

Research Results



Assessing the Impact of the ACE Truck e-Manifest System on Trucking Operations

The Problem

The economic growth experienced by the U.S. over the last four years has resulted in dramatic increases in truck-borne freight movement. With as much as 25 percent of the country's GDP now associated with international trade, the number of crossings at both the Canadian and Mexican borders is expected to grow considerably. The U.S. government is faced with the challenge of balancing the equally important objectives of maximizing economic vitality while ensuring the security and integrity of U.S. borders. One requires highly efficient and free-flowing goods movement, while the other is reliant on close management and controls.

Recent technological advancements offer some solutions to this challenge. Specifically, U.S. Customs and Border Protection (CBP) has developed an electronic transaction system, known as the Automated Commercial Environment (ACE), which allows carriers to submit electronic versions of mandated paperwork – in advance of the truck physically crossing the border. This system and its trucking interface, commonly referred to as the ACE Truck e-Manifest, is intended to ensure an efficient border crossing experience while maintaining the security of goods entering the U.S.



Research Goal

The ACE Truck e-Manifest system is available at most border crossings and CBP has recently begun the process of mandating the use of the system at specific crossings. With more motor carriers testing or using the system, CBP commissioned ATRI in 2006 to conduct an analytical assessment of the ACE Truck e-Manifest system, with specific focus on identifying productivity and efficiency impacts from the user perspective.

Methodology

ATRI utilized several research techniques to gain a thorough understanding of benefits and costs that impact motor carrier border crossing operations. First, ATRI conducted a literature review to determine the current body of research on cross-border activities and possible impacts of technology utilization. ATRI then conducted a survey of motor carriers involved in cross-border activity. Respondents were asked questions relating to current border crossing experiences and the performance measurements that would be most useful for the trucking industry. Those already using the ACE Truck e-Manifest system were asked to identify specific system issues.

Next, ATRI conducted in-depth case studies and interviews with motor carriers to better understand the impact of implementing the ACE Truck e-Manifest system on motor carrier operations. ATRI then validated and calibrated the information collected during the case studies with a larger population of motor carriers.

Finally, ATRI analyzed GPS truck position data collected at border crossings to determine the effect of ACE Truck e-Manifest utilization on overall border crossing times.

Research Findings

The trucking industry is currently facing a number of challenges including unstable fuel costs, a severe driver shortage and increasing security and environmental regulations. Motor carriers recognize that border security is an important issue and generally support technology-based solutions that allow carriers to minimize operational costs.

The survey responses, which exceeded 800, confirm that the performance measurement supported by most motor carriers is border crossing time, as labor costs represent the largest cost center. The responses also reveal that border crossing challenges are very different at the northern and southern borders. Although limited physical infrastructure was the top issue cited at each border, those carriers crossing the northern border indicated that paperwork and communication with brokers were key challenges. Carriers also noted the need to have consistent processes and paperwork requirements at all border crossings. At the southern border, inspections and processing times were more significant issues.

Those carriers already using the ACE Truck e-Manifest system indicate that satisfaction with the system is mixed. In general, carriers responded that workload and costs have increased but that the border crossing process is smoother.

The case studies and follow-up interviews reveal that the number of trips in which a driver is directed to secondary inspection has decreased by 50 percent, but the number of actual post-secondary inspections has increased by approximately 42 percent. This appears to confirm that the ACE Truck e-Manifest system improves targeting of vehicles needing inspection.

The case studies also reveal that although initial start-up costs are considerable for many carriers, the ACE Truck e-Manifest will potentially provide net operational benefits for medium and large carriers. This experience may differ for small carriers or carriers that do not cross the border frequently, primarily due to the substantial initial investment necessary and the lack of returns to scale. For some small carriers, the new technology may be the impetus to cease border crossing operations.

The GPS data did not reveal a significant relationship between average border crossing times and the number of ACE Truck e-Manifests filed weekly. This likely results from the low initial number of users. However, this data does provide a baseline against which to measure the expected net-positive impacts of the ACE Truck e-Manifest system in the future.



Recommendations

Based on this analysis, ATRI makes the following recommendations to further ease the transition to the ACE Truck e-Manifest system:

- ❑ Improve the functionality and usability of the ACE web portal;
- ❑ Develop XML data transfer mechanisms to augment EDI transactions;
- ❑ Continue to improve training for CBP officers;
- ❑ Standardize the processing requirements across border crossing points;
- ❑ Provide motor carriers with additional ACE Truck e-Manifest training opportunities; and
- ❑ Develop training and educational materials for brokers and shippers to increase familiarity with ACE requirements.

For more information about this and other ATRI studies, please visit: WWW.ATRI-ONLINE.ORG



ATRI's primary mission is to conduct and support research in the transportation field, with an emphasis on the trucking industry's essential role in the U.S. and international marketplace.