TECHNICAL SUMMARY

The Feasibility Study for Development of an ITS Center in Lafayette

Summary of Report Number 354

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Introduction

The increasing demand for transportation comes at a time when there are limited opportunities to build more roadways. Land development often physically constrains the addition of lanes. Limited highway funding and environmental considerations often require that other alternatives be explored. In response to the need to address increasing congestion and increasing demand without building additional facilities as well as the need to better utilize the existing facilities, increasingly large urban areas are turning to Intelligent Transportation Systems (ITS).

ITS is the application of management strategies and technologies to increase the efficiency and safety of national, regional, and local surface transportation systems. Rather than solving transportation problems solely by building additional roadway capacity, ITS strategies strive to use existing facilities more efficiently by applying technology and effective management strategies to collect, transfer, process, and share historic and real-time transportation information. This includes the use of computer, communications, sensor information, and control technologies, and a structured approach to manage the planning, development, operations, and maintenance of ITS systems and projects.

Objectives

The goal of this project is to investigate the feasibility and potential benefits of the application of ITS to specific transportation problems in a small urban area. The city of Lafayette is representative of the state's small urban areas. Specifically, we will apply the National ITS Architecture as the framework to:

- Identify the needs or problems in the Lafayette transportation system
- Investigate and document the existing ITS elements
- Prioritize ITS services and research the appropriate ITS technologies for Lafayette
- Develop the local ITS Architecture
- Identify the ITS market packages which satisfy local needs and priorities
- Identify possible and potential institutional barriers against ITS implementation at the local and state levels.

Research Approach

One of the key components of the ITS Feasibility Study is to identify and prioritize the ITS services which are most effective in solving local traffic problems. To carry out this task, two surveys were conducted with core stakeholders in Lafayette. These surveys, which were designed by closely following the National ITS Architecture are:

- ITS goals and objectives survey
- Data survey

These two surveys clearly identify the needs of the particular ITS services for Lafayette and lay the foundation for the development of the ITS Architecture that is discussed in the final report.

Conclusions

The results of the feasibility study for the development of an ITS center in Lafayette led to the following conclusions:

- Development of Lafayette ITS Center is feasible and necessary.
- Utilization of existing ITS elements is possible.

There is no significant institutional barrier in building an ITS center in Lafayette.

Recommendations

Based on the surveys and discussions with the local stakeholders, we recommend that the focus of the Lafayette ITS plan be concentrated on the following two areas:

- Integrate all existing ITS elements, including traffic signal control, 911 service (Lafayette Communication District), and transit operations into one system so that the capacity of each service can be fully utilized. The traffic signal control system and the 911 services are the two systems that must be integrated under ITS to handle traffic incidents quickly and efficiently for the purpose of safety and traffic flow.

- Initiating the development of the ITS infrastructure that will be compatible through time and space. The time compatibility means that the ITS system should be built to accommodate not only today's, but also tomorrow's developments. The spatial compatibility allows the system to work with other ITS centers in the state that share common goals.