Oxford-University of Mississippi
Intelligent Transportation Systems Project

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Goals

To improve the quality of life in Oxford and the surrounding area through the use of advanced traffic management tools and technologies.

PROJECT OVERVIEW

This project was a multi-year cooperative effort by the City of Oxford and the University of Mississippi to improve the quality of life in Oxford and the surrounding area through the use of advanced traffic management tools and technologies.

The ITS project provided advanced technologies to improve the flow of traffic on both a daily basis and during special events. These technologies include integrated traffic signal controls, traffic surveillance cameras, and information dissemination. The ITS project staff coordinated with the Mississippi Department of Transportation (MDOT) to develop an integrated system that will include interconnected traffic signals and cameras linked to a central Traffic Management Center (TMC). Personnel in the TMC will be able to monitor traffic flow and more quickly respond to disruptions, accidents, and other emergency situations.

MAJOR COMPONENTS

Traffic Analysis: OUMITS staff completed and compiled traffic count information for nearly 30 locations across the Oxford area. Counts were completed during normal daily traffic flows as well as major sporting events. This data was provided to the City and MDOT in order to adjust signal timing at major intersections. Anlysis during normal flows demonstraited that Oxford traffic patterns are not typical of most municipalities and reflect the significant influence of Univeristy students and employees as demonstrated in Figure 1. Normal municpal traffic patterns characteristically have three peaks related to the morning, noon and "Five PM" rush hours.
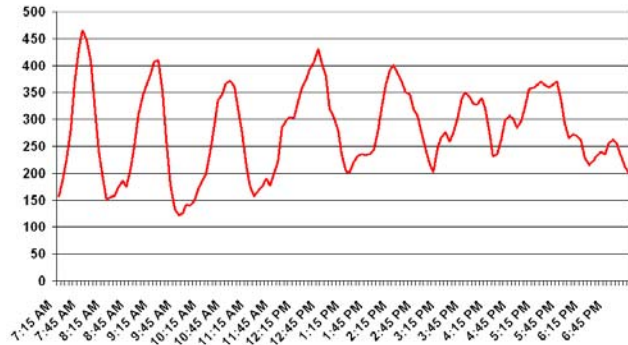

Figure 1: Typical Campus Affected Intersection – Number of cars per 15 minute interval.

GIS Data: As part of the project, funding was provided for the collection of high resolution aerial photography, LIDAR elevation data and building and road datasets. These datasets were made available to the community via the project website. This data has been utilized by the University, the City and engineering firms, as well as local citizenry.
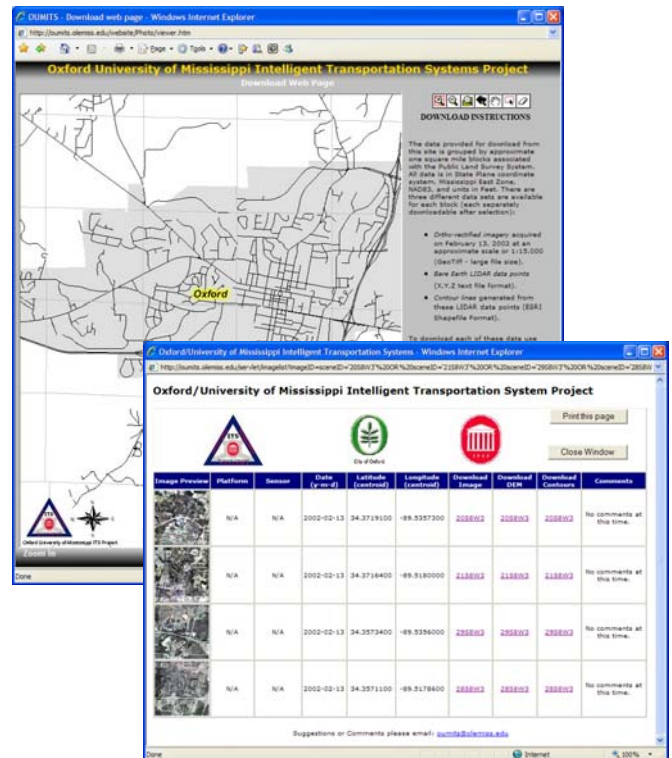

Figure 2: GIS Data Download Web Pages

Traffic Modeling: Utilizing the traffic count information collected by the project, OUMITS staff created models of intersections around the city and university and assisted with the redesign and improvement of traffic flows. Models were created to determine coordination time sequences, to evaluate existing vs. proposed geometry changes, and to investigate existing extreme conditions and problem areas (Figure 3).
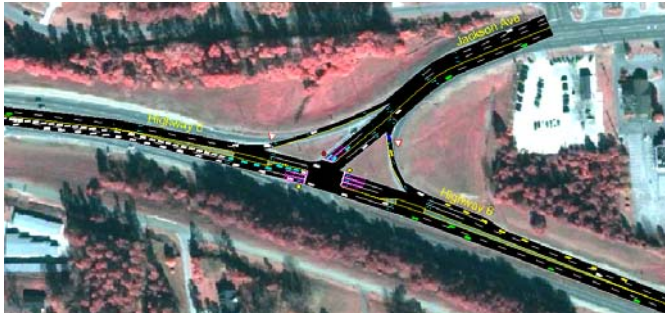
Figure 3: Highway 6 at Jackson Ave. Pre-Game Traffic

Jackson – University Avenue Fiber Project: The OUMITS project combined with a similar MDOT project to complete an infrastructure upgrade effort along the main east-west business route through the city of Oxford. The project resulted in a nearly 4.25-mile connection of all traffic control signals along the Jackson and University Avenue corridor by a fiber optic network. In addition to linking seventeen signals, traffic control and monitoring cameras were installed at five locations along the route. The system allows for the coordinated timing of signal lights along the project route. This coordination can be controlled through remote access to the on-street controllers and updated as needed. City traffic engineers can setup special event sequences for high volume situations such as University football games when an estimated 50,000-100,000 fans swell the already busy streets of Oxford. Figure 4. shows the completed route of the fiber system.
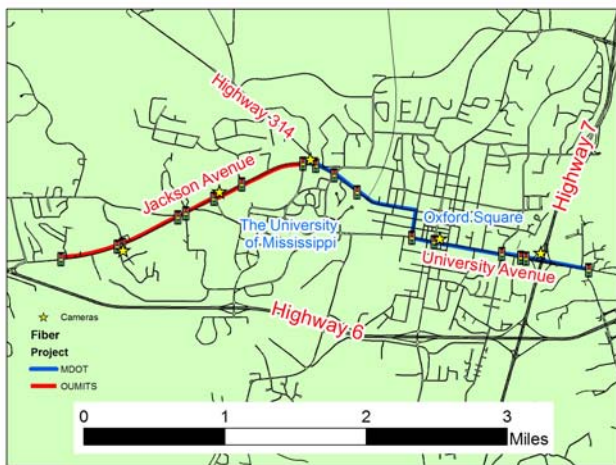
Figure 4: ITS Fiber Project Route Map

Oxford Police Department Traffic Management Center: As part of the overall traffic system in Oxford, the OUMITS project was instrumental in upgrading the Oxford Police Departments Dispatch facility, transforming it into a 24/7 Traffic Management Center. Police dispatchers in the facility have control of 5 pan-tilt-zoom cameras as well as viewing for 12 fixed cameras. All of the video feeds are converted into digital signals and sent to the MDOT's state ITS facility in Jackson where the signals can be distributed to the public over the internet. The added capabilities for the city's police force enable the dispatchers to act as an extra set of eyes and assist in incident management without the need for added personnel. A dispatcher can have a patrol unit dispatched to the scene of an accident or other roadway related event before receiving a call.

Figure 5: Oxford Police Dispatch/TMC Room

Collaborators

The City of Oxford

Mississippi Department of Transportation

Federal Highways Administration

Contact Information

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