FREIGHT NEWS

Commercial Vehicle Travel Time and Delay at U.S. Border Crossings

One of the Federal Highway Administration's (FHWA's) strategic goals is to help improve the economic efficiency of the U.S. transportation system and, thereby, enhance the nation's position in the global economy. One way to address this need is to reduce the hours of delay for commercial motor vehicles passing through the northern and southern ports-of-entry with Canada and Mexico. The border crossing process is one of the few elements in logistical planning and execution that today is almost completely beyond the control of both motor carriers and shippers. Predicting with certainty the time needed to transit a border crossing is difficult.

Primary border inspection facility on the U.S. side of the Peace Bridge, Buffalo, NY

In 2001, FHWA's Office of Freight Management and Operations, supported by Battelle and the Texas Transportation Institute (TTI), undertook an on-site review of seven ports-of-entry that handle over 60 percent of U.S. truck trade among the three NAFTA nations. Linked with research now under way to simulate border-crossing activity using a model called "Border Wizard," these site reviews will enable FHWA to make informed recommendations about crossing improvements. The results also will help the agency to engage with other federal, state, and local jurisdictions in constructive dialogue about how, together, all can improve the performance, security, and mobility of commerce at these important international locations.

The seven ports-of-entry reviewed in 2001 were: 1) Otay Mesa, California; 2) El Paso, Texas; 3) Laredo, Texas[1]; 4) Blaine, Washington; 5) the Ambassador Bridge (Detroit), Michigan; 6) Blue Water Bridge (Port Huron), Michigan; and 7) Peace Bridge (Buffalo), New York. The measurement chosen to monitor commercial vehicle activity on-site was "travel delay per truck trip." This documents the time taken by the individual commercial vehicle from the initial queuing point in the exporting country, *through* the exporting country's final checkpoint, and up to and through the first inspection point in the importing country. Travel in both directions was assessed (i.e., truck travel into and out of the United States).

The on-site reviews found:

- The time needed for processing commercial vehicles entering the United States (inbound clearances) to be significantly longer than that for departing (outbound clearances) at almost every location. Anyone familiar with border activity would not find this surprising. The controlled substance and illegal immigration inspections performed by U.S. inspection agencies on the southern border required reviews of incoming cargoes and their operators that led to unavoidable time delays.

- The actual extent of delays encountered in *both* directions, and the reasons for them, however, tended to vary by individual port-of-entry. There was no single trend across sites beyond the noted tendencies: 1) inbound clearances take longer than outbound, and 2) southern border delay times exceed northern border delay times.

- The site-specific findings may not readily lend themselves to a "one size fits all" corrective action initiative. Nevertheless, procedural changes, application of advanced technologies, and facility design modifications at selected ports-of-entry—some already under way—offer the possibility of greater productivity in the processing of commercial vehicles and reduced travel delay.

- Increased traffic volume did not necessarily correlate with significantly increased delay. Crossings varied greatly in their ability to handle volume shifts of traffic over the business day.

- In total, for *all* seven ports-of-entry, the average *inbound* travel time was 26.8 minutes, while the average *outbound* travel time was 14.2 minutes. For the four northern ports in the survey, the average *inbound* travel time was 24.1 minutes; the average *outbound,* 12.6 minutes. For the three southern ports, the average *inbound* travel time was 33.8 minutes; the average *outbound,* 17.2 minutes.

- Unfortunately, *average travel time* does not tell the whole story, as at several crossings, many trucks took significantly longer to transit the seven ports-of-entry. Hence, a *95th percentile time* measurement also was calculated, providing information about the time that it took 95 percent of the surveyed trucks to travel the study distance. A comparison of *average travel time* with the *95th percentile time* finds that a number of truck trips could in fact take far longer than the average. For example, while *average travel time* for all seven inbound crossings was 26.8 minutes, the *95th percentile time* for these was over 70 minutes.

[1]Bridge 4, a relatively new truck-only crossing, was the site observed at Laredo.

- Not surprisingly, the number of inspection and processing booths open at each port-of-entry at any given time had a significant influence on the variability of travel time and delay. There was a definite relationship between the number of booths open, the travel demand, and the travel time through the crossing. Decisions on how many to open at any given time are apparently not made purely with mobility or crossing times in mind and are not always made by the transportation agencies.

- Before September 11, 2001, U.S.-Canadian ports-of-entry generally processed inbound trucks with less delay, and with less variability, than did U.S.-Mexican ports-of-entry. Southern crossings generally handle more traffic, but with generally more variability across the day in the travel times required for crossing. (The exception to this pattern was the Blue Water Bridge port-of-entry at Port Huron, Michigan). As noted, concerns about drug traffic and illegal immigration apparently contribute to extended inspection times at the southern border. However, other influences on travel time and delay are less self-evident and may need further consideration. Procedures or policies that reduce time at the northern ports-of-entry might be exportable to the southern border.

- A study on urban mobility, performed for FHWA by TTI, indicated that delay times along urban roadways are more predictable and not as volatile in their swings across the sample day as those witnessed at the seven ports-of-entry in 2001. This confirms the earlier statement that international border crossings offer a considerable challenge for those parties planning commercial cargo movement departures, transit times, and arrivals than do most other links in the national transportation system.

The full report and individual site reports are available on the Web site noted below under the heading "Freight Productivity Performance Measures."

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Table 1. Comparision of Outbound and Inbound Times (Minutes)

Crossing	Baseline Time[1]	Average Time[2]	95th Percentile Time[3]
All Outbound Crossings	NA	14.2	37.4
All Inbound Crossings	NA	26.8	70.1
All Northern Outbound Crossings	NA	12.6	34.3
All Northern Inbound Crossings	NA	24.1	70.3
All Southern Outbound Crossings	NA	17.2	45.2
All Southern Inbound Crossings	NA	33.8	64.9
Ambassador Bridge Outbound	5.7	8.8	13.7
Ambassador Bridge Inbound	12.9	20.4	33.9
Blaine Outbound	4.8	21.5	35.3
Blaine Inbound	8.1	17.3	35.6
Blue Water Bridge Outbound	5.0	6.2	9.1
Blue Water Bridge Inbound	11.1	34.2	80.3
Peace Bridge Outbound	9.0	21.7	38.0
Peace Bridge Inbound	8.3	23.3	83.4
El Paso Outbound	9.0	13.2	34.0
El Paso Inbound	7.6	37.2	77.4
Laredo Outbound	1.8	17.2	45.0
Laredo Inbound	12.2	31.2	54.9
Otay Mesa Outbound	9.5	19.1	36.9
Otay Mesa Inbound	6.4	35.0	64.3

Key: NA = not available.
Footnotes: [1] Baseline time: Time needed to travel through the port-of-entry at low-volume conditions; the lowest hourly travel time in that direction for each day surveyed. This value represents "no delay" travel time. [2] Average time: Time (in minutes) needed to travel the study distance (between the starting point in the exporting country and the initial inspection station in the importing country). [3] 95th Percentile Time: Time within which 95 percent of the trucks surveyed traveled the study distance.

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