

Enhancement of Student Learning, Roadway Safety, Traffic and Facility Planning Efficiency through Campus-Wide Multi-Modal Dynamic Traffic Simulation

Project Personnel

Total Award Amount \$70,000

Project Director

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Co-Project Director

Name: N/A
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Project Description

Considering the multimodal and complex nature of university campus facilities and transportation planning and operation, many university campuses (such as University of Arizona, University of Minnesota, Twin Cities, etc.) have relied on the dynamic simulation to improve campus safety and traffic efficiency. Currently, there is a lack of similar tool at CPP. The proposed collaborative project is expected to fill the gap and contribute to the campus' sustainable development and student learning by developing a multi-modal (auto, bus, railroad, cycling and walking) and multi-scale (macroscopic and microscopic) dynamic traffic simulation which covers the whole CPP campus area.

The main objective of this project is the development of a simulation lab through the collective efforts of faculty from different areas which could facilitate the learning of students in Civil Engineering, Urban and Regional Planning, Environmental Engineering, Statistics, among others. It is anticipated that the project could change the learning environment of the disadvantaged and/or underrepresented students from these departments via implementing cooperative learning into the research teams. The project also aims to resolve several long-recognized issues on campus:

Safety: To improve overall campus traffic safety.

Efficiency: To reduce the traffic congestions along those major corridors during peak hours and to proactively manage traffic efficiently during major campus events such as Matt's run, commencement, and other events.

Environment: To understand the environmental impact (i.e. fuel consumption and vehicle emissions) on campus due to various planning and traffic policies.

Equity: To design the priority rules for different traffic mode users.