El Paso County
Secure Border Trade Demonstration Project

Project Summary · February 10, 2010

Project Overview

The objective of Coordinated Border Infrastructure (CBI) funding from FHWA is to increase the security and efficiency related to the movement of goods and people at the Mexican and Canadian borders with the United States. To that end, the El Paso County Secure Border Trade Demonstration Project (SBTDP) is geared to meet these objectives and meet the unique needs of the largest concentration of Maquiladora operators in the world – those located in the El Paso/Juarez region. Specifically, this project will equip 30 heavy-duty tractors/trailers with state-of-the-art intelligent transportation system devices to secure cargo and transmit key data into a central repository where the data will be analyzed by software agents to detect anomalies which may have comprised security of the protected cargo.

At the core of the El Paso County SBTDP will be a unique software system and related network of technologies utilizing Intelligent Software Agents (ISAs). The ISAs will analyze and collaborate with each other to process vast amounts of wide ranging data which impact cargo movement. Such data is useful to truck operators and maquiladora owners and could be valuable to customs and other border officials. Utilizing an integrated hardware network that has been installed on vehicles and at predetermined load sites, the ISA software system will track cargo as it is loaded and transferred from its origin at the Maquila plant, across the border and on to its ultimate point of destination to create a Decision Support System. It is important to note that the information analyzed from the actual border crossing will be only one part of the larger integrated cargo tracking effort.

In addition to the intelligent software technology to be developed and deployed as part of this effort, there will be many other hardware, software and communications components incorporated into the project. Most of these components will be used to gather, store or transmit data to be analyzed and used by the ISA. Specifically, a Global Positioning System (GPS) will be a key component in the overall design of the El Paso County SBTDP. However GPS systems are not all the same. Every GPS is designed and sold to accomplish different missions. Many transportation companies use a very simple GPS unit to track the location of their trailers and speed of the trucks. These less sophisticated units are typically programmed to send a satellite signal at a predetermined interval - once a day, a week or a month. This is done to locate misplaced or stolen trailers, while conserving battery life. A more sophisticated GPS configuration will be used inside the tractor for this project that will gather other data such as temperature, air pressure, etc. and establish real-time communication with the driver.

The most critical data collection and communication devices used in the El Paso County SBTDP will be those used on the tractor and trailer transferring the cargo. This tractor and trailer

configuration is comprised of a GPS unit with integrated data storage and communication capabilities, an intelligent locking device and other RFID and sensor collection capabilities.

For demonstration purposes, the project is proposing to use truck and trailer combinations that operate exclusively in the El Paso/Juarez region. While some transportation companies might currently have some of the hardware components needed to participate, none of them have the integrated hardware, software or communications systems to transfer and read real-time data. The data captured from the onboard components with which the trucks are to be equipped is combined with data captured about the cargo, truck, driver, weather conditions and traffic conditions before being transmitted to a central ITS center, which will monitor (and as required), track and control the movement of each vehicle. This would be an impossible task if a person were required to monitor every vehicle. The unique aspect of this system is that this function will be automated through the use of ISAs which automatically analyzes all the information collected and determines if an event, or combination of events, has occurred for which an alert should be issued. Consequently, the human operator responds only to the exceptions (alerts) rather than attempting to track each vehicle all of the time. Because of the speed at which the ISAs function all of this can be performed in real time.

Maquila operators agreeing to participate in the program will have their own designated transportation carriers for the border area. These carriers will need to agree to share data not previously used in transport efforts. Research has found that once the carriers understand the project, most will be very willing to participate. However, equipping trucks and trailers that will operate in the El Paso/Juarez region is essential to the success of the effort and will require the cooperation of both heavy-duty fleet vehicle operators and maquila owners.

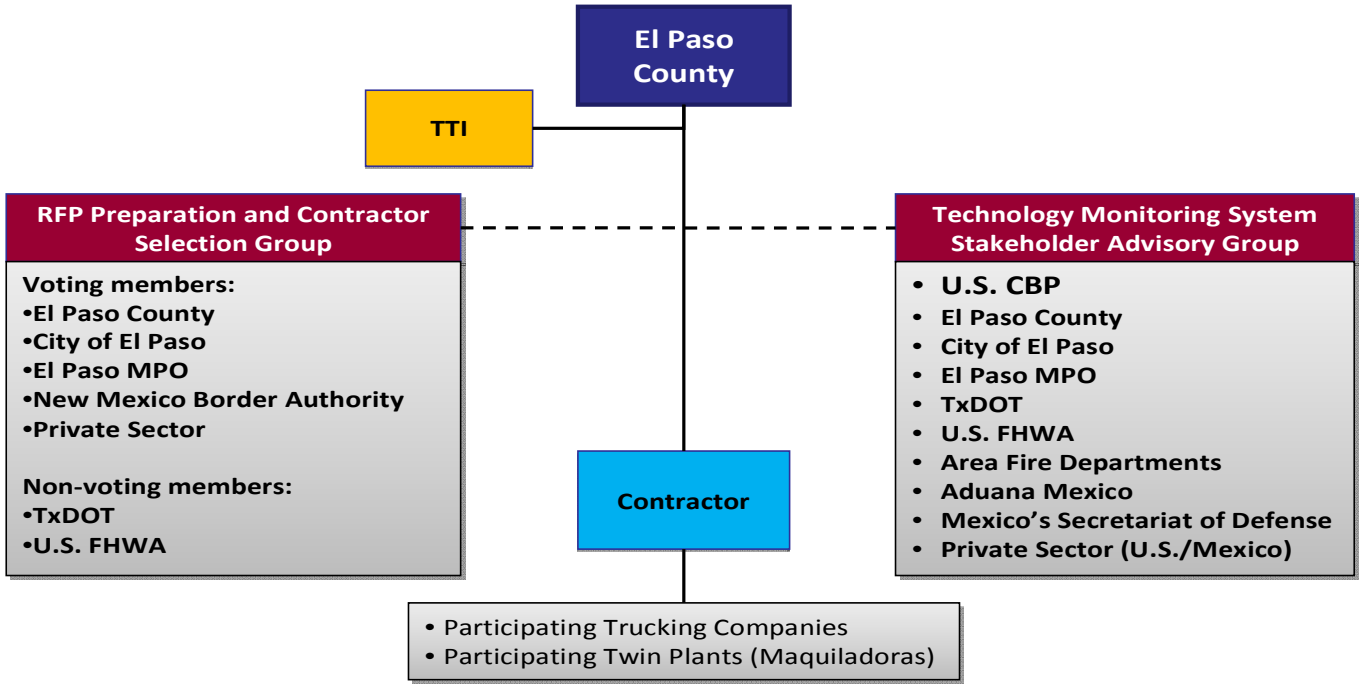
The ultimate goal of this effort is to create a national standard for maquila users and cargo transport. In that regard, data gathered regarding truck and cargo movements in San Diego or Seattle is as important to the project as data gathered in El Paso/Juarez. Analyzing data collected from multiple locations will allow project partners to verify that the software architecture modeled as part of the El Paso County SBTDP can be utilized in related efforts elsewhere.

Regardless of the possible national benefits, the El Paso County SBTDP is designed to meet the minimum needs of the maquila operators in the El Paso/Juarez region. As the largest concentration of maquila operators in the world, software and communication systems that are specifically adapted to meet the needs of our local industries will help to insure their long term viability which is essential to the economic health or our region. The El Paso County SBTDP helps assure the region's continuing leadership role in the evolving international trade landscape and is the perfect test-bed for developing and applying technologies to ensure a secure maquiladora industry here and elsewhere.

Project Budget Summary

	Federal Share	Match/In-kind	Total
El Paso County SBTDP	$2,881,521	$ 720,380	$3,601,901

Management Plan



SBT Project Organization.

The Technology Monitoring Committee (TMC) consists of representatives from several stakeholders in the region. The TMC's role will be to systematically ensure that at every stage of project development and implementation:

- Pre-defined quality standards for each and every step of the process are met;
- Business and technical needs of ALL stakeholders are integrated; and
- Quality of end product is met.

The TMC will coordinate with the County of El Paso and TTI in developing procedures to monitor the progress of the project, identify benchmarks, set significant milestones, and engage in testing and evaluation of the project. In addition, the TMC will:

- Assist TTI in technology monitoring activities for the successful design, operation, maintenance, and retirement of the project;

- Provide technical oversight and monitor the project by assisting TTI with specific systems engineering tasks throughout the life-cycle of the project;
- Monitor major systems engineering tasks and assess risks and benefits;
- Assist in assuring and increasing participation of stakeholders throughout the life cycle of the project; and
- Participate in, and review and approve the concepts of operation, stakeholder needs and requirements, high and low level designs, testing, verification and retirement of the project.

The following agencies have agreed to be part of the TMC:

- Customs and Border Protection
- Federal Highway Administration
- City of El Paso
- Texas Department of Transportation
- El Paso Metropolitan Planning Organization
- El Paso County