EXPERT SYSTEM FOR WORK ZONE TRAFFIC MANAGEMENT IN THAILAND

Somprasong Suttayamully
School of Transportation Engineering, Suranaree University of Technology

Upali Vandebona
School of Civil and Environmental Engineering, University of News South Wales, Sydney, Australia

Abstract

Construction and maintenance activities in work zones directly affect mobility and safety of motoring public. There are significant traffic problems in rapidly developing countries because of the construction-related growth of delays and inconvenience. For example, the amount of delay and inconvenience in work zones along Thai national highway are at unacceptable levels.

The aim of this project is to develop software-based delivery of expertise and skills required for management of traffic systems at construction/maintenance work zones. The expert system is designed to embody handbook information and experience of relevant agencies in a readily retrievable manner. The expert system is specifically designed for work zone traffic managers. The expert system also consists of self-evaluation features to assess effectiveness of traffic management plans after commencement of construction and maintenance work. This feature may allow fine-tuning of traffic management plans at work zones.

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HIGHWAY SAFETY IN THAILAND

Somprasong Suttayamully
School of Transportation Engineering, Suranaree University of Technology

Upali Vandebona
School of Civil and Environmental Engineering, University of News South Wales, Sydney, Australia

Abstract

Number of accidents on Thai national highway system is climbing annually. These accidents result from four basic factors identified as human, vehicle, roadway and environment conditions. The interest in this paper is on roadway factors ranging from roadside elements, highway alignment and access features. Roadway factors are not necessarily the sole cause of accidents, and should be considered in conjunction with other contributing factors. For example, Human factors such as fatigue, illness, age, emotions and intoxication in conjunction with roadway factors can be fatal mix for some motorists.

The traffic safety needs a two-pronged approach. First step is to prevent the accident. The second step is to lessen the damage to humans and property. The paper will identify main features of this two-step approach with examples related Thai national highway system. Unfortunately, road funding today is mainly absorbed by the needs of construction area and little is spent on road safety. There is a public concern over large accidents, but often only for a short period. As result, investment in road safety is relatively low compared to the cost to the economy due to highway accidents.

The focus of this paper will be on the estimation of cost of lack of traffic safety devices such as warning signs, protective devices and barriers. In addition, an attempt will be made to estimate the total cost of hazardous roadside features including the potential for adding or reducing accident-related costs. An example for such a feature may be large tree too close to major arterials.

Selection guide for safety devices at hazardous locations will be proposed based on the analysis. The aim is to eliminate the inefficiencies of traffic safety treatments. We expect this study will contribute to improving Thai road safety policies.

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LOCAL AREA TRAFFIC MANAGEMENT OPPORTUNITIES IN THAILAND

Somprasong Suttayamully
School of Transportation Engineering, Suranaree University of Technology

Upali Vandebona
School of Civil and Environmental Engineering, University of News South Wales, Sydney Australia

Abstract

Daily lives of residents are often affected by road traffic in residential neighborhoods. Through traffic in residential neighborhood is a continual treat for both quality of life and environmental standards of communities in Bangkok and other parts of Thailand. Local Area Traffic Management (LATM) schemes effective in calming traffic conditions and minimizing impact on the community are sought but in Thailand number of successful applications of such methods are low considering the number of vehicle registered, population density, and number of accidents in local precincts. An investigation of the range of LATM applications has been carried out in Bangkok and large cities in Thailand. Survey of traffic engineers and planners in various road transport authorities has been conduct. Findings from the study show a general lack of knowledge of LATM solutions as the main reason for the reluctance of responsible agencies in introducing LATM schemes.

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Incident–related congestion on freeway costs the United States billions of dollars a year in loss of productivity, property damage, and personal injuries. Congestion on rural freeway is even worse than that on urban freeway because the resources needed for appropriate incident response are not always nearby and high-tech equipment, such as close-circuit television, is not available to detect and verify the incident. Furthermore, incident responses are based only on the judgment of a patrol officer at the scene. Unfortunately, highly experienced officers may not always be available for managing such a situation. A relatively inexperienced officer may overreact or, with even more detrimental results, fail to call for sufficient response; an expert system for incident management (IM) is needed. The Intelligent Traffic Evaluator for prompt Incident Diagnosis (INTREPID) is being developed as a knowledge-based IM system to help a dispatcher manage an incident with the proper responses. INTREPID is a part of the Advance Rural Traffic Management System, which is a component of the Intelligent Vehicle Highway System. Unlike other system, users can directly enter key information gathered from eyewitnesses to obtain prompt responses from the proper agencies and request the proper equipment of INTREPID is discussed and includes the following step: (a) knowledge acquisition, including interviewing and literature searching, (b) knowledge representation, which involves the development of a decision tree, and (c) knowledge base development in a multimedia environment.