Mechanical/Environmental Sustainability Project
Sustainable Traffic Control System

Mission Statement
Using simulation software to quantify the positive effects that an intelligent traffic control system has on the amount of fuel consumption and subsequent vehicular emissions.

Synopsis
Mankind has had a negatives impact on the environment by emitting dramatic increases in the levels of carbon dioxide and methane to the atmosphere. Vehicle emissions are a leading contributor. By upgrading existing traffic control systems it is possible to significantly reduce the fuel consumption thus reducing the emissions. By implementing programs that focus on idling reduction (i.e. stuck in traffic), traffic engineers have been able reduce emissions.

The main focus of this project was to conduct an analysis of one network in the city of Hartford. A network is a string of intersections that usually consists of one main intersection and small surrounding intersections. Analysis is a two part operation, data collection and computer simulation.

The team spent several weeks learning what data to collect and then collecting the data. Once the data collection phase was completed a computer simulation was run using the Synchro program. By adjusting the traffic light timing, phasing, and altering lane geometry the software was able to minimize fuel consumption and vehicular emissions for this network.

The results of this project have been submitted to the City of Harford. A continuation of this work is anticipated for the 2010-2011 academic year

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