

Crossing the Border: The NAFTA Perspective

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**Dr. Arthur T. Bergan
Chairman of the Board, International Road Dynamics Inc.;
Professor Emeritus, College of Civil Engineering
University of Saskatchewan
57 Campus Drive, Saskatoon, Saskatchewan S7N 5A9
Phone (306) 966-7007 Fax (306) 931-4822**

**Robert Bushman, B Sc. (Civil Eng.),
Engineering Sales \ Contracts Manager
International Road Dynamics Inc.,
702 43rd Street East, Saskatoon Saskatchewan, S7K 3T9
Phone: (306) 653-6600 Fax: (306) 242-5599
Email: rob.bushman@ird.ca**

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Introduction

The North America Free Trade Agreement (NAFTA) has been in place between United States and Canada for approximately a decade. One of the purposes of the agreement was to reduce the restrictions on the trade of goods between the two countries. In terms of increasing trade between these two nations the agreement has been very successful. Traditional East-West trade patterns have been shifting to include more North-South trade between these two countries. The trucking industry has felt a large impact from this increase in trade since about 70% of all US-Canada trade is carried by trucks. There are a total of more than 10 million truck movements across the US-Canada border every year. The busiest ports are the Port of Detroit (1.3 million trucks annually) and the Port of Buffalo (980,000 trucks annually) both on the Canada-US border. The third busiest port in North America is the Port of Laredo on the United States-Mexico border which handles 900,000 trucks annually.

Over the last five years there has been a tremendous increase in the volume of trade from Canada to United States and associated revenues. Total tonnes carried across the border by Canadian trucking companies increased by 94.9% in five years from 24.1 billion tonnes in 1991 to 47.1 billion tonnes in 1996. Trucking industry revenues from transborder activity saw a similar increase of 105.5% in five years from \$1.85 billion in 1991 to \$3.80 billion in 1996.

With the increased importance of this trading pattern, the losses due to inefficiencies also increase. Without improvements and expansions to the border crossing process and facilities the increased demand will result in increased delays and will inhibit future increases in trade. An effort to streamline border crossings will increase transportation efficiency and contribute to strong trade and strong economic activity for all three participating nations.

Requirements for Improvement

There are two basic requirements to develop an improved border crossing procedure for the trucking industry. The first requirement is the cooperation of the many interested parties to make adjustments to their methods to accommodate a new system. The second requirement is the technology and development to actually implement the program.

The number of agencies and groups with an interest in border crossing projects can make progress in a unified manner difficult. A recent scope of work for an upcoming border initiative listed more than 20 organizations with either direct or indirect responsibility for the project. The actions or lack of participation of a single organization can unintentionally impact the border crossing process. A recent example is the US Illegal Immigration Reform and Immigrant Responsibility Act. Although intended to address the control of immigration, there will be an adverse affect on the trucking industry. The delays for crossing the border if this act is implemented are estimated to be between five and seventeen hours

at the busiest crossing points.

The other requirement is that appropriate technology and systems be developed and implemented. There is a great deal of technology already available that can be applied to improving border crossings. The scope of work for a project being implemented in Washington illustrates the availability of appropriate technology by including the following requirement: "The technology used for this CVO (commercial vehicle operations) border system will be commercially available and will have been tested in other locations. This project is not designed to be a test of untried technologies."

Border Crossing Initiatives

The importance of truck transportation to international trade has already been examined and has been recognized by the government institutions with responsibility in this area. As a result, several related initiatives are now underway to address improving the flow of cross border truck traffic. The International Border Crossing (IBC) Program, North American Trade Automation Prototype (NATAP), and the Intelligent Transportation Border Crossing System (ITBCS) address the issues of institutional cooperation and technology at various levels.

The IBC program is a program funded by the United States government under the Intermodal Surface Transportation Efficiency Act (ISTEA). The IBC program is focused on developing interoperability and realizing the benefits of ITS technology in North America. The IBC program has the objectives of integrating IBC requirements and processes into the transportation infrastructure for safe and legal commercial operations, integrating ITS technologies in cooperation with North American Partners, and integrating ITS technologies into the international trade modernization to facilitate the flow of people and goods between the US and its trading partners.

NATAP is an initiative to implement some of the requirements of the IBC program. NATAP is a joint initiative between the United States, Canada, and Mexico to standardize data and document processes for trade agencies involved in border clearance. NATAP is defining and developing the technology, data systems, and operational requirements for implementing automated border crossings. Several systems are now in place or are being implemented to test the concepts and technology for automated border crossing. The results of the field operational tests will be used to implement appropriate systems on a larger scale incorporating the information and experience from the test sites.

NATAP System Concept

Trucks participating in a border crossing program will be equipped with a dedicated short range communication (DSRC) transponder. Many transponders of this type are already being used in automated toll systems and CVO weigh station bypass systems. The basic concept of the NATAP system is illustrated in Figure 1. As a truck prepares to leave for a cross border trip it will be assigned a unique trip/load number that is stored electronically on the transponder. The number will identify that

particular truck and that particular trip in order to access its trip information file.

At the time of departure the necessary information will be filed electronically with the automated clearance system. All necessary information for crossing the border such as cargo information and driver information are provided. The trip\load number is also included to allow customs inspectors to associate the file with the appropriate truck.

Since all the “paperwork” for crossing the border has been filed in advance, the customs inspector can review the information and make a decision whether clearance can be given with no further inspection. As the truck approaches the border it’s transponder will be read to obtain the trip\load number. The trip\load number will be used to reference the clearance system to determine what decision was made in advance by the customs inspector. The results of the decision will be transmitted back to the truck and will result in either a green or a red light appearing on the transponder. If the truck is given clearance in the form of a green light it can proceed through the customs area and exit the country of origin without stopping for any further inspections. If the truck receives a red light it must stop and report to a customs inspector for further investigation.

The truck will go through a similar procedure to enter the destination country. The necessary information has already been filed and checked in advance. The trip\load identification will be used to access the results of the advance check and the result will be transmitted to the in cab transponder. DSRC readers will be used to verify that the vehicle has left its country of origin and has entered the destination country and will record that part of the trip as complete.

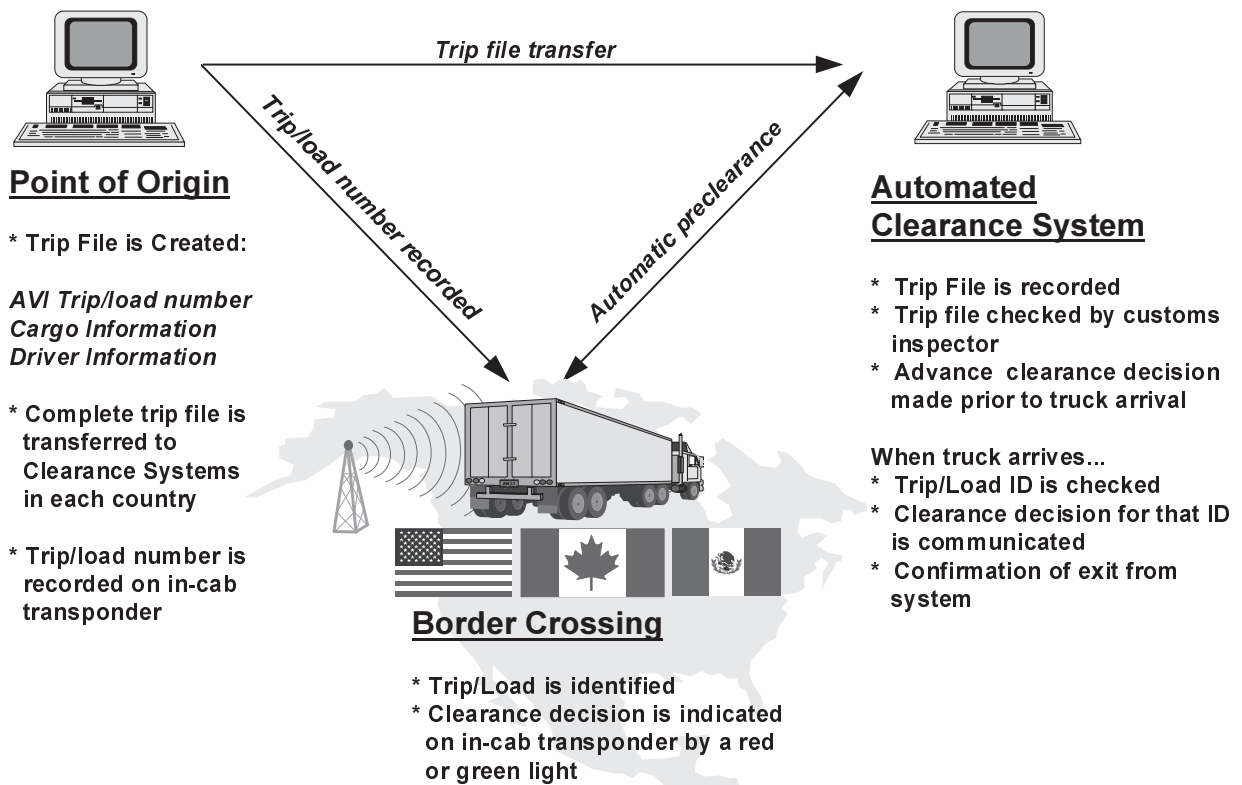


Figure 1 : Overview of NATAP System Concept

Implementation of ITS at Border Crossings

Several projects are now underway to implement ITS technology at border crossings along the United States-Canada border and the United States-Mexico border. Sites targeted for the first implementations of this technology include Blaine Washington, Sweetgrass Montana, Detroit Michigan (Ambassador Bridge), Buffalo New York (Peace Bridge) on the United States-Canada border. Otay Mesa California, Nogales Arizona, El Paso Texas, and Laredo Texas along the United States-Mexico border have also been targeted. Some of the characteristics of two of these projects will be described.

Intelligent Transportation Border Crossing System (ITBCS)

The most active area in North America for cross border trade is between the Canadian province of Ontario and the States of Michigan and New York. The crossings in this area handle over 5.5 million trucks annually and account for \$125 billion per year in commercial trade. The Ambassador Bridge and the Peace Bridge are in this area and are the busiest of all North American crossings. These sites have been chosen for a field operational test of ITS technology. The customs and immigration portion of the system has been in operation since May 1997. Truck electronic toll collection began in October 1997 at the Peace Bridge and is ready to begin at the Ambassador Bridge.

For the initial test 500 Type III transponders for commercial vehicles and 1500 Type II transponders for passenger cars have been made available at each site. The Type III for commercial vehicles can be used for identification as well as for providing a green or red signal to the driver. The Type II transponders provided for passenger cars do not have the ability to provide a signal, so external signals will be used.

There are already several automated systems in this area using transponders of this type. A Weigh In Motion and credential checking system is in place that allows qualified vehicles to bypass truck inspection stations. Several toll facilities with electronic toll collection are also in place. The transponders used in the border crossing project will be interoperable with these other systems.

The basic operation of the system for trucks will follow the NATAP concept described earlier. Participating carriers will electronically file the required information in advance for an upcoming border crossing. An identification number will be associated with the file and will also be recorded on the transponder of the carrying vehicle. When the vehicle arrives at the border crossing primary inspection area it will be identified and the result of the clearance decision will be communicated. The truck may exit the system when given a green light, or must report to the secondary customs inspection when given a red light. The same process will be repeated twice, once when leaving the originating country and once when entering the destination country.

In addition to the border crossing operation, these two sites will have the ability to incorporate toll and truck inspection functions. Both bridges have a toll facility that requires trucks to manually pay a fee for crossing the bridge. Trucks enrolled in the program may participate in electronic toll collection. An automatic vehicle classification system will determine the number of axles of the truck and use this as the basis for determining the toll amount. The truck will be identified using the transponder and the toll transaction will take place. Once a valid transponder has been read and the transaction is complete, the toll gate will open and the truck may proceed. The initial participation of trucks will be small and a dedicated lane is not feasible, but as participation increases a dedicated lane may be possible which would allow non-stop transactions to take place.

The border crossing information will be made available to transportation agencies. Trucks involved in the border crossing program may use the same transponder to participate in truck inspection station bypass programs available from the transportation agencies responsible for enforcement. Although the border crossing and inspection station systems are related and use the same type of equipment, they

are still independent and enrollment in each program is handled separately.

The actual inspection at the customs and immigration booth is expected to be reduced from 65 seconds to 10 seconds, an 85% operational efficiency improvement. Electronic toll collection for trucks is expected to reduce crossing time from 40 seconds to 9 seconds, a 75 % improvement in operational efficiency. These efficiencies benefit all trucks crossing the border, since the participating vehicles now share a common lane with non-participating vehicles. Each truck benefits not only from the improvement of their own transaction, but also from the reduced transaction time of every vehicle in the queue in front of them.

Blaine Border Crossing Project

A project is under way led by the Washington State Department of Transportation to implement a system that will enhance commercial vehicle movements across the international border. The system will follow the guidelines of the NATAP system, but incorporates some unique features and increases the level of connection to truck enforcement systems.

Two major sea ports are located in Seattle and Tacoma Washington. These two ports are located less than 175 miles from the major Canadian city of Vancouver. Because of the relative location of these cities, there is a great deal of cargo that comes into Seattle and Tacoma and then is transported by truck across the international border into Canada. The system will be designed to fit this unique situation and facilitate a shared system by customs and the Washington State Patrol.

Many cargo containers coming into the ports are equipped with identification tags in accordance with an international standard. This tag allows customs agents at the port to access a database containing cargo information and use this information to clear the cargo into the United States. Customs is primarily interested in the movement of the cargo and so the identification is on the container.

Enforcement by the State Patrol is focused primarily on the carrier. Power units of participating companies will be equipped with a Type III vehicle transponder, as described earlier. These transponders will be interoperable with other prescreening systems operational in this area such as Prepass and MAPS, which allow vehicles with proper weight and credentials to bypass weigh stations.

Before a truck leaves the port facility, an association will be made between the identification of the cargo container and the transporting vehicle. This information will be recorded in a database accessible by the State Patrol and US Customs. By identifying the truck, the State Patrol will also be able to access the cargo information. This may be of assistance to the State Patrol in monitoring the transportation of hazardous goods. Likewise, by identifying the cargo container, US Customs will also be able to access the truck information.

As trucks move north towards the Canadian border, the progress of the truck will be tracked by transponder readers that are part of the State Patrol system. At the border the customs official will have in advance the information on the cargo and the vehicle. Readers at the border will confirm that

the cargo and truck identifications are correct. The inspector at the border will then be able to decide if the truck should cross the border with no further inspection, or if an inspection is required.

Trucks enrolled in the program will also be eligible to receive a weigh station bypass on the South-bound return trip to Seattle or Tacoma. As the truck approaches the Bowhill Weigh Station, it will be weighed and identified while traveling on the mainline. The vehicle weight compliance with applicable regulations will be checked and the credential database will be checked to determine eligibility for bypass. If the vehicle passes these two checks, it will be signaled to bypass the station.

Since this project involves a closer focus on the actual truck transporting the goods, there is also a need to meet requirements of other commercial vehicle programs. There is a local project involving four states and one Canadian province to provide preclearance at weigh stations through a shared registration and monitoring program. There is also a larger federal initiative in the United States called Commercial Vehicle Information Systems and Networks (CVISN). The purpose of CVISN is to provide country wide network to allow input and communication of vital truck carrier information. When fully implemented, the system will provide access to information such as safety records, State registration status, fuel tax requirements, and operating restrictions on any truck registered to operate in United States. This information can be used for electronic screening or research on vehicle status. This project will need to be compatible with CVISN for the recording and handling of commercial vehicle data. The interoperability of the border crossing system with the CVISN program will provide additional heavy vehicle data to both programs to enhance their initiatives.

Conclusion

International trade is becoming a more important factor in the economies of Canada, United States, and Mexico. The majority of trade goods are transported by truck between these nations, so the importance of efficient border crossing systems are in place.

Several initiatives are currently underway to provide automated border crossing systems that will result in reduced paper work and reduced delays to cross the border. These systems will make use of ITS technology to electronically record information, allow for advance clearance of trucks, and carefully monitor the flow of trucks and goods across the border. These systems will result in improved movement of goods, improved international trade, and a stronger economy for all countries involved.

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