

Train Detection System (TDS) Pilot Project – Phase 1
RPC Task A-1.19TDS; FY-19 UPWP

Purpose

Metairie Road is a major arterial connecting Jefferson Parish and Orleans Parish. The railroad crossing at the subject location is very active and frequently creates significant congestion for vehicular traffic. The purpose of this project is to conduct a systems engineering study for an ITS application that will provide real time information to drivers thereby assisting them in route selection and congestion avoidance as well as improved travel time savings. The study is intended to develop proof of concept consistent with the region's ITS Architecture/Plan that will enhance traffic safety and coordination between transportation modes.

Objective

The Train Detection System (TDS) Pilot Project consists of the development of a mobile application that will allow advance notice of oncoming trains and the status of crossing to determine if it is blocked by a train and design of field detectors to detect when the train is approaching. The TDS will allow for drivers to reroute their trip accordingly to avoid congestion. The Pilot Project will be divided into two phases; Phase 1 will include a Concept of Operations document and one stakeholder workshop and a proof of concept demonstration using data provided by the detection manufacturer. Phase 2 will consist of the development of the construction plans, and the development of the mobile applications. It is anticipated that Phase 2 will be lead as a separate contract by Jefferson Parish.

The project limits for the Pilot Project are west of N. Labarre Road in Metairie, to Mound Avenue (between the two train switchyards), in New Orleans.

Task 1 – Project Management Committee

RPC will establish a Project Management Committee (PMC) to guide the study and evaluation process. PMC members will include Jefferson Parish Planning and Public Works Departments, Jefferson Parish Council Office, Louisiana Department of Transportation and Development (District 02) and ITS Office, Regional Planning Commission, and other stakeholders identified during the course of the study. The PMC will oversee the work in progress, review study findings, and assist in the development of implementation recommendations.

Task 2 – Concept of Operations

The Concept of Operations (ConOps) will be in accordance with FHWA Rule 940 and will describe the operations of the Pilot Project. The ConOps will include the following information:

- Overview and Scope
 - System Overview
 - Geographic Description
 - Stakeholders
 - Roles and Responsibilities
- Referenced Documents
- Current System and Condition
- Operational Constraints

- Goals and Objectives
- Operational Needs
- Justification
- Proposed System Concept
- Operational Scenarios
- Analysis and Validation Plan

The Consultant will host one stakeholder ConOps workshop during the development of the ConOps.

Task 3 – Conduct Beta Test

The Consultant will prepare a beta test simulation for the PMC to illustrate how the TDS Mobile Applications will work, showing the use of the data processed by the web server to:

- Show the direction a train is traveling.
- Show that a train is passing a crossing and/or give the estimated time until the train approaches.
- Use Google Maps Web API as the backbone of the application as a visual to show train locations on the map.

The information will be demonstrated using the sample detector data.

Task 4 – Evaluate Beta Test Results

The Consultant in coordination with RPC and Jefferson Parish will develop varying service options (maximum of three) for test simulation purposes. The results will be reviewed by the PMC for accuracy and plan refinement, as necessary. The Consultant will prepare a formal presentation of the model for presentation to the Jefferson Parish Council and community association.

Task 5 – Prepare Summary Evaluation Report

The Consultant will prepare a draft of the TDS Mobile Applications Report for PMC review describing the results of the study, describing the technical approach, recommendation regarding generic types of equipment, installation recommendations, quantities and opinion of probable costs, potential site locations for facilities, procedures for monitoring the program after installation, and results of the model simulation testing.

The Consultant, in consultation with RPC and Jefferson Parish, will identify appropriate follow-up steps needed to be taken by Jefferson Parish to proceed with potential implementation of this ITS safety operations improvement, including a possible timeline.

Task 6 – Final Report Submission

The Consultant will address any comments received from the Project Management Committee and prepare the final Systems Engineering Report document for submission to the RPC. Five hard copies of the report and five electronic copies in .pdf format will be submitted to RPC. RPC will provide a complete set of the Report documents to both Jefferson Parish and LADOTD for their information and use.

Budget: \$45,000

Timeline: 6 months