

## **Evaluation of Emergency Evacuation Strategies for the Urban Chemical Disaster Federation**

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**Project Scope:** a subsection area of a major metropolitan area was simulated using the software program AIMSUN in order to test emergency evacuation techniques employed by the city and state localities. This is, in part, due to the high level risk of man made disastrous eventualities. The goal of this project focuses on the development of a traffic simulation model in order to integrate an emergency preparedness plan in order to effectively determine the best strategies to use for evacuation. The software program AIMSUN allows the researchers a microscopic view of a real-time traffic simulation study in order to efficiently determine a signal control plan as well as a movement strategy.

**Recent Progress:** Based on previously submitted reports, a Management strategy was concluded to be the most effective control and movement plan. This plan results in the smallest amount of time at the maximum volumes of movement for a controlled urban area,. The “measures of effectiveness” are the total evacuation time, total travel time, and lost vehicles. Additional simulation studies showed the positive effect of a limited number of network zonal entrance points and available routes.

**Future Plans:** The intent of this research is to implement more detail and calibrate the developed model to increase its validity. Development of this model seeks to focus on uncertainties of human behavior, traffic demand, and response, among others, and make the model more effective as a predictor of travel events. The goal is to develop a strategy for the shortest travel time from one point to another.

**Relevance to listed research areas:** This research is spans many fields of interest including the subsections of: Risk and Decision Sciences, Human Factors, Chemical Threats and Countermeasures, and Emergency Preparedness and Response