THE CASCADE GATEWAY ADVANCED BORDER INFORMATION SYSTEM (ABIS) SMART GRANTS PROGRAM STAGE I AND STAGE II PROJECTS

INTRODUCTION

The U.S. Department of Transportation's Strengthening Mobility and Revolutionizing Transportation (SMART) Grants Program was authorized through the Bipartisan Infrastructure Law (BIL) to appropriate $100 million annually to State, local, and Tribal governments to conduct demonstration projects focused on advanced smart city or community technologies and systems to improve transportation efficiency and safety. More information on SMART can be found here.

ABIS DESIGN PROJECT – STAGE I

The Whatcom Council of Governments (WCOG) was awarded $458,000 from the FY 2022 SMART Grants Stage I Program to evaluate technologies to replace and improve aging wait time systems at the Cascade Gateway system of border crossings.

Partner Agencies

WCOG was the lead agency, but the project was overseen by an advisory team of key stakeholder agencies that included WA State Department of Transportation (WSDOT), BC Ministry of Transportation & Transit (BCMOTT), U.S. Customs & Border Protection (CBP), and Canada Border Services Agency (CBSA).

Geographic Focus

The project designed a border wait time system for the four land ports-of-entry between Whatcom County, Washington State and the Lower Mainland of British Columbia, Canada. This includes Peace Arch/Douglas, the third busiest passenger vehicle crossing, and Pacific Highway, the fourth busiest commercial crossing on the U.S. – Canada border.

Why the Project is Needed

The existing border wait time system is over 20 years old and often inaccurate. Any change in the infrastructure or operations at the border impacts system functionality. It also does not include wait times for commercial vehicles.

Project Accomplishments

WCOG hired Transpo Group, in partnership with Sarakki Associates and Texas A&M Transportation Institute, to complete the project. Over the course of 2024, the consultant team and advisory group collaborated with stakeholders to gather key user

Ports-of-Entry

Stage I Project Tasks

needs, evaluated new technologies and the best methodologies for estimating, measuring, and reporting border wait times, and developed a high-level design and implementation plan that includes costs, schedule, system architecture, and maintenance requirements for a new border wait time system.

Urgency Due to FIFA and Port Construction

Early in the process, the project team realized how critical it would be to have a functioning border information system operational in time for the 2026 FIFA World Cup, which will have matches being held in both Vancouver, BC and Seattle, WA. Additionally, the U.S. General Services Administration (GSA) will be constructing major port facility redevelopments at 3 of the 4 border crossings simultaneously over the next five years, and effective traffic mitigation will depend on accurate and timely traveler information.

The Selected Technology: A Hybrid Solution

The chosen design involves a new approach that will start with more traditional, hardware-based wait time technologies (e.g., vehicle detection and reidentification systems like radar and Bluetooth/Wi-Fi readers) in conjunction with a mobile app and artificial intelligence/machine learning to process and compile all the various inputs, including historical data, to provide real-time measurements and forecasted wait times. The predictive capabilities of the system will improve over time, and as more travelers use the mobile app, ABIS will transition to a primarily software-based system that should not be impacted by construction at the border or other issues associated with physical roadside equipment. This system will also provide wait times for commercial movements, as well as dashboards for inspection agencies to evaluate how changes in lane usage/status can impact delay.

ABIS IMPLEMENTATION PROJECT – STAGE II

On December 16, 2024, the ABIS Implementation Project was 1 of 8 projects that were awarded funding through the first round of Stage II funding. WSDOT will receive $6,599,400 to implement the software and U.S. hardware components of the project. Canadian funding is being sought to complete the hardware installations in BC.

System Benefits

The system benefits of the Stage II implementation are shown in the figure on the following page.

Next Steps

In 2025, WSDOT will finalize the grant agreement with the SMART Grants Program team, then meet with project partners to start the development of a detailed design and implementation plan. Some of the next steps include:

- Finalize the agreement between WSDOT and the SMART Grants Program to obligate funds.
- Meet with project partners to start planning for Stage II.
- Seek project funding to complete the hardware installations in BC.
- Develop the detailed design and the implementation plan.
- Implement the system with the goal of having it operational in time for the summer 2026 FIFA World Cup.

FOR MORE INFORMATION

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Or visit the project website:

https://theimtc.com/project/2023-cascade-gateway-advanced-border-information-system-planning-phase/

BENEFITS THAT ABIS WILL PROVIDE

TRAVELER TRIP PLANNING
Travelers can receive information to plan their trips (e.g., when to leave to arrive at a cross-border destination by a certain time).

TRAVELER NOTIFICATIONS AND DIVERSIONS
Travelers can receive real-time information to avoid lengthy wait times by re-routing to other crossings, which better distributes traffic capacity across the system.

TRAFFIC MANAGEMENT DURING PORT CONSTRUCTION
The system can help mitigate traffic delays caused by lane closures and congestion stemming from construction.

AUTOMATED MAINTENANCE ALERTS
Transportation agencies can be alerted of maintenance issues and dispatch technicians to resolve issues in a timely manner.

COMMERCIAL GOODS IMPORT/EXPORT PLANNING
Motor carriers can use the system to determine queue lengths in advance of their trucks' departures and plan accordingly, including using predictive analytics tools to plan future movements at less busy times.

INSPECTION AGENCY PREDICTIVE BORDER WAIT TIMES
CBP and CBSA can use the system's predictive analytics to respond to upcoming surges in demand by opening more booths and allocating more staff in advance, thereby reducing the formation of queues and reducing overall wait times.

AUTOMATED ALERTS FOR INCREASING DELAYS
Inspection agencies can be alerted of increasing border wait times and proactively open additional lanes. Transportation agencies can investigate if roadway incidents are the cause of delay and alert travelers.

VALIDATING DATA AND IMPROVING ACCURACY
The data can be validated against each of the various sources to increase accuracy and reliability.

AUTOMATED AND CANNED REPORTS
Automated reports can be generated to provide insights and reduce inspection agency staff time needed to complete reports, like when a certain wait time threshold is met.

PLANNING FOR SPECIAL EVENTS
Predictive analytics, leveraging historical data, and advances in AI and machine learning can be used to plan for special events like the 2026 FIFA World Cup, helping inspection agencies prepare for predicted demand.