructure.

3. State of development

In the past fiscal year, through repeated discussions with road managers, the functions which the road infrastructure web map must provide were abstracted, and the required function conditions were defined. We asked private companies that develop and build systems related to GIS applications or road management work for their opinions concerning

required function conditions and summarized the results in the Required Function Conditions Definitions¹⁾.

This fiscal year, the prototype of the common functions and the individual function, administrative counseling function were developed based on the Required Function Conditions Definitions. And the Chiba National Highway Office of the Kanto Regional Development Bureau performed a trial of the prototype, and organized the operability of the Road Web Map and the effectiveness and usefulness of and problems with each function.

4. Conclusion

In the future, we are eager to improve the Road Web Map based on challenges clarified by the trial operation, and at the same time, add other individual functions and perform development to begin actual operation at the National Road Offices.

Figure 1. Overall Image of the Road Web Map

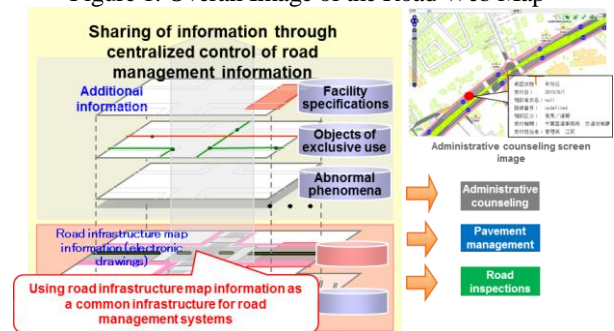
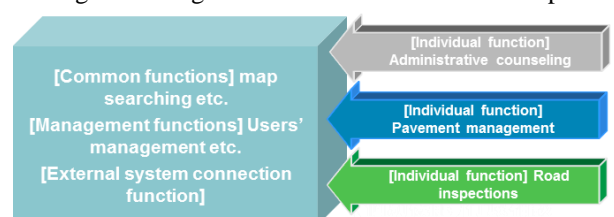


Figure 2. Image of Functions of a Road Web Map



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[Sources]

1) R. Imai, Y. Sasaki: Initiatives for more efficient road management using large scale road maps, Civil Engineering Journal, No. 54-3, pp. 45-46, 2012