

Thesis title:

Implementation of Adaptive Traffic Signal Control System and Establishment of Key Performance Indicators for Evaluation

Abstract:

The recent technology related to traffic signal systems are the adaptive traffic signal systems and the world is moving towards implementing such systems. Adaptive traffic signal control systems are traffic control mechanisms that uses real-time traffic data to adjust the signal time in a particular intersection or cluster of intersections to control the traffic flow. The implementation of such systems require an analysis of the particular intersection on need for an adaptive traffic signal system based on the performance of existing system and the design and operational parameters required in assessing and adjusting signal timing. The current signalized intersections will be evaluated as the first step in this process and identify the influencing parameters followed by an evaluation criteria development and financial analysis. Proper implementation of such adaptive traffic control systems has shown significant positive impact such as low travel times, reduced queue lengths, delay times and less emission of air pollutants. This study is focused on developing a performance evaluation criteria and a signal adjustment criterion for adaptive traffic signal systems considering return on investment.