Automated Wait Time and Trade Facilitation Performance Measures

July 27, 2016

Fiscal Year 2016 Report to Congress

Homeland Security

U.S. Customs and Border Protection

Message from the Deputy Commissioner of CBP

July 27, 2016

I am pleased to submit the following report, "Automated Wait Time and Trade Facilitation Performance Measures," prepared by U.S. Customs and Border Protection (CBP).

This document has been compiled pursuant to a requirement in Senate Report 114-68, which accompanies the *Fiscal Year* (FY) *2016 Department of Homeland Security Appropriations Act* (P.L. 114-113). The report provides a status of deploying an automated wait time collection solution across land border operations and the adoption of trade facilitation performance measures that demonstrate clear impact on stakeholders as well as CBP's security and trade facilitation missions.

Pursuant to congressional requirements, this report is being provided to the following Members of Congress:

The Honorable John R. Carter
Chairman, House Appropriations Subcommittee on Homeland Security

The Honorable Lucille Roybal-Allard
Ranking Member, House Appropriations Subcommittee on Homeland Security

The Honorable John Hoeven
Chairman, Senate Appropriations Subcommittee on Homeland Security

The Honorable Jeanne Shaheen
Ranking Member, Senate Appropriations Subcommittee on Homeland Security

I would be pleased to respond to any questions you may have. Please do not hesitate to contact my office at (202) 344-2001 or the Department's Deputy Under Secretary for Management and Chief Financial Officer, Chip Fulghum, at (202) 447-5751.

Sincerely,

Kevin K. McAleenan
Deputy Commissioner
U.S. Customs and Border Protection

Executive Summary

In response to congressional requests, CBP has generated this report titled, "Automated Wait Time and Trade Facilitation Performance Measures," to provide the current status and progress being made to improve the methods by which CBP collects and determines vehicle wait times. This report also describes CBP's efforts in assessing innovative technologies to identify a feasible and cost-effective wait time solution for automating land border vehicle wait times.

In 2003, CBP began manually collecting and posting land border wait time information on the Border Wait Time Web site. Since 2008, CBP has been working cooperatively with U.S., Canadian, and Mexican partner government agencies, as well as stakeholders, to identify and assess innovative technologies for the automated measurement of vehicle wait times along the northern and southern borders.

In July 2013, the Government Accountability Office (GAO) report, *U.S.-MEXICO BORDER CBP Action Needed to Improve Wait Time Data and Measure Outcomes of Trade Facilitation Efforts (GAO-13-603),* provided recommendations related to these efforts. CBP agreed with these recommendations and has been moving forward to address these concerns using a variety of methods to address the unique challenges and operational requirements of each border crossing.

These challenges include the coordination with numerous local, state, federal, and international stakeholders; the use, proliferation, and maturity of technologies in the private and commercial environment; and the necessary infrastructure installation and operational maintenance of hardware-based solutions. However, CBP welcomes the challenges in automating the measurement of vehicle wait times and looks forward to the potential benefits for improving efficiencies at border crossings and the positive impact on regional economies in proximity to those crossings.

Over time, CBP believes that the development of a less disruptive hybrid data-driven solution, currently being pursued, can overcome a majority of the challenges described above and satisfies the requirement for deploying an enterprisewide solution for harmonizing the collection and estimation of vehicle wait times. CBP is taking numerous actions in FY 2016 to progress a feasible and cost-effective wait time solution for the automated collection, determination, and dissemination methods of land border vehicle wait times.

Automated Wait Time and Trade Facilitation Performance Measures

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I. Legislative Language

This document was compiled pursuant to the legislative language set forth in Senate Report 114-68, which accompanies the *Fiscal Year* (FY) *2016 Department of Homeland Security* (DHS) *Appropriations Act* (P.L. 114-113).

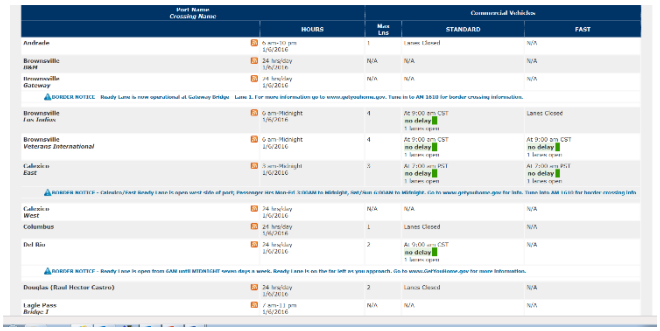
Senate Report 114-68 states:

> LAND BORDER WAIT TIMES
>
> In July 2013, GAO issued a report (GAO–13–603) outlining, among other things, flaws in CBP's commercial vehicle wait time collection process. The Committee is concerned that almost 2 years after the GAO report, CBP is still working to implement the recommendations to meaningfully improve the wait time collection process and overall industry confidence in the current online platform. Not later than 60 days after the date of enactment of this act, CBP is directed to report to the Committees of jurisdiction on the status of deploying an automated wait time collection solution across land border operations and the adoption of trade facilitation performance measures that demonstrate clear impact on stakeholders or the agency's security and trade facilitation missions. The Committee also directs CBP to consider identifying current wait time collection practices at each land border crossing through its online platform to improve accountability to the traveling public.

II. Background

In 2003, U.S. Customs and Border Protection (CBP) began collecting and posting land border wait time information on the Border Wait Time (BWT) Web site (http://bwt.cbp.gov). CBP currently reports wait times for 72 land border ports of entry (29 northern border and 43 southern border) using primarily manual methodologies (i.e., line of sight, vehicle throughput counts, and driver surveys).

Figure 1.
CBP Border Wait Time Web Site



Deploying automated wait time measurement solutions in the land border environment to measure privately owned vehicle (POV) and commercially owned vehicle (COV) wait times is a complex undertaking that calls for coordination with various federal, international, provincial, state, and municipal entities. Since 2008, CBP has been working cooperatively with the bi-national Border Wait Time Working Group, which comprises CBP, the Federal Highway Administration (FHWA), Transport Canada, and the Canada Border Services Agency (CBSA). CBP also has been participating in the biannual Transportation Border Working Group, the U.S./Mexico Joint Working Committee, the Canadian/American Border Trade Alliance, and various bridge commission and highway authorities to identify and assess innovative technologies for the measurement of vehicle wait times along the northern and southern borders.

A. Government Accountability Office

In July 2013, the Government Accountability Office (GAO) report, *U.S.-MEXICO BORDER CBP Action Needed to Improve Wait Time Data and Measure Outcomes of Trade Facilitation Efforts (GAO-13-603)*, recommended that CBP: (1) determine and take steps to help ensure consistent implementation of existing wait time data collection methodologies, (2) assess the feasibility of replacing current methodologies with automated methods, (3) document its staff allocation process and rationale, and (4) develop outcome-oriented performance measures. (On November 4, 2015, GAO closed Recommendation 4 as implemented.) The Department agreed with these recommendations and is moving forward to address GAO's concerns.

In May 2014, in response to Recommendation 1 of the GAO report (GAO-13-603), CBP reissued policy guidance to the ports describing the standard methodology for manually estimating land border wait times (e.g., via line of sight, vehicle counts, and driver

surveys) to ensure consistent implementation of existing wait time data collection methodologies.

B. Bi-national Border Wait Time Working Group

In December 2011, in accordance with the *U.S.-Canada Beyond the Border Action Plan, (Action Plan 16a),* the United States and Canada agreed to identify reasonable and achievable border wait time service levels at major crossings along the northern border that would be made available to border and transportation agencies to manage their resources better, and to drivers to make informed decisions about when and where to cross the border. CBP fulfilled this requirement in June 2012 by publishing the following service levels on the BWT Web site:

Figure 2.
CBP Wait Time Service Levels

BWT CBP BORDER WAIT TIMES

Infrastructure permitting, the processing goals that CBP has set for travelers are: **NEXUS Lanes: 15 minutes; Ready Lanes: 50 percent of general traffic lane wait times.**

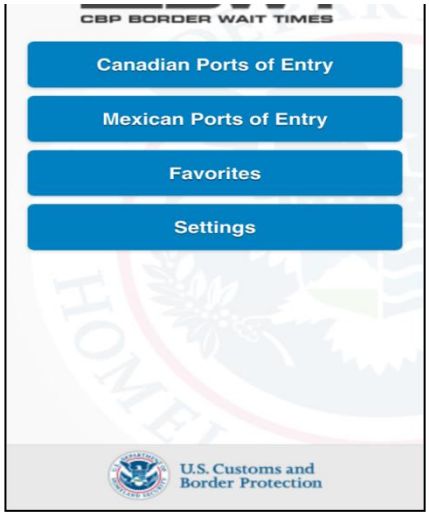
NEXUS lane wait times should not exceed 15 minutes and Ready Lane wait times (i.e., lanes used for travelers with Radio Frequency Identification (RFID)-enabled documents only) should not exceed 50 percent of the general traffic lanes wait times.

Figure 3.
Active Lane Management Signage

To meet the published service levels, CBP uses a national traffic management strategy called Active Lane Management (ALM) at land border ports across the Nation. ALM is the principle of monitoring incoming traffic and making adjustments to lane designations as needed. Where infrastructure permits, CBP analyzes a variety of factors to identify the optimal mix of general lanes, Trusted Traveler lanes, and Ready Lanes; and then provides clear instructions to travelers on lane designation through the use of Light Emitting Diode signage located on the canopy of each primary vehicle lane.

In December 2014, CBP released a BWT mobile application (app) that provides current wait time information to travelers via their mobile devices in near real-time. The app assists travelers in making informed decisions on when and where to cross the border. Since release of the BWT app, there have been more than 104,000 downloads. CBP continues to enhance and release updated versions of the BWT app with additional functionality at regular intervals.

Figure 4.
CBP Border Wait Time App



C. Challenges

There are many challenges in identifying and assessing viable and innovative wait time measurement technologies, many of which are unproven. One particular challenge has been coordination with local, state, federal, and international stakeholders; each having a stake in the success of the technology solution being deployed. Working with the various agencies to identify and deploy a wait time technology entails numerous review, approval, and deployment processes to reach unified agreements.

There are also challenges pertaining to the use or proliferation of the technologies in the private and commercial environments. For example, the Bluetooth solution deployed in the Buffalo/Niagara region required that the technology be able to acquire a Bluetooth signal from a minimum of 5 percent of the vehicles approaching the border in order to calculate an accurate wait time estimate. Past studies by FHWA have shown that penetration rates on the southern border for Bluetooth to be less than 5 percent, which excluded Bluetooth from being used as the national standard along the southern border.

Challenges associated with infrastructure also need to be overcome. The inductive loop system (i.e., magnetic loops) used in the Cascade Corridor requires extensive road and lane disruptions during the installation, operation, and maintenance. The commercial RFID solution deployed in Texas requires construction of gantries and use of other structural components to support the RFID hardware deployment.

The lack of historical wait time data also affects the technologies' ability to calculate current and predicative wait time measures accurately. This limitation has been seen during the development of the Bluetooth solution in the Buffalo/Niagara region, the commercial RFID solution in Texas, and now with the development of the hybrid data-driven solution. The commingling of POVs and COVs approaching the border continue to cause data anomalies due to the fact that wait time technologies have not matured enough to differentiate between the types of vehicles (e.g., POV or COV) accurately, directly affecting the accuracy of the data.

However, CBP believes that, over time, the development of the hybrid data-driven solution being pursued can overcome a majority of the challenges described above.

III. Performance Measures

DHS requested that CBP develop additional Government Performance and Results Act (GPRA) performance measures that directly address facilitation benefits resulting from CBP activities, including partnership programs and Global Entry. CBP committed to developing new facilitation measures to begin formal reporting in FY 2016.

The 2014 DHS Strategic Review for Goal 2.2, Safeguard and Expedite Lawful Trade and Travel, included GPRA performance measures that support that goal. This assessment concluded that the Office of Field Operations had a strong set of measures in support of enforcement, but no measures supported expediting or facilitating trade and travel. Further, the Office of Management and Budget directed agencies to address the weaknesses identified by the Strategic Review. DHS requested that CBP develop additional GPRA measures that address expediting and facilitation benefits to the public. Further, the Government Accountability Office (GAO) made specific recommendations to CBP regarding the development of at least one trade-related facilitation or benefit measure for the Customs-Trade Partnership Against Terrorism (C-TPAT) program.

Two measures were developed and approved as FY 2016 GPRA measures directly supporting expediting or facilitating trade and travel:

1. Global Entry Delay Reduction for Air Travelers (%) – average wait time advantage of Global Entry travelers, calculated by comparing the average wait time of individual Global Entry travelers to the average wait time of individual non-trusted travelers.
2. C-TPAT Reduced Examination Cost Benefit to Trade ($/1,000 shipments) – average cost savings to trade due to the reduced examination rate experienced by C-TPAT partners, calculated using industry-accepted average costs per examination.

The second measure, C-TPAT Reduced Examination Cost Benefit to Trade, is salient to this report.

A. Measure Detailed Description

C-TPAT is a voluntary public-private sector partnership program that depends on close cooperation with the trade community. C-TPAT personnel ensure applicants and partners meet the CBP-defined minimum security criteria that are required for membership in the program. The status of a company as a C-TPAT Partner is taken into account by the CSP internal electronic risk assessment systems used to review individual cargo shipments

prior to arrival, resulting in a lower examination rate than non-CTPAT Partners. Calculating the number of examinations that a C-TPAT Partner does not undergo because of membership, multiplied against a nationally averaged dollar cost of an examination, reveals the savings that a C-TPAT Partner achieves through membership in the program. The measure will provide an indication of the cost savings benefit to the trade community (C-TPAT members) provided by this reduction in examinations.

B. Measure Targets

Dollar savings per 1,000 shipments, average for all C-TPAT member importers

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Target		40,000	40,000	40,000	40,000	40,000	40,000
Result	TBD						

C. Measure Alignment and Reporting Frequency

This measure is aligned to DHS Mission Area 2: Securing and Managing Our Borders; Goal 2.2: Safeguard and Expedite Lawful Trade and Travel; Objective 2.2.2: Manage the risk posed by people and goods in transit. It is reported quarterly.

D. Scope of Data and Sources

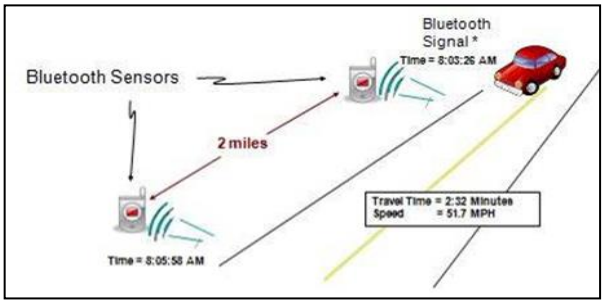
Data include the universe of all C-TPAT importers in all member tiers. Examination rates are averaged for all C-TPAT importers, regardless of tier level. Examination costs are averaged nationally. All data used to calculate the measure are mined from the Automated Targeting System, a CBP data system of record, using a tool developed by C-TPAT, known as the C-TPAT Dashboard.

IV. Solutions

CBP continues to work toward identifying and leveraging innovative and reliable automated land border wait time technology measurement solutions.

A. Bluetooth-based Solution

Figure 5.
Bluetooth Wait Time Configuration

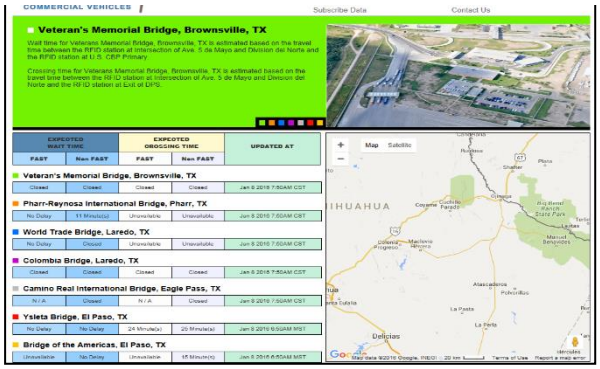


In 2010, CBP began working cooperatively with the bi-national Border Wait Time Working Group to assess several innovative technologies jointly for automating wait times. CBP invested approximately $1.5 million toward the assessment resulting in the deployment of an automated Bluetooth solution in the Buffalo/Niagara region. In July 2012**,** an automated Bluetooth-based solution that measures both COV and POV wait times was deployed in the Buffalo/Niagara region (Peace Bridge and Queenston/Lewiston Bridge) as a result of a 2010 assessment. Automated wait time data are posted in near real-time (i.e., every 5 minutes) to the CBP BWT Web site (http://bwt.cbp.gov/).

CBP continues discussions with FHWA, CBSA, Transport Canada, Niagara Falls Bridge Commission (NFBC), and the Peace Bridge Authority to expand the Bluetooth solution to Rainbow Bridge by 2017.

B. RFID-based Solution

Figure 6.
Border Crossing Information Website



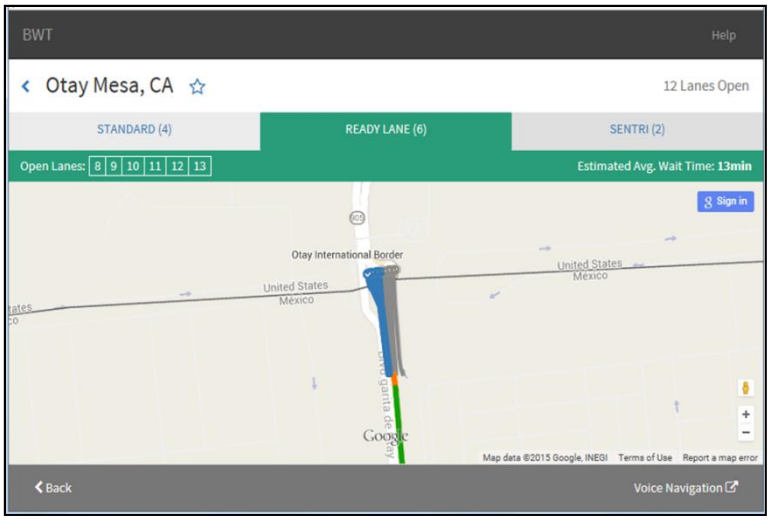
In March 2010, CBP granted permission to FHWA to install RFID technology at seven land border crossings in Texas in order to calculate commercial vehicle crossing times (i.e., the time it takes, in minutes, for a commercial vehicle to exit state inspections after arriving at the end of the queue) between the United States and Mexico. CBP facilitated the installation of the RFID technology in commercial primary locations in anticipation of leveraging the technology to obtain future commercial vehicle wait times (i.e., the time it takes, in minutes, for a vehicle to reach the primary inspection booth after arriving at the end of the queue). The installation of the technology was completed in the fourth quarter of FY 2015.

In June 2014, in response to Recommendation 2 of the GAO report, *U.S.-MEXICO BORDER CBP Action Needed to Improve Wait Time Data and Measure Outcomes of Trade Facilitation Efforts (GAO-13-603)*, CBP partnered with FHWA and Texas A&M Transportation Institute to leverage an existing RFID-based solution to measure COV wait times at seven crossings along the southern border between the United States and Mexico. The seven crossings (Veterans Bridge, World Trade Bridge, Colombia Solidarity Bridge, Bridge of the Americas, Yselta/Zaragosa Bridge, Pharr-Reynosa International Bridge, and Camino Real International Bridge) cover approximately 96 percent of COV crossings between Mexico and Texas. Leveraging the FHWA RFID-based commercial wait time system is a feasible and cost-effective short-term solution that will enable CBP to receive standardized, automated COV wait time data. The RFID technology installation was completed in January 2016. CBP plans to work with FHWA to identify funding to continue operation of the system and to move forward with plans on performing ground truth analysis of the commercial wait time data. If the data are deemed accurate and reliable, CBP will develop a link to update the CBP BWT Web site automatically in near real-time by 2017.

Although the GAO report (GAO-13-603) from July 2013 focuses on commercial/trade facilitation on the southern border, CBP is moving forward with developing a hybrid data-driven wait time solution (i.e., no hardware deployment required) for both the northern and southern borders. For land border crossing locations currently reporting wait times, the solution will use public sector-generated travel time data along with CBP vehicle throughput volumes to harmonize how vehicle wait times are collected. Because of the complexity of collecting COV wait times, the hybrid solution pilot will focus only on POV at this time. Pending assessment of the hybrid pilot, CBP will analyze the feasibility of customizing the solution for the commercial vehicle environment. Testing of the hybrid data-driven solution in the private vehicle environment began in May 2015 at five crossings.

C. Hybrid Data-Driven Solution

Figure 7.
Hybrid Configuration



Although CBP is addressing the GAO report (GAO-13-603) recommendation that CBP focus on developing an automated system to facilitate trade in the commercial truck environment, CBP also continues to move forward with developing a hybrid data-driven wait time solution (i.e., no hardware deployment required) for measuring wait times. The hybrid solution takes advantage of travel data (i.e., Floating Car Data) derived from the public sector and CBP's vehicle throughput data to calculate and provide CBP with automated land border wait time measurement and mapping data. The automated solution began collecting test data in May 2015. CBP began socializing the solution at five pilot crossings in December 2015 (Peace Bridge, Port Huron, Blaine, Sumas, and Otay Mesa). CBP plans to expand the system to four additional crossings with an anticipated analysis and assessment to be completed by the DHS Science and Technology Directorate (S&T) by the fourth quarter of FY 2016. CBP also is performing preliminary investigation as to the possibility of using commercially available traffic and road condition data, integrated with CBP-specific data, to provide more accurate calculations of wait times. Because of the complexity of the commercial vehicle environment, the hybrid pilot will focus only on private vehicles at this time.

D. Beyond the Border Initiative

CBP continues communications with CBSA and Transport Canada regarding next steps and funding availability for the bi-national Beyond the Border (BtB) initiative to identify and deploy automated wait time technologies to 20 high-volume crossings along the northern border.

Figure 8.
BtB High-volume Site Selections

2	Blaine (Pacific Hwy)	Washington	Pacific Highway	British Columbia
3	Sumas	Washington	Huntingdon	British Columbia
4	Lynden	Washington	Aldergrove	British Columbia
5	Lewiston	New York	Niagara Falls - Queenston Bridge	Ontario
6	Buffalo - Peace Bridge	New York	Fort Erie - Peace Bridge	Ontario
7	Port Huron - Blue Water Bridge	Michigan	Sarnia - Blue Water Bridge	Ontario
8	Detroit - Ambassador Bridge	Michigan	Windsor - Ambassador Bridge	Ontario
9	Detroit - Windsor Tunnel	Michigan	Detroit - Windsor Tunnel	Ontario
10	Sweetgrass	Montana	Coutts	Alberta
11	Highgate Springs	Vermont	St-Armand/Philipsburg	Quebec
12	Champlain	New York	St- Bernard de Lacolle Rte. 15	Quebec
13	Sault Ste. Marie	Michigan	Sault Ste. Marie	Ontario
14	Alexandria Bay	New York	Lansdowne-Thousand Islands Bridge	Ontario
15	Point Roberts	Washington	Boundary Bay	British Columbia
16	Pembina	North Dakota	Emerson West Lynne	Manitoba
17	Niagara Falls - Rainbow Bridge	New York	Niagara Falls - Rainbow Bridge	Ontario
18	Calais - International Ave	Maine	St. Stephen - New Crossing	New Brunswick
19	Madawaska	Maine	Edmundston	New Brunswick
20	Portal	North Dakota	North Portal	Saskatchewan

V. Analysis

A. Bluetooth

Since its July 2012 deployment in the Buffalo/Niagara region (Peace Bridge and Queenston/Lewiston Bridge), the Bluetooth solution has shown significant improvement. The continued accuracy and reliability of the system has prompted the NFBC and the Peace Bridge Authority to analyze expanding the solution to Rainbow Bridge pending funding. The NFBC and Peace Bridge Authority also have agreed to maintain and operate the Bluetooth system indefinitely or until a more feasible and cost-effective solution can be identified.

B. RFID-based Solution

CBP continues to partner with FHWA and the Texas A&M Transportation Institute in leveraging an existing RFID-based solution to measure COV crossing times and wait times at seven crossings along the southern border between Texas and Mexico. CBP believes that leveraging the RFID-based commercial wait time system is a feasible and cost-effective short-term solution that will enable CBP to receive standardized, automated COV wait time data. Initial ground truth analysis by CBP of the RFID-based system revealed several data and hardware anomalies. Pending results of further ground truth analysis, CBP will make a determination on whether or not to invest further in the expansion of the RFID system to other crossings by the third quarter of FY 2016.

C. Department of Homeland Security, Science and Technology Directorate

CBP continues to consult with S&T on identifying innovative technologies for measuring commercial wait times. S&T's Borders and Maritime Security Division has tasked the Software Engineering Institute (SEI)—a Department of Defense-sponsored federally funded research and development center—to study border wait time collection methods at various ports of entry along both the United States/Canada and United States/Mexico borders. The SEI study focuses on analyzing wait time data collection techniques, identifying general accuracy of commercial wait time data information, and determining usefulness of the wait time data and reporting methods. S&T anticipates that the study will result in recommendations for possibly implementing an enterprisewide solution that links some or all land border crossing sites for reporting wait times. The completed report was provided to S&T in March 2016.

D. Hybrid Data-Driven Solution

CBP believes that the hybrid data solution that it is developing to be the most viable and cost-effective solution to date because it does not require port infrastructure or the deployment or maintenance of hardware. The hybrid solution will eliminate the need for administrative support from the port to calculate vehicle wait times manually. In addition to automating the measurement of wait times, the solution automatically will determine (via the Vehicle Primary Client) the lane status for both Dedicated Commuter Lanes (DCL) (i.e., Ready Lanes, NEXUS, and SENTRI) and non-DCL lanes. CBP is committed to making the hybrid solution the standard, enterprisewide solution for estimating wait times along both the northern and southern borders. The five pilot sites were selected on the basis of vehicle volumes, approach roads and plaza complexity, hours of operation, number and variation of lane types (e.g., NEXUS, Ready Lane), etc. CBP anticipates expanding the solution to the following four additional crossings by the fourth quarter of FY 2016 for further testing: Calais, Tecate, San Luis, and Ysleta.

VI. Conclusion

Because of the operating uniqueness of each border crossing, the complexity of port configurations, and institutional requirements, a single, standardized technology for collecting vehicle wait time data may not be feasible. However, the benchmarks and algorithms to calculate the actual wait times themselves will be standardized. Because of the variability of wait time technologies, expectations regarding the quality of wait time information needs to be managed through outreach to potential users regarding the capabilities and limitations of the wait time system(s) deployed.

CBP anticipates continued challenges ahead as it moves forward with identifying and developing automated solutions for measuring vehicle wait times. A sample of these challenges are listed below:

- Continuation of stakeholder buy-in and coordination.
- Permit acquisition/approvals: Review and approval process with individual jurisdictions will take advanced planning (e.g., state/provincial policies/preferences for devices on their right-of-way, communication, and power sources, etc.).
- Ownership of the system (e.g., government, private sector, bridge authorities) for continued system monitoring. The quality of wait time information will need to be checked periodically and will require ongoing calibration of the system software.
- Funding sources for continued operation and maintenance (e.g., software, hardware, and administration).

CBP welcomes the challenges with developing solutions for automating the measurement of vehicle wait times and looks forward to the potential benefits for improving efficiencies at border crossings and the positive impact on regional economies in proximity to those crossings.

CBP continues to work cooperatively with regional, state, and international partners to identify and/or leverage innovative solutions to identify, test, and deploy innovative wait time measurement solutions for standardizing the methodology for collecting and measuring border delays. CBP intends on taking the following plan of action in 2016 to automate the measurement of land border vehicle wait times:

- Deploy and evaluate a data-driven wait time measurement pilot for privately owned vehicles at nine pilot locations – Quarter 3, FY 2016.
- Develop internal/external stakeholder communication strategy kickoff for private-sector solution – Quarter 3, FY 2016.

- Perform evaluation of a southern border RFID-based commercial wait time solution for accuracy and reliability – Quarter 4, FY 2016.
- Determine cost to expand the RFID-based commercial and private-sector solution for deployment to additional ports of entry – Quarter 4, FY 2016.
- Develop an implementation plan to automate the CBP BWT Web site and CBP BWT mobile app with data collected from the commercial RFID-based solution (pending data verification) and data-driven solution – Quarter 4, FY 2016.
- Enhance the BWT Web site and mobile app to improve accountability to the traveling public by describing the methodology used (e.g., line of sight or automated) at each land border crossing for estimating wait times – Quarter 3, FY 2016.

CBP believes that the hybrid data-driven solution that it is pursuing will satisfy the requirement for deploying an enterprisewide solution for harmonizing the collection and estimation of vehicle wait times. The hybrid solution will be less disruptive to port operations and more cost-effective because of the absence of hardware deployments and the administrative resources required to operate and maintain a hardware-based system. Although the lifecycle development period of the hybrid solution may take longer to deploy because of the complexities of each of the 72 crossings that currently measure wait times, the hybrid solution will standardize the wait time data collection methodology and enable CBP to optimize operational resources more effectively.

Appendix: List of Acronyms

Acronym	Definition
ALM	Active Lane Management
BtB	Beyond the Border
BWT	Border Wait Time
C-TPAT	Customs-Trade Partnership Against Terrorism
CBP	U. S. Customs and Border Protection
CBSA	Canada Border Services Agency
COV	Commercially Owned Vehicle
DCL	Dedicated Commuter Lane
DHS	Department of Homeland Security
FHWA	Federal Highway Administration
FY	Fiscal Year
GAO	Government Accountability Office
GPRA	Government Performance and Results Act
NFBC	Niagara Falls Bridge Commission
POV	Privately Owned Vehicle
P.L.	Public Law
RFID	Radio Frequency Identification
S&T	Science and Technology Directorate
SEI	Software Engineering Institute