

6.4.1

Oak Ridge Evacuation Modeling System (OREMS): A PC-based computer tool for emergency evacuation planning

Presenter

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Oak Ridge Evacuation Modeling System (OREMS) developed in Oak Ridge National Laboratory (ORNL) is a microcomputer-based system for simulation of traffic flow during an emergency evacuation. The evacuation can be undertaken in response to a natural or man-made catastrophe. It is designed to allow comprehensive evacuation planning studies including estimates of evacuation times, development of traffic management and control strategies, identification of evacuation routes, and traffic control points and other elements of an evacuation plan. There are two major modules in OREMS; the traffic simulation model and GIS. The traffic simulation model is based on CORSIM and has been enhanced suitable for evacuation planning. The GIS extracts population and transportation data from two different resources and integrates these two datasets in the way that could be used for traffic simulation module. In order to maintain a reasonable execution time for a large evacuation area, OREMS simplifies the transportation network and aggregates the population to match the simplified network. OREMS also has a GIS front-end visualization to display the results that generates from the simulation modules.