

Improving Mobility at the U.S./Canada Border through Border Wait Time Data-Sharing: the Buffalo-Niagara Falls Region

Noteworthy Practice | April 2020

Overview

On an annual basis, over 1.1 million trucks and more than 5 million vehicles cross the Peace Bridge that spans the Niagara River and connects Western New York State and Southern Ontario, Canada.¹ Twenty-five miles north on the Niagara River, about 800,000 trucks and 2.6 million vehicles annually cross the Lewiston-Queenston Bridge.² Trucks crossing the U.S./Canada border play critical international trade and economic development support roles. However, heavy truck and car volumes at the U.S./Canada bridge crossings can create high congestion levels with significant impacts.

In 2012, the region's first border wait time technologies were deployed on the Peace Bridge and Lewiston-Queenston Bridges, with funding support from Transport Canada and the Federal Highway Administration (FHWA). Additional stakeholders who supported these deployments (through funds or other coordination) included the Buffalo and Fort Erie Bridge Public Authority, or Peace Bridge Authority (PBA), which manages the Peace Bridge; the Niagara Falls Bridge Commission (NFBC), which

¹ www.peacebridge.com/index.php/historical-traffic-statistics/yearly-volumes

² <https://buffalonews.com/2018/11/20/91-million-upgrade-of-u-s-plaza-announced-at-lewiston-queenston-bridge/>

Key Accomplishments

- Three of the region's four border-crossing bridges have border wait time technologies, enabling the region to take a more comprehensive transportation systems management approach.
- The Niagara International Transportation Technology Coalition (NITTEC) compiles regional border wait time data and publishes estimated wait times through its website, a smartphone application, text messages, email alerts, and a Twitter account. Stakeholders can view the same information, which improves regional communication and decision-making.
- The wait time technology deployments have led to specific freight operations benefits. For example, during severe snow events, local police use NITTEC's clearinghouse to direct truck drivers to temporary parking areas, improving road safety and mobility.

manages the Lewiston-Queenston Bridge, Rainbow Bridge, and Whirlpool Bridge; U.S. Customs and Border Protection (CBP); and the Canada Border Services Agency (CBSA).

Travelers (including commercial vehicle operators) crossing the U.S./Canada border have an ongoing need for real-time border wait time information to improve trip planning and mobility. The information can also aid the public and private sector in more informed transportation planning, performance management, and decision-making.

The Niagara International Transportation Technology Coalition

(NITTEC) serves as the region's traffic operations center that compiles, analyzes, and distributes real-time travel data to the public and other stakeholders. As part of its regional traffic mobility improvement mission, NITTEC provides a publicly-accessible online travel information clearinghouse that includes border wait time.

Implementation Approach

The wait time technologies originally consisted of cameras that viewed bridge crossings congestion levels and calculated the distance between various benchmarks and the border checkpoint.

The technologies have been upgraded several times since their original installation. In 2016, PBA installed Bluetooth/WiFi-enabled equipment at the Peace Bridge and NFBC installed Bluetooth/WiFi-enabled equipment at the Lewiston-Queenston Bridge. In 2017, PBA added License Plate Recognition (LPR) technology to the Peace Bridge to better collect data about the number of Free and Secure Trade-cleared trucks crossing at the bridge.



Figure 1: Border wait time dashboard on NITTEC's website. Source: <https://www.nittec.org>

Following the original wait time technology installations, NFBC and PBA assumed maintenance responsibilities. PBA indicates that maintaining the LPR equipment costs about \$13,500 (US dollars) per year (estimating from 2019 data), while NFBC spends about \$8,000 per year to maintain the Bluetooth/WiFi technology.

Outcomes and Results

In 2017, NFBC installed Bluetooth/WiFi-enabled border wait time technologies on the Rainbow Bridge (a passenger vehicle-only bridge located about six miles south of the Lewiston-Queenston Bridge). The New York State Department of Transportation (NYSDOT) provided \$100,000 for this set-up using a FHWA Technology and Innovation Deployment Program grant; NFBC provided \$20,000 in match funding. With the Rainbow Bridge installation complete, three of the region's four border-crossing bridges now have wait time technology installations. NFBC plans to add the technology to the fourth bridge, the Whirlpool Bridge, in the near future.

NITTEC collaborates with regional partners to ensure that the wait time technologies are meeting stakeholders' needs, including those in the freight sector. The NITTEC border crossing committee, comprised of many State/provincial and regional agencies representatives, provides a forum for this collaboration. NITTEC is broadening the committee's engagement to include private sector freight stakeholders, such as the Trucking Association of New York, Ontario Trucking Association, Ontario Motor Coach Association, and Bus Association of New York State.

NITTEC plans to expand how the collected wait time data can support regional transportation analyses. For example, NITTEC is working with the University of Buffalo, NFBC, and PBA to develop a data warehouse and a predictive model to forecast delay based on historic data. In 2016, NITTEC applied for and received a \$7.8 million grant from the FHWA Advanced Transportation and Congestion Management Technologies Deployment (ATCMTD) program. NITTEC is assessing plans to use ATCMTD funds to expand on smart mobility technologies to support commercial vehicle operations and meet other project goals.

Prior to the wait time technology deployments, NITTEC observed that congestion was unevenly distributed among the Niagara River's four border bridges. As a result of the

deployments, congestion has decreased as travelers make more informed decisions about where and when to cross the border.

With input from its partners, NITTEC has also developed performance metrics and benchmarks for how often vehicles can cross the border without a delay (defined as 30 minutes or more). NITTEC regularly assesses benchmark progress and shares the results with its partners.

Lessons Learned

Establish common border wait time definitions. NFBC found that stakeholders had different understandings of what constituted border wait time. Agencies should be explicit about what border wait time technologies measure.

Establish an ongoing border wait time technology maintenance process. NFBC noted that there was some initial uncertainty as to who would assume maintenance responsibilities for the Lewiston-Queenston Bridge wait time technologies. PBA also suggested building in multiple data quality checks. Inaccurate data may lead agencies to make inappropriate decisions or could lead to distrust of the technology.

Leverage existing strategies to engage stakeholders. NITTEC decided to reach out to freight stakeholders through its existing border crossing committee, rather than form a new committee. This approach was more efficient and an opportunity for members to benefit from cross-disciplinary perspectives.

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U.S. Department of Transportation
Federal Highway Administration

April 2020 | FHWA-HOP-20-034

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