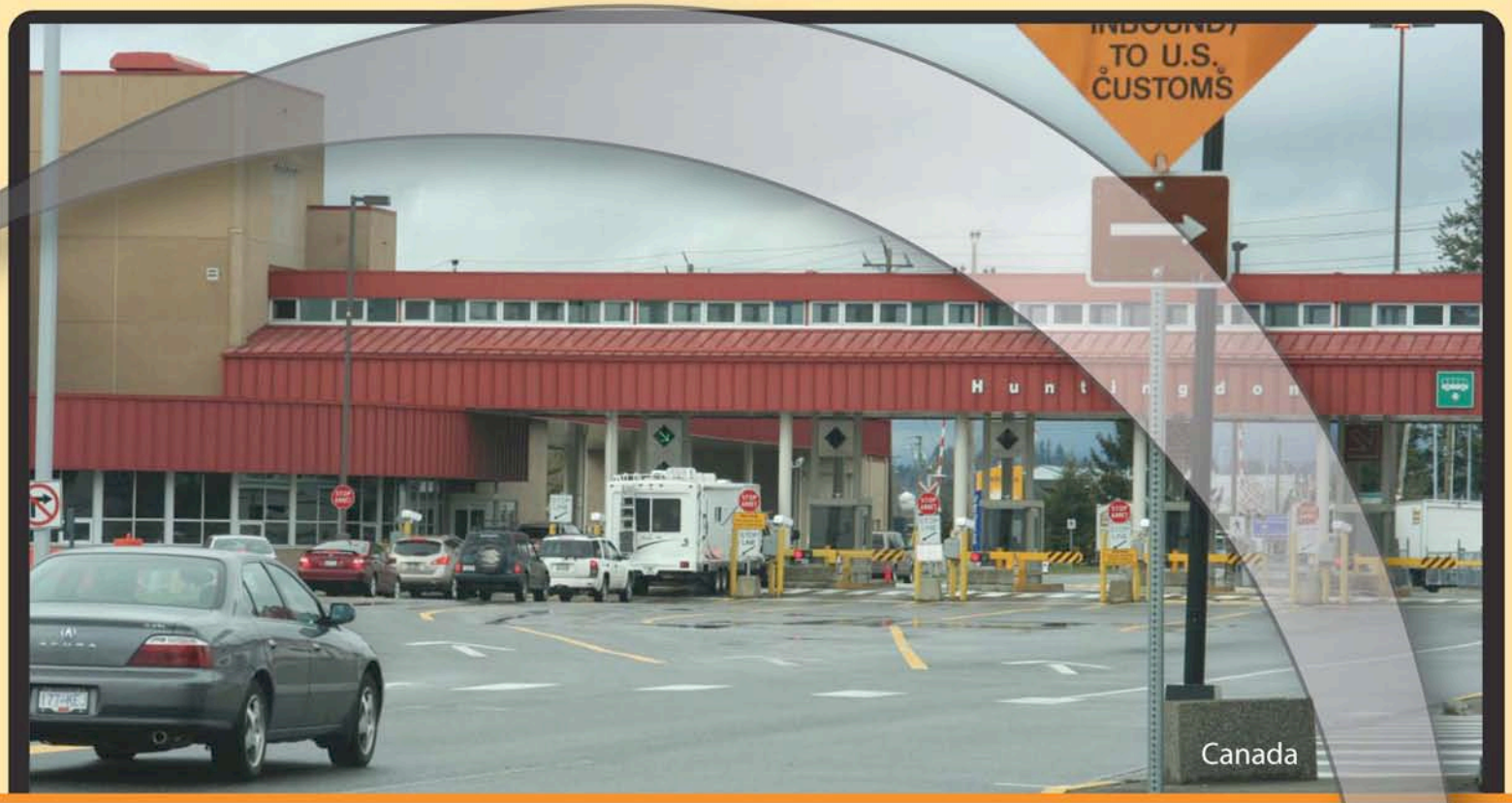

Federal Highway Administration
Surface Transportation Environment and Planning
Cooperative Research Program

Success Story: Success Story: Border Planning Research

Federal Highway Administration's (FHWA) Surface Transportation Environment and Planning Cooperative Research Program (STEP) Bulletin

Hot Topic: Innovative Research & Technology Addressing Activity at U.S. Borders

The FHWA uses the Surface Transportation Environment and Planning Cooperative Research Program (STEP) to conduct cutting-edge research in several areas of interest to the transportation community and the public-at-large. STEP research seeks to improve the understanding of the complex relationship between surface transportation, planning, environment and realty. This bulletin highlights research that is underway within the STEP to advance the Border Planning Research state of practice.

www.fhwa.dot.gov/HEP/STEP

STEP Research Success Story

United States Department of Transportation (U.S. DOT) Federal Highway Administration's (FHWA) Surface Transportation Environment and Planning Cooperative Research Program (STEP) Funds Research to Advance the Border Planning Research.

STEP Research Introduction

FHWA's Surface Transportation Environment and Planning Cooperative Research Program (STEP) Develops Innovative Research & Technology to Address Activity at U.S. Borders

The U.S. - Mexico and U.S. - Canada land borders represent links between the people of our countries in a strong and vibrant network of trade, cultural, social and institutional relationships. Canada and Mexico are the U.S.' largest export markets. Geographic proximity provides economic opportunities for industries and services to flourish. On an average day, the value of truck trade between the three countries; the U.S., Mexico and Canada, is about $1.5 Billion[1]. Commuters daily cross both borders for work, health care, shopping and visiting, and to provide and use vital community services. On an average day, nearly 800,000[2] incoming travelers cross our land borders.

Land ports of entry (POEs) are the doorways to and from the U.S. They must be secure to protect our nation's security and sovereignty, but they must also serve as the conduit of trade, commerce and tourism into and out of the U.S. This transportation system is in our national interest and includes the POEs, the highways and roadways leading to the POEs, and effective transit and pedestrian facilities. Developing and maintaining the transportation system requires understanding of a complex set of policies, regulations and practices and involvement with a variety of agencies. Providing a safe, reliable and efficient transportation system is imperative to ensure this significant border activity continues to thrive.

The U.S. DOT's FHWA has spearheaded several initiatives in coordination with its State, Federal, and international partners to continue and improve mobility, increase safety and enhance the environment at border crossings. Through the STEP, FHWA focuses on improving current border planning systems and projects underway through streamlining processes and information sharing, while developing innovative technology to advance the state of practice. Progress has been made toward reducing congestion and improving security.

"Data shows us that surface transportation activity at the U.S. northern and southern borders is steadily increasing. The FHWA continues to work closely with Mexico and Canada on improvements to current strategies and policies, exploring delay costs and identifying gaps in research."

Over the last few years, the STEP has allowed FHWA to maintain strong relationships with Canada and Mexico through the creation of working groups including the U.S./Mexico Joint Working Committee (JWC) and the U.S./Canada Transportation Border Working Group (TBWG). These groups work to coordinate plans and programs that reflect the border transportation needs of each country. FHWA has also worked closely with other agencies to improve projects and policies and share technology.

"The research as a result of the STEP in coordination with the U.S./Mexico JWC & U.S./Canada TBWG has provided critical data needed to improve current policies and programs designed to ensure the safe

1 http://www.bts.gov/programs/international/transborder/TBDR_QA.html
2 http://www.cbp.gov for FY 2008

and efficient movement of people and goods across borders. FHWA looks forward to strengthening our relationships with Canada and Mexico."

The U.S. DOT seeks to develop innovative methods to relieve congestion at our nation's busiest port-of-entries. FHWA recognizes the urgency in addressing traffic congestion and frequent wait times at the borders. STEP research efforts provide information that can accelerate the flow of goods to improve economic performance and quality of life for those who live and travel at the northern and southern borders. Key STEP research initiatives include the Border Travel Time Studies, Bottle Neck Studies, Border Master Plans, and the Border Data Needs Workshop. FHWA has partnered with the U.S./Mexico JWC, U.S./Canada TBWG, California Department of Transportation (Caltrans), Secretariat of Infrastructure and Urban Development of Baja California, State DOTs, and local transportation organizations to resolve congestion issues at U.S. borders.

STEP Research Improve Efforts on the Southern Border

Since its inception, FHWA has worked hand in hand with U.S./Mexico JWC on several STEP research initiatives to improve projects that alleviate congestion and planning along the U.S./Mexico border.

The FHWA and U.S./Mexico JWC are currently studying travel times at four notoriously congested areas along the U.S./Mexico border. Border Wait Time Study pilots are underway at El Paso, San Diego, Nogales and Pharr Ports of Entry (POE). These studies will provide baseline data to develop performance measures to evaluate the success of improvement projects, policies and strategies.

Another area of growing concern is the Arizona-Sonora border. Travel along this border has become increasingly important to both states' economies. According to The University of Arizona, increased demands for border security as a result of the September 11, 2001 events, have presented further challenges to the efficient flow of cross-border trade. Most of the exports and imports crossing the border are shipped by truck or rail. These goods and the industries they support are crucial to the economic development of the border region.

The Bottlenecks Study Phase II is a follow up to the Phase I case study of the San Diego-Tijuana Gateway. The second phase of the study examines the transportation infrastructure at the Nogales, AZ and Nogales, Sonora POE. A bottleneck is defined as a condition that restricts the free movement of traffic, creating a point of congestion during specific periods of time. Addressing and alleviating this congestion in the highway system would enhance movement of people and goods. The study identifies potential congestion improvements and highlights those that are low-cost, high impact solutions. Nogales is the primary port accounting for more than three-quarters of all commercial traffic entering Arizona from Mexico and is one of the country's largest ports of entry for fruits and vegetables.
Additionally, FHWA is measuring the time required for trucks to cross the Otay Mesa-Tijuana border to establish baseline dataset. The projects will identify and evaluate technologies that can easily and precisely measure commercial vehicle crossing time, are readily transferable to other ports of entry, and can measure passenger-vehicle crossing time. The first phase of the initiative is complete. The initiative identified Automatic License Plate Recognition (ALPR) and Global Positioning System (GPS) technologies for evaluation.

The second phase is currently underway and focuses on completing the following tasks:

- Task 1: Contact project stakeholders
- Task 2: Evaluate technologies
- Task 3: Develop implementation plan
- Task 4: Demonstrate technology effectiveness
- Task 5: Evaluate results
- Task 6: Prepare final report

The project is currently underway to complete tasks four-six. A final report will be available in early 2010.

A similar effort is underway for the El Paso - Ciudad Juarez Bridge of the Americas. This project includes the aforementioned six tasks and is working toward its goal of implementing a sustainable system to calculate crossing times at the Bridge of the Americas, the results or the data collection and information gathering efforts will be evaluated and completed reports will be published on the project Web site as they become available. The first task's report is available at http://tti.tamu.edu/projects/project_details.htm?id=2497.

Border Master Plans Increase Efficiency at Major Ports of Entry (POE)

In response to the increase in cross-border travel at all POEs expected by 2030, the California-Baja California Border Master Plan is the first in a series of comprehensive transportation border master plans for the border regions. The Plan was commissioned by the U.S./Mexico JWC to the Caltrans and the Secretariat of Infrastructure and Urban Development of Baja California for the California-Baja border region. The Plan is a binational comprehensive approach to coordinate planning and delivery of projects at land POEs and transportation infrastructure serving those POEs in the California-Baja region. As a result of this work four additional State to State Border Master Plans are planned to begin in 2010. Ideally the approach and methodologies identified in the Plan will also be incorporated into the respective planning and programming processes of the individual participating agencies at the federal, state, regional, and local levels in the United States and Mexico.

Examining Data on the Northern Border

The STEP funds research allows FHWA to continue working closely with the U.S./Canada TBWG to examine data related to cost of delay, border needs and environmental impact along the U.S./Canada border. These efforts ensure that research continues to promote cost effectiveness and efficiency. The Study of the Cost of Delay to Transportation along the U.S./Canada Border is currently being conducted to develop a methodology to quantify delay costs on a regional basis.

In an effort to build and improve on current data, a Border Data Needs Workshop was held on June 3-5, 2008, in Dearborn, Michigan to examine current data available, potential new data sources and identify data gaps. The Study of Data Needs and Sources along the U.S./Canada Border for Enhanced Transportation Planning and Operations is a follow-up study to the Workshop.

Additionally, FHWA's STEP funds a program to deploy and evaluate technologies to measure border wait times at U.S.-Canada Border Crossings. FHWA has partnered with the U.S. Customs and Border Protection (CBP), Canada Border Services Agency (CBSA), and Transport Canada (TC) to facilitate the safe and secure movement of goods and people across U.S. and Canada land ports of entry (POE). The collaborative effort includes evaluation of wait time measurement technologies and the implementation of a pilot project in an effort to identify solutions that can meet cross border operational needs.

FHWA seeks to provide the following products as a result of this project:

- Adoption of appropriate inter-agency cooperative agreements (i.e. Memoranda of Understanding) for the project
- Establishment of inter-agency funding arrangements for the project
- Development of Business Requirements for Land Border Wait Time Measurement Technology Solutions
- Identification and review of candidate technology solutions
- Selection and preparation of two (or more) test beds to be used as the locations for the deployment and testing of candidate systems
- Development of an application for technology solutions vendors to participate in a program to evaluate their solution at test bed locations
- Procurement of a third-party systems integrator and/or evaluator to lead the deployment of candidate systems at test bed locations
- Preparation of a Final Report that documents candidate system evaluations and recommends and includes recommendations regarding the deployment of promising solutions along the U.S.-Canada land border.

Future STEP Border Planning Research Activities

Future STEP research will encourage continued mutually beneficial partnerships with stakeholders to ensure the development and deployment of state-of-the-art technologies and strategies to improve border crossing issues along the Mexico and Canada borders. STEP research has found that additional funding is needed to continue initiatives that work to alleviate congestion and increase safety and efficiency at the northern and southern borders. Furthermore, a growing economy validates the need to continue improvements to transportation infrastructure and management at specific locations to prevent losses to regional and local economies. STEP will also continue to provide funding for related conferences, workshops and peer exchanges such as the North American Freight Flows Conference. A dialogue to develop and

implement green border initiatives with future STEP funds is also underway.

Continued Partnerships to Spearhead Innovative Border Planning Research

Future STEP research will encourage continued mutually beneficial partnerships with stakeholders to ensure the development and deployment of state-of-the-art technologies and strategies to improve border crossing issues along the Mexico and Canada borders. Continued partnerships, strategic planning and enhanced technologies through STEP research initiatives allow increased safety and efficiency at United States borders.

"The goal of these activities is to continue the objectives and goals of the U.S./Mexico JWC and the U.S./Canada TBWG. We look forward to nurturing our relationships with Mexico and Canada through these forums. Our hope is to continue to improve border planning and enhance border infrastructure and operations as the needs at both borders change."

"STEP: A Federal Research Program - Conducting Research that Links to Practice."

January 2010

Publication number: FHWA-HEP-10-010