# KNOWLEDGE ACQUISITION, REPRESENTATION AND KNOWLEDGE BASE DEVELOPMENT OF INTELLIGENT TRAFFIC EVALUATOR FOR PROMPT INCIDENT DIAGNOSIS

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## Abstract

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.

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