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Methodology for the Development of Binational Driver and Vehicle Databases

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ABSTRACT

The implementation of advanced transportation and trade information systems at the U.S.-Mexico border will confer benefits upon public and private sector stakeholders in both countries. But the ultimate success of these systems depends on their ability to deliver comprehensive and accurate information to authorized parties in a timely fashion. Much of this information will be sourced from existing databases that are planned for integration into broader frameworks. The persistence of information gaps and stakeholder disconnects underscores the need for a thorough review of existing information, and an assessment of outstanding data collection and integration needs. This research focuses on two of the most critical data elements in the border-crossing system, commercial driver and vehicle information. The study team identified potentially valuable tractor, trailer and driver data components not currently available or accessible to border stakeholders, and proposed how they might be integrated into overarching systems. The strategies presented enable the development of binational driver and vehicle databases that accelerate the processing of safe, legitimate trade, while establishing increasingly impermeable barriers to dangerous or illegal cross-border movements.

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EXECUTIVE SUMMARY

The implementation of a comprehensive transportation and trade information system at the U.S.-Mexico border will confer benefits upon public and private sector stakeholders in both countries. Motor carriers, shippers, consignees, customs brokers and other members of the trade community stand to profit from expedited border processing. At the same time, greater public sector access to information and the development of faster, more comprehensive data systems will enable inspection and enforcement agencies to increase their productivity and ensure greater industry compliance. The ultimate success of advanced transportation and trade systems is dependent on their ability to deliver comprehensive and accurate information to authorized parties in a timely fashion. This report focuses on two of the most critical data elements in the border-crossing system, commercial driver and vehicle information.

The initial phase of the research entailed a thorough review of existing and proposed driver and vehicle databases, systems and information initiatives at the United States' southern border. Commercial driver and vehicle information gaps and disconnects adversely affecting border transportation safety, security and trade facilitation were subsequently addressed.

The Federal Motor Carrier Safety Administration's Query Central system is the most comprehensive source of binational motor carrier information currently available. The system electronically links several U.S. and Mexican information systems and databases to a single internet-based interface that is accessible to inspection and enforcement personnel in the field. A planned data integration system called ITDS-ACE proposes to broaden these capabilities and incorporate technologies that will further automate information flows and border processing. Combined, these and other systems address the majority of information shortfalls that have limited the usefulness of databases in the past. It is important to note that while some of the data elements and systems presented have been planned, they may not be currently available. The study team did not consider these to be deficiencies because a need for them has already been recognized and work to integrate them is underway.

Several tractor, trailer and driver data deficiencies that are not being addressed were identified by the study team. These information gaps weaken border security and the integrity of motor carrier safety examinations, and preclude the development of more seamless cross-border trucking operations. The deficiencies can be grouped into the following categories:

- Information that does not currently exist in database format
- Information that exists in database format but is:
 - not well integrated into broader systems
 - not populated with a significant volume of data or
 - not accessible to relevant stakeholders

The most extensive amount of data is maintained at the motor carrier level. From this broad category, the existence and availability of information declines with increasing levels of specificity. The most significant information gap occurs at the trailer level.

Currently, no data on the safety status or inspection history of commercial trailers transiting the U.S.-Mexico border is maintained by authorities. The condition of a trailer's brakes, suspension and other critical safety equipment cannot be determined unless a detailed inspection is conducted. This data deficiency exposes the motoring public to unknown safety risks.

The development of a database containing the inspection history and safety status of trailers should be undertaken so that state and federal agents at the border and elsewhere can target potentially unsafe equipment for inspection. This action must be accompanied by an intensification of commercial vehicle safety examinations. The collection and integration of trailer safety information into a database format that is accessible to U.S. and Mexican authorities is needed to establish baseline data for effective deployment of inspection targeting systems.

In some cases, binational driver and vehicle database deficiencies are due to data availability and accessibility issues. Pockets of information that may be of value to more than one agency are sometimes isolated by antiquated or incompatible information systems. Poor information integration is also the result of inefficient administration or institutional problems.

Data pertaining to the registration of Mexican intrastate and “border-crossing” tractors is not electronically available to U.S. agencies. In order to properly screen these trucks at the border, U.S. authorities require access to all registration databases maintained by Mexican state and federal governments. Connectivity to the “border-crossing” registration information is essential given the planned expansion of this truck registration category in Mexico.

Tractor safety information gaps were also identified by the study team. Detailed tractor safety information is available only for U.S. and Mexican units that have undergone North American Standard inspections. This currently amounts to only a fraction of the tractors engaged in transborder operations. The population of commercial vehicle databases with a greater volume of U.S. and Mexican tractor safety information is required to develop an accurate safety profile of cross-border safety movements. To reap the full benefit of U.S.-administered tractor safety and registration information, database access by Mexican authorities must also be enabled.

The identity of commercial drivers that cross the border is not electronically archived or tracked. Lack of accessibility to this information creates potential border security vulnerabilities and weakens enforcement of driver work schedule regulations. An electronic link to records that indicate exactly when and where Mexican and U.S. commercial drivers cross the border would strengthen border security and provide a means for safety authorities to more precisely target potentially overworked and unsafe truckers for inspection.

The final area in which increased accessibility to information would facilitate border processing activities is driver certification. Presently, there is limited communication or sharing of driver certification information among the myriad programs developed to collect this data. Given the public and private sector resources invested in driver certification programs and their growing importance in border initiatives, increased emphasis must be placed on inter-program and binational data sharing in this area. Voluntarily provided trucker background and security information obtained through industry partnership programs should be archived in a single database that is accessible to relevant border authorities in the United States and Mexico.

These strategies will enable the development of binational driver and vehicle databases that accelerate the processing of safe, legitimate trade, while establishing increasingly impermeable barriers to dangerous or illegal cross-border movements. The following table provides a summary of the findings and recommendations presented in this report.

Recommendations for Addressing Trailer, Tractor and Driver Data Deficiencies

Category	Deficiency	Agencies	Proposed Identifiers	Recommendation
Trailer	<ul style="list-style-type: none"> Lack of U.S. and Mexican trailer safety and inspection database 	FMCSA, State DOTs, DPS, SCT	RFID, Trailer plate number and issuing jurisdiction, Trailer VIN	<ul style="list-style-type: none"> Increase CVSA Level 1 examinations and integrate trailer safety information into MCMIS. Enable access by Mexican authorities through issuance of Query Central internet access authorization.
Tractor	<ul style="list-style-type: none"> Lack of U.S. access to Mexican intrastate and "border-crossing" tractor registration information 	SCT, Mexican Border States, FMCSA	RFID, Power unit plate number and issuing jurisdiction	<ul style="list-style-type: none"> Enable U.S. access to Mexican "border-crossing" and intrastate tractor registration databases through link to Query Central
	<ul style="list-style-type: none"> Scarcity of Mexican and U.S. tractor safety data and lack of Mexican access to information 	FMCSA, State DOTs, DPS, SCT	RFID, Power unit plate number and issuing jurisdiction, VIN	<ul style="list-style-type: none"> Increase CVSA Level 1 examinations to populate SAFER system with baseline information on power units engaged in transborder operations
	<ul style="list-style-type: none"> Lack of Mexican access to U.S.-administered tractor registration and safety information 	FMCSA, SCT	RFID, Power unit plate number and issuing jurisdiction, VIN	<ul style="list-style-type: none"> Enable Mexican access to U.S.-administered tractor registration, safety and inspection information through issuance of Query Central internet access authorization
Driver	<ul style="list-style-type: none"> Lack of electronically accessible U.S. and Mexican driver border-crossing records 	DHS, CBP, FMCSA, SCT (possible future)	Biometrics, CDL number & issuing jurisdiction, Passport number, B-1/B-2 Visa, Laser Card	<ul style="list-style-type: none"> Modify proposed U.S. VISIT system to track Mexican and U.S. trucker border-crossing information. Provide access to FMCSA and SCT (future).
	<ul style="list-style-type: none"> Lack of inter-program and binational information sharing with respect to certified drivers 	CBP, FMCSA, Mexican Customs (possible future)	Biometrics, CDL number and issuing jurisdiction	<ul style="list-style-type: none"> Consolidate driver certification programs and databases under CBP. Harmonize biometric identifiers with trucker border-crossing system and link information to Query Central.

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GLOSSARY OF ACRONYMS

ACE	Automated Commercial Environment
APHIS	Animal and Plant Health Inspection Service
ARIS	Accident Reporting Information System (Mexico)
ATA	American Trucking Association
BASC	Business Anti-Smuggling Coalition
BRASS	Border Release Advanced Screening and Selectivity
BSIF	Border Safety Inspection Facility
CBP	Bureau of Customs and Border Protection
CDL	Commercial Driver's License
CDLIS	Commercial Driver License Information System
CVAIS	Carrier and Vehicle Authorization Information System
CVIEW	Commercial Vehicle Information Exchange Window
CVISN	Commercial Vehicle Information Systems and Networks
CVSA	Commercial Vehicle Safety Alliance
DHS	Department of Homeland Security
DPS	Department of Public Safety
DSRC	Dedicated Short Range Communication
FAST	Free And Secure Trade
FASTEP	Free And Secure Trade – Expedited Processing
FDA	Food and Drug Administration
FMCSA	Federal Motor Carrier Safety Administration
IFTA	International Fuel Tax Agreement
INIS	Infraction Information System (Mexico)
INS	Immigration and Naturalization Service
IRP	International Registration Plan
ISS	Inspection Selection System
ITDS	International Trade Data System
LBCIP	Land Border Carrier Initiative Program
L&I	Licensing & Insurance system
LIFIS	Licencia Federal Information System
MCMIS	Motor Carrier Management Information System
NAFTA	North American Free Trade Agreement
NCAP	National Customs Automated Prototype
PRISM	Performance and Registration Information Systems Management
RFID	Radio Frequency Identification
SAFER	Safety and Fitness Electronic Records
SCAC	Standard Carrier Alpha Code
SCT	Secretaría de Comunicaciones y Transporte (Mexican Transport Ministry)
SHCP	Secretaría de Hacienda y Crédito Público (Mexican Treasury)
USCS	United States Customs Service
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
U.S. VISIT	United States Visitor and Immigrant Status Indication Technology
VIN	Vehicle Identification Number

CHAPTER 1: INTRODUCTION

The implementation of a comprehensive transportation and trade information system at the U.S.-Mexico border will confer benefits upon public and private sector stakeholders in both countries. Motor carriers, shippers, consignees, customs brokers and other members of the trade community stand to profit from expedited border processing. At the same time, greater public sector access to information and the development of faster, more comprehensive data systems will enable inspection and enforcement agencies to increase their productivity and ensure greater industry compliance.

Traditionally, the trade and transportation databases utilized by border agencies have been cumbersome and fragmented. A single shipment moving from Mexico to the United States still may necessitate duplicative data submissions to public agencies that do not communicate with one another. Firms involved in cross-border trade may also be subject to burdensome paper-based information reporting and record keeping requirements.

The prospect of a seamless, no-stop border-crossing process for legitimate and compliant trade still appears years away. However, progress toward achieving this goal is being made.

Transportation and trade initiatives have introduced an array of new possibilities for improving information flows and operations at land ports of entry. The concepts of trade facilitation and border security, which were once considered irreconcilable, are increasingly being viewed as interconnected challenges that can both be met through technological innovation, access to information and greater stakeholder coordination.

In recent decades, the push for greater border efficiency has been spurred by economic interests. Mexican and U.S. trade partners have pressured their governments to improve the reliability and consistency of the border-crossing processes in order to reduce the costs of operating international supply chains. Border gridlock brought about by greater North American economic integration and the rise of maquiladora manufacturing and assembly, obliged public and private sector stakeholders to seek alternatives to the status quo trade systems and procedures.

The events of September 11, 2001 and the ensuing border disruptions highlighted the shortcomings of a disjointed binational border system. It also signaled a new approach to U.S. national security organization, interests and trade facilitation objectives. Increased focus on unknown security risks combined with a growing realization of the economic implications of trade disruptions, has helped to stimulate and catalyze change at the border. A principal component of this change will be enhanced accessibility to information.

The ultimate success of the information systems and technologies deployed at the border is dependent on their ability to deliver comprehensive and accurate information to authorized parties in a timely fashion. Much of this information will be sourced from existing databases that are planned for integration into broader frameworks. The persistence of information gaps and stakeholder disconnects underscores the need for a review of existing information and an assessment of outstanding data collection and integration needs. This report focuses on two of the most critical data elements in the border-crossing system, commercial driver and vehicle information. The scope of the research was defined by these elements due to their vital role in U.S.-Mexico commerce and their influence in determining the seamlessness and integrity of cross-border operations.

Research Objective and Organization

The objective of this research was to identify potentially valuable commercial driver and vehicle information components not currently available or accessible to border stakeholders, and propose how they might be integrated into transportation and trade databases and information systems. The four-step approach adopted to achieve this goal is illustrated in Figure 1-1.

The initial phase of the project (Figure 1-1, point 1) entailed a thorough review of information on binational transportation-related databases and information systems employed by public agencies at the United States' southern border. Published information was cross referenced with information obtained directly from key U.S. and Mexican border stakeholders via in-person and telephone interviews and email correspondence. This process enhanced the accuracy of the

report with respect to the many information systems and programs in existence or under development.

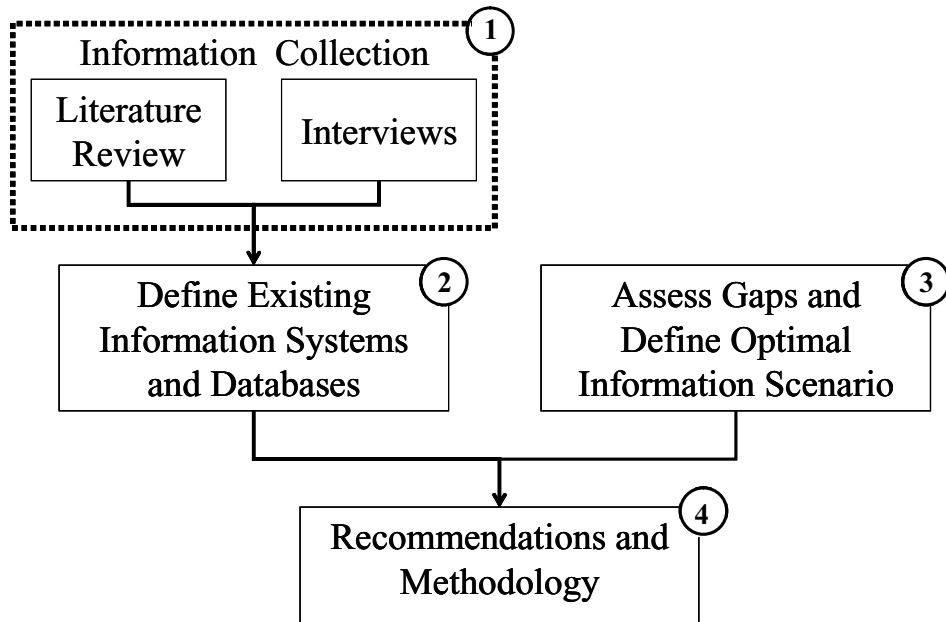


Figure 1-1. Organization of Research

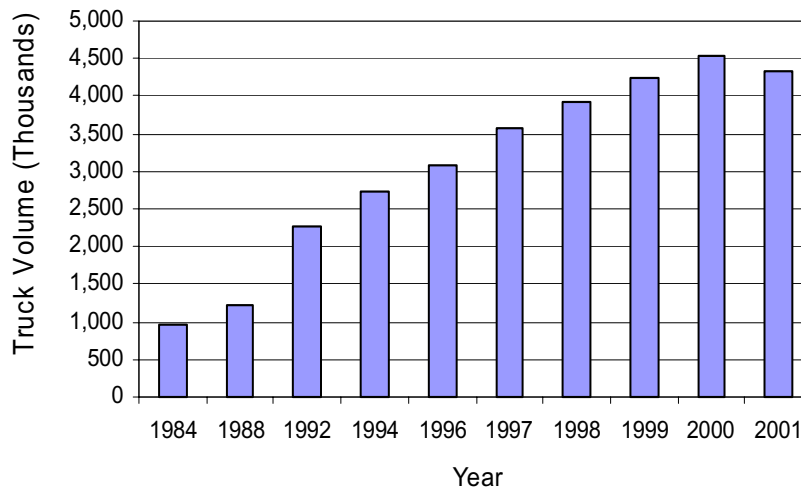
Based on the information obtained in phase one, researchers prepared an inventory of these systems and programs (Figure 1-1, point 2). In order to facilitate the reader’s comprehension of existing and planned information systems in the context of United States-Mexico truck-borne trade, a summary of the northbound border-crossing process and ongoing NAFTA trucking dispute was also provided.

The study team then assessed commercial driver and vehicle information gaps and disconnects adversely affecting border transportation safety, security and trade facilitation. Improvements to existing information sets were examined and the need for generating additional information was assessed (Figure 1-1, point 3). The gap analysis conducted in this phase focused on deficiencies that could preclude the safe, secure and efficient movement of commerce across the U.S.-Mexico border.

The final phase of the project (Figure 1-1, point 4) involved the development of a concise set of recommendations regarding actions required to address commercial driver and vehicle information shortfalls. The source of the information and strategy for integrating it into existing or planned frameworks were defined.

CHAPTER 2: OVERVIEW OF MEXICO-U.S. TRUCKING

The truck mode is the most important means of transporting U.S.-Mexico trade. During the late 1990s, motor carriers moved between two-thirds and three-quarters of this trade by valueⁱ. A surge in U.S.-Mexico merchandise flows over the past two decades has generated a fourfold increase in commercial truck traffic across the United States' southern border during that period (see Figure 2-1).



Source: Bureau of Customs and Border Protection, 2002

Figure 2-1. Growth in Northbound Commercial Truck Crossings from Mexico

Rapid expansion of north-south trade has stimulated the development of new systems and procedures to ensure the safe, secure and efficient transit of people, vehicles and goods into the United States. Among the chief concerns voiced by U.S. authorities with respect to the burgeoning of trade brought about by NAFTA, was cross-border trucking. U.S. officials expressed trepidation about the safety of Mexican trucks, the standardization of regulations governing their condition and operation, and enforcement of those regulations. These concerns provided much of the impetus for developing motor carrier information systems that enable regulatory and enforcement agencies to more efficiently collect and share commercial driver and vehicle data.

This chapter provides a backdrop to the ongoing efforts to accomplish this objective. It begins with a brief overview of the northbound border-crossing process for truck-borne trade between Mexico and the United States. The motor carrier safety and data issues that have contributed to the postponed implementation of NAFTA's trucking provisions are subsequently considered. The chapter concludes with a synopsis of the key trucking information priorities identified in the most recent U.S.-Mexico border accord.

Northbound Border-Crossing Process

A shipment originating in central Mexico may require processing, handling and documentation by a dozen or more entities before it reaches its final destination in the United States. A brief review of the most common crossing pattern sensitizes the reader to the complexities of truck movements through land ports of entry on the southern border and highlights public-agency needs for more seamless access to binational driver and vehicle information. Although the research presented here focuses on binational transportation information required by U.S. public agencies, most of the requirements are sufficiently comprehensive to satisfy the needs of regulatory agencies on either side of the border. In some cases, the agencies listed below have been incorporated into various bureaus of the Department of Homeland Security (DHS).

The northbound border-crossing process for truck-borne trade is comprised of a variety of concurrent and consecutive tasks that can be classified into two groups: the physical movement of conveyances, goods and documentation; and the electronic transfer of information about the movement (see Figure 2-2).

The Mexican shipper is the exporting firm that initiates the cross-border movement. Shippers are typically responsible for arranging transportation and brokerage services in Mexico, loading the trailer, and providing the commercial invoice and other shipment information to the Mexican trucking firm and customs brokers. Most trucks hauling shipments from the interior of Mexico to the border do not actually cross the international boundary, but deliver loaded trailers to a custom broker's trailer yard within the Mexican border zone.

Once the drayage driver has secured the required documentation, he proceeds north into the Mexican export customs compound. The Administración General de Aduana (Mexican Customs) branch of the Secretaría de Hacienda y Crédito Público (SHCP - Mexican Treasury) is the agency in charge of inspecting commercial freight that enters or leaves Mexico. Unlike U.S. Customs, Mexican Customs conducts occasional inspections of outbound freight prior to its export for audit and interdiction purposes. When a shipment arrives at the Mexican export customs compound, the driver submits the Export Pedimento to an officer and the shipment is subject to a random selection mechanism that determines whether the cargo must undergo an inspection. Shipments that are selected undergo revision, those that are not proceed to the exit gate, cross the border, and continue on to the U.S. port of entry.

The first stop at the U.S. port of entry is the primary inspection booth. Upon arrival, the driver of the truck presents identification (proof of citizenship or a valid visa or laser card) and a copy of the Inward Cargo Manifest and commercial invoice to the processing agent. Basic information about the driver, vehicle and load is cross-checked via a computer terminal with information sent previously by the U.S. customs broker. A decision is then made to refer the truck, driver or load for a more detailed secondary inspection on any or all of these elements or release the movement to the exit gate. For the purposes of this study, a secondary inspection refers to any inspection that the driver, freight or conveyance undergoes between the primary inspection and the exit gate of the U.S. port of entry.

U.S. northbound secondary inspections within the General Services Administration compound are typically conducted by the Bureau of Customs and Border Protection (CBP). Formation of the Department of Homeland Security in 2003 resulted in the amalgamation of several former agencies into the CBP. These included: the U.S. Customs Service (USCS), the Immigration and Naturalization Service (INS), and the Animal and Plant Health Inspection Service (APHIS) arm of the U.S. Department of Agriculture (USDA). In September 2003, the DHS announced a new initiative called “One Face at the Border”. This program will unify the CBP’s customs, immigration and agriculture interview processes at the primary booth through the cross training of inspectorsⁱⁱ. The new inspection regime is scheduled to be implemented at U.S. ports of entry beginning in January 2004. Secondary inspections carried out within the port of entry will

continue to be conducted by specialized DHS agents and inspectors employed by other entities such as the U.S. Department of Transportation (USDOT), the Food and Drug Administration (FDA) and others.

With the exception of driver and vehicle safety inspections conducted at Otay Mesa and Calexico, California (where permanent dedicated commercial vehicle inspection facilities have existed for years), most driver and vehicle safety inspections have historically been conducted at designated areas within U.S. ports of entry. These inspections have entailed DOT agents interviewing drivers and inspecting conveyances between the primary inspection booth and the exit gate of the compound. At larger ports of entry along the United States' southern border, this process has changed in recent years.

Many DOT safety agents now work at dedicated state commercial vehicle inspection facilities located adjacent to or immediately following U.S. ports of entry. Driver license credentials, hours of service logs, and the fitness of tractors and trailers may be inspected at these facilities. The inspection selection process is based on the condition of the vehicle, the carrier's safety history, and the date of the tractor's last Commercial Vehicle Safety Alliance (CVSA) inspection. Some information concerning driver credentials and vehicle and carrier safety history is now available to inspectors via online databases maintained by various U.S. and Mexican authorities, however, data gaps remain.

Once released from the U.S. port of entry and state DOT facility, the driver and vehicle proceed to the shipment's destination in the U.S. border zone. Loads that are destined for the U.S. interior are typically transferred from the drayage carrier to a U.S. long-haul carrier at a trailer yard close to the border (U.S. Commercial Zone). At any point in the United States, a Mexican or U.S. truck may be stopped by federal, state or local authorities for roadside weight and/or safety inspections.

Despite advances in the collection and dissemination of trade and transportation information, the U.S.-Mexico commercial border-crossing process remains highly dependent on manual procedures and paper transactions. This results in unnecessary delays and congestion in

international supply chains and inefficient inspection selection techniques. The signing of NAFTA in 1994 prompted significant growth in U.S.-Mexico trucking and focused increased attention on these issues.

NAFTA and Cross-Border Trucking

The need for binational commercial driver and vehicle information stems in part from the planned liberalization of U.S.-Mexico cross-border trucking regulations. Prior to the negotiation of NAFTA in the early 1990s, motor carriers from Mexico and the United States were restricted from operating deep into one another's territory. Heavy trucks could not travel beyond a narrow commercial zone extending 3-20 miles into the foreign country. NAFTA's original trucking provisions were designed to improve transportation efficiency by removing the regulatory barriers that precluded more seamless cross-border trucking operations such as those between the United States and Canada. Restrictions on trucking between the NAFTA's southernmost signatories were to be phased out beginning in December 1995. By 2000, reciprocal nation-wide trucking access was scheduled to be authorized. This timetable was postponed by U.S. Congress in 1995 when it upheld a moratorium on direct long-haul trucking from Mexico to the United States.

The U.S. administration argued that Mexico's truck safety regulation regime could not adequately ensure the safety of its commercial drivers and carriers. It asserted that less stringent safety regulations and enforcement practices in Mexico posed a safety risk to the U.S. public that justified delay of the scheduled opening of the border. Continuation of the U.S.-imposed moratorium in subsequent years eventually led the government of Mexico formally requesting that a NAFTA arbitration panel rule on the matter.

In February 2001, the group unanimously concluded that Mexico's less rigorous truck safety inspection system was inadequate justification for the United States' blanket refusal to allow Mexican carriers to operate beyond U.S. commercial zones. However, it also declared that a more comprehensive application process for Mexican carriers applying to operate in the U.S. was acceptable in light of disparate U.S. and Mexican truck laws, regulations and procedures.

In 2001, a newly-elected U.S. administration vowed to comply with the panel's findings. Its proposed action plan called for the creation of separate application processes for Mexican motor carriers seeking to continue operating in the U.S. commercial zone and those seeking operating authority beyond the U.S. commercial zone. Additionally, it mandated the development of an enhanced safety monitoring system and enforcement regime to ensure that Mexican carriers operating anywhere in the U.S. would be in compliance with local laws and regulations. These recommendations were intended to prepare U.S. agencies for the President's goal of opening the border to qualified Mexican carriers by January 2002.

However, U.S. border states and Department of Transportation officials expressed reservations with respect to the timeline of the planned opening of the border and resources necessary to ensure that adequate regulations, human capital, physical infrastructure, information systems and enforcement capabilities would be in place achieve the proposed objectives. Readiness assessments conducted by the U.S. DOT Inspector General and other public entities confirmed several deficiencies in the United States' preparedness in the abovementioned areas. Among these was a lack of easy, direct access to binational driver and vehicle safety information on the part of border inspectorsⁱⁱⁱ.

These and other safety issues preventing the opening of the U.S.–Mexico border to long-haul trucking were acknowledged in the U.S. government's Fiscal Year 2002 Transportation and Related Agencies Appropriations Act. The Act, which allocated over \$140 million to border safety preparedness and operations, imposed 22 separate safety conditions on the opening the border^{iv}. State and Federal governments were obliged to implement these changes prior to processing any U.S. operating authority applications filed by Mexican carriers.

Safety prerequisites involving driver, vehicle and carrier information focused on the areas of commercial driver's licenses, carrier insurance, vehicle registrations, and carrier operating authority. Overall, access to information about the carrier (and to a lesser degree, the driver) was emphasized over data concerning individual vehicles. The DOT Inspector General, working in conjunction with the Federal Motor Carrier Safety Administration (FMCSA), was called upon to

certify that federal and state inspectors situated at U.S.-Mexico commercial border crossings and mobile enforcement stations had electronic access to required information. The Inspector General was also charged with determining whether driver and motor carrier information in Mexican databases was accurate and adequately integrated with U.S. information systems to ensure the safety of Mexican commercial vehicles entering the United States.

In June 2002, the Inspector General reported that Mexican driver and carrier information was sufficiently accurate, accessible and integrated with U.S. systems to safely open the border. This determination was based, in part, on visits to U.S. commercial ports of entry, where on-site trials were conducted. Inspectors at some border crossings were unable to verify certain information, but this was attributed to a temporary lack of authorization or connectivity to proper telecommunications links. These problems were later rectified. A safety monitoring system for Mexican drivers and carriers was also implemented to allow U.S. inspectors to track, monitor and withdraw the driving privileges of Mexican truckers committing U.S. disqualifying offenses.

By late 2002, electronic access to basic commercial driver and vehicle information by border enforcement agencies in the U.S. had improved and other required safety enhancements were underway. This led the U.S. administration to officially modify the moratorium on Mexican trucking beyond the U.S. commercial zone on November 27, 2002. Shortly thereafter, the FMCSA began to process Mexican motor carrier applications for provisional operating authority in the United States. At the time, 130 Mexico-domiciled carriers had applied to the FMCSA for OP-1 authority (authorization to operate in the United States beyond the commercial zone) and 854 Mexican carriers had applied for OP-2 authority (authorization to continue operating within the U.S. commercial zone). According to the DOT, 459 of the OP-2 applicants had been granted provisional authority to operate in the U.S. commercial zone^v. Successful OP-1 applicants were required to undergo safety audits prior to being granted provisional authority to operate in the United States beyond the U.S. commercial zone.

However, plans to open the border have since encountered legal challenges by the Teamster's Union, the California Trucking Association, Rail worker unions and other organizations that oppose liberalized cross-border trucking. These groups contend that the U.S. government did not

conduct an adequate environmental review to properly assess the impact of their decision on U.S. air quality. In January 2003, a Federal Appeals Court ruled that the U.S. government's decision to allow direct U.S.-Mexico trucking was arbitrary, capricious and disregarded established environmental laws. The ruling required further environmental reviews to be undertaken prior to implementation of cross-border trucking between the United States and Mexico. The DOT's Office of the Inspector General subsequent appeal of this ruling was rejected by the U.S. 9th Circuit Court of Appeals^{vi}. After initially agreeing to undertake a \$1.8 million, 12-18-month environmental assessment of the impacts of opening the southern border to long-haul trucking, the government appealed the order U.S. Supreme Court^{vii}.

If the appeal fails, the opening of the border could be delayed until 2005 or later. Regardless of the short-term resolution of the case, implementation of NAFTA's trucking provisions appears inevitable. Seamless large-scale international trucking between Mexico and the United States will likely develop slowly over many years. In addition to environmental reviews, lengthy carrier application procedures, and safety audits, there are many non-regulatory barriers to U.S. market penetration by Mexican trucking firms. These include a shortage of investment capital, high insurance costs, lack of established U.S. sales presence and maintenance/repair contracts, existing service contracts with U.S. carriers, and driver language difficulties^{viii}. These will likely impede the large-scale participation of Mexican motor carriers in the U.S. international long-haul market for several years.

This delay presents an opportunity for the U.S. and Mexican governments to address data and information shortcomings that preclude more efficient border-crossing operations and more effective commercial driver and vehicle regulation and enforcement. If they are not addressed, these limitations will likely exacerbate future supply chain bottlenecks and increase safety and security vulnerabilities at the southern border and beyond. U.S. and Mexican authorities recognized this and in March 2002 embarked on a 22-point border action plan. The plan is designed to simultaneously improve security and the flow of trade and people across the border. The key transportation-related objectives of this accord were to establish^{ix}:

- Compatible databases for exchanging information and sharing intelligence
- Public/Private sector cooperation to increase security, compliance and expedite clearance
- Electronic exchange of information for quicker more efficient border operations
- Secure in-transit shipments through use of tracking mechanisms
- Technology sharing for the deployment of shipment monitoring devices

The following chapter examines existing and potential sources of commercial driver and vehicle information. Ongoing efforts to integrate them into a single, easily-accessible information exchange system that satisfies the objectives of the 22-point border plan are described and assessed.

CHAPTER 3: INVENTORY OF EXISTING AND PROPOSED COMMERCIAL DRIVER AND VEHICLE INFORMATION

Advances in technology in recent decades have greatly facilitated the collection and exchange of transportation and trade information. These improvements have allowed quicker and more comprehensive safety and security assessments to be undertaken by authorities at ports of entry and elsewhere. The integrity and speed of the border-crossing process is largely dependent on the availability and accessibility of a myriad of driver and vehicle data.

This chapter begins with a review of the information collection process undertaken by the researchers to establish an understanding of current and proposed data collection scenarios. An account of the key U.S. and Mexican public sector stakeholders involved in the collection, screening and processing of data at the border is subsequently provided. The array of information-based industry partnership programs that have been spearheaded by the public sector in recent years is then examined. This is followed by a detailed assessment of the most comprehensive motor carrier information system devised to date, Query Central. Finally, an overview of the ITDS-ACE data integration initiative is offered. The chapter concludes with a concise summary of all existing and proposed carrier, tractor, trailer and driver information elements.

Information Collection

Literature Review

The information collection task undertaken in this study served various objectives. First, it enabled the study team to develop an inventory of existing and proposed driver and vehicle databases and information systems and programs. Dozens of reports, articles, briefings and presentations were examined by the research team for this purpose. Due the rapid pace of technological change at the border and continual advances in international trade processes and regulations, researchers focused their review on recent documents and consulted sources on an

ongoing basis throughout the study. A complete listing of the documents reviewed is presented in the bibliography.

Stakeholder Interviews

The second phase of the information collection task entailed telephone interviews with stakeholders regarding the structure and functionality of commercial driver and vehicle information systems used in the United States and Mexico. An analysis was conducted of border-wide information systems, as well as those implemented at select crossings, in pilot projects, and as part of other port-specific initiatives.

Information gathered via telephone interviews was supplemented by email correspondence and a limited number of in-person interviews. Input was received from personnel employed in a wide variety of agencies that use, administer or maintain commercial driver and vehicle information systems, including: United States Department of Transportation, Federal Motor Carrier Safety Administration, Bureau of Customs and Border Protection, Arizona Motor Vehicle Department, Arizona Department of Public Safety, Texas Department of Public Safety and the Mexican Transport Ministry. Interviewee responses allowed researchers to verify information obtained from print media and identify data deficiencies and gaps.

Key Public Sector Stakeholders at the Border

A variety of public sector agencies require border-related commercial driver and vehicle information to carry out their duties. Historically, much of this information has been fragmented, available only in hard copy format or to employees of specific agencies via stand-alone databases. In some instances, potentially useful information is non-existent. The challenge of collecting and electronically consolidating and disseminating a comprehensive set of driver and vehicle data for enforcement and regulatory purposes has been complicated by the lack of coordination among stakeholders and the diversity of the U.S and Mexican agencies whose activities involve the motor carrier industry.

On March 1, 2003, several U.S. agencies with responsibilities at the border were transferred to the Directorate of Border and Transportation Security in the Department of Homeland Security. The principal stakeholders affected by this reorganization were the U.S. Customs Service (USCS - Department of Treasury), Immigration and Naturalization Service (INS - Department of Justice) and the Animal and Plant Health Inspection Service (APHIS - Department of Agriculture). Most border inspection and processing functions of these organizations were consolidated under the Bureau of Customs and Border Protection (CBP), while intelligence and investigative responsibilities became the domain of the Bureau of Immigration and Customs Enforcement (ICE). As a result of this reorganization, the key stakeholders that collect and/or screen commercial driver and vehicle information at the southern border now include:

- Bureau of Customs and Border Protection
- U.S. Federal Motor Carrier Safety Administration
- U.S. State Departments of Transportation
- U.S. State Departments of Public Safety (DPS)
- Mexican Transport Ministry (SCT)
- Mexican Customs

A brief overview of the roles and objectives of these agencies as they pertain to the border-crossing process is provided below.

Bureau of Customs and Border Protection

The Bureau of Customs and Border Protection regulates trade originating in or destined for the United States. The core objectives of its component agencies were to ensure that the people, goods and services entering and exiting the country comply with U.S. laws, and that applicable duties and taxes are paid. Since reorganization under the Department of Homeland Security, the organization's principal directive has been to prevent terrorists and terrorist weapons from entering the United States. Information about commercial shipments and the conveyances on which they are transported is critical to the fulfillment of CBP's mission. The CBP is also responsible for controlling the entry of visitors and immigrants into the country, preventing their

unlawful employment, and administering U.S. immigration laws. Activities involving the verification of the identity of truck drivers engaged in transborder freight service and determination of the validity of their U.S. immigration or employment documentation are central to this role. The DHS' newly announced "One Face at the Border" initiative transfers basic customs, immigration and agriculture processing responsibilities that were previously handled by three specialized agents to a single cross-trained trained inspector stationed at the primary booth.

Federal Motor Carrier Safety Administration

The United States Department of Transportation encompasses over a dozen organizations that oversee all modes of transportation. Of these, the one most intimately involved in the procurement and screening of commercial driver and vehicle information at land ports of entry is the Federal Motor Carrier Safety Administration (FMCSA). The FMCSA was created in January 2000 to prevent injuries and fatalities due to commercial vehicle accidents. This has been accomplished through the issuance, administration, and enforcement of motor carrier safety regulations that bind all inter-jurisdictional carriers operating in the United States (including Mexican drayage and long-haul carriers that cross the border into the U.S. commercial zone).

The FMCSA's responsibilities are carried out on several fronts. Safety inspections are conducted at land border ports and elsewhere to collect and review commercial driver and vehicle safety data and take necessary enforcement action. Follow-up carrier compliance audits and investigations are also conducted by FMCSA personnel. On-site audits of Mexican carriers have been cited by the agency as a prerequisite to the opening of the border, though these have not yet occurred. These activities, combined with the FMCSA's role in the development of North American commercial vehicle operating standards and inspection regimes have contributed to the use of increasingly comprehensive information systems at commercial border crossings.

State Departments of Transportation

Individual State Departments of Transportation develop policy and administer regulations concerning commercial vehicle safety and operations within their jurisdictions. Since late 2001,

when the U.S. federal government announced its intention to liberalize cross-border trucking between the United States and Mexico, the four southwest border states (California, Arizona, New Mexico and Texas) have received federal funding to construct state truck inspection facilities at major international border crossings in their jurisdictions. A key component of this plan is enhanced accessibility to commercial driver and vehicle databases.

State Departments of Public Safety

At some land ports of entry in Texas, New Mexico and Arizona, Department of Public Safety personnel work alongside federal DOT agents conducting commercial driver and vehicle safety inspections. As a result of stepped-up safety requirements and space constraints at the busiest ports of entry, Texas, New Mexico and Arizona have constructed temporary Border Safety Inspection Facilities (BSIF) for the screening of trucks immediately after they leave the main border compound. Eight commercial border crossings in Texas have been designated for these facilities. They are the Bridge of the Americas and Zaragoza/Ysleta International Bridge in El Paso, World Trade and Colombia Solidarity International Bridges in Laredo, Eagle Pass International Bridge, Pharr-Reynosa International Bridge, Free Trade International Bridge in Los Indios, and the Veterans International Bridge at Los Tomates in Brownsville. The Nogales, Arizona and Santa Teresa, New Mexico gateways have also received funding for the construction of BSIFs. In California, the California Highway Patrol carries out truck and driver inspection activities at permanent facilities connected to the state's two major commercial border crossings, Otay Mesa and Calexico. Regardless of whether inspections are conducted at permanent or temporary facilities, the state and federal agents working at them must be able to access and update commercial drivers and vehicle safety information.

Mexican Ministry of Transport

The Mexican Ministry of Transport (SCT) is the USDOT's counterpart in Mexico. While the scope and breadth of its duties and responsibilities is similarly broad, Mexican driver and vehicle safety inspections are not as rigorous or as frequent as those conducted in the United States. The SCT's national trucking division (Dirección General de Autotransporte Federal) collects a

variety of commercial carrier, vehicle and driver information from Mexican trucking firms and owner operators. Some basic elements of these databases are electronically shared with the FMCSA, but communication links function sporadically, making certain information temporarily inaccessible to U.S. agents at field border stations. Expanded access to Mexican data is particularly important given the lack of alternative sources of information about many of the drivers, carriers and vehicles crossing the border, and the reliance of U.S. inspection targeting systems on it. Likewise, Mexican agency access to information systems maintained by U.S. public sector stakeholders is becoming increasingly important.

Mexican Customs

Mexican Customs inspects and regulates the movement of merchandise at land border crossings to ensure that they meet Mexico's trade laws and regulations. In addition to collecting outstanding duties on imports and exports and intercepting contraband, Mexican Customs (through the Treasury) monitors the movement of U.S. commercial trailers and chassis in Mexico. This equipment carries the bulk of two-way surface trade between the countries and is subject to additional duties if imported into Mexico permanently.

The screening of commercial driver and vehicle information has become an increasingly important task for a number of U.S. and Mexican public sector agencies. Ensuring that this activity is comprehensive, streamlined and coordinated is a significant challenge. Over the past several years, various initiatives and programs have been introduced to achieve this goal. Although not all focus exclusively on driver and vehicle information, they illustrate the importance of these elements, the degree of program overlap, and the potential for incorporating common driver and vehicle data into broader trade and transportation information systems.

Industry Partnership Programs

The U.S. Customs Service and the USDOT have led the way in the development of commercial driver and vehicle initiatives at the border. These initiatives are characterized by cooperation between industry (shippers, consignees, carriers, customs brokers and other private sector supply

chain partners) and government. Programs are typically voluntary and frequently involved large stakeholders whose activities are bound together by international supply chains. The more prominent industry partnership programs that have emerged in recent years include:

- National Customs Automated Prototype (NCAP)
- Border Release Advanced Screening and Selectivity (BRASS) program
- Land Border Carrier Initiative Program (LBCIP)
- Business Anti-Smuggling Coalition (BASC)
- Customs Trade Partnership Against Terrorism (C-TPAT) and
- Free And Secure Trade (FAST) initiative

The recruitment of large industry partners such as auto makers is a trademark of most industry partnership programs. These stakeholders are targeted because of the cargo volumes they generate or handle and their ability to induce enrollment on the part of other supply chain interests that transport or document their transborder shipments. Reduced paperwork, expedited processing and other advantages help generate interest in participation. However, onerous prerequisites and conditions often result in net program benefits accruing primarily to large stakeholders.

National Customs Automated Prototype (NCAP)

The National Customs Automated Prototype was a recent Customs-sponsored initiative involving shipment and conveyance information. Launched in 1998, NCAP was designed to speed the flow of low-risk movements through commercial ports of entry by way of enhanced data collection and streamlined electronic processing at the border. The system relied on pre-registered data elements, document bar codes and hand-held scanners that enabled U.S. Customs personnel to verify and clear shipments in seconds rather than minutes or hours. Driver and vehicle data submitted through NCAP was limited to information contained on the commercial invoice, entry summary and manifest. This included:

- Mode of transportation/carrier

- Power unit license plate number
- Driver name
- Trailer or container number

NCAP did achieve many of its technical and operational goals, but industry participation was limited primarily to large auto manufacturers with the financial means, supply chain control and freight volumes to justify the resources necessary to automate their internal systems and electronically gather and convey the required information to the public sector. In 2002, NCAP was merged into two ongoing Customs initiatives, C-TPAT and FAST, which are examined below.

Border Release Advanced Screening and Selectivity (BRASS)

The Border Release Advanced Screening and Selectivity program (formerly referred to as Line Release) is another voluntary U.S. Customs initiative that was established in the 1990s to improve the flow of repetitive shipments across the border by leveraging information. Like NCAP, BRASS incorporates bar code technology to improve the speed and accuracy of data transfer. Freight movements generated by low-risk, high-volume shippers are prescreened and allowed to quickly pass through border facilities, thereby freeing up inspection resources for shipments involving unknown entities or those with a history of non compliance. Unique bar codes attached to documentation allow quicker processing of certified movements and a reduction of overall delays and congestion at border crossings. Although the BRASS program focuses on shipper data rather than commercial driver or vehicle information, a certified carrier must transport BRASS goods in order for them to qualify for expedited processing. Since the introduction of the more comprehensive C-TPAT program in December 2002, promotion of BRASS has declined.

Land Border Carrier Initiative Program (LBCIP).

In order for BRASS shipments to reap the benefits of expedited processing, they must be hauled by carriers enrolled in the Land Border Carrier Initiative Program. Established by U.S. Customs

in 1994, the LBCIP was designed to prevent the use of commercial conveyances as a means of narcotics smuggling. LBCIP certification is directed at various aspects of trucking operations and management, including personnel, procedures and facilities. LBCIP enrollees are obliged to address identified security vulnerabilities and implement additional measures to prevent their employees from engaging in or becoming victimized by drug trafficking. In addition to possible infrastructure enhancements and procedural adjustments, LBCIP certification requires a carrier to conduct mandatory employee background checks. Customs instructs trucking firms on how to undertake personnel security reviews and maintains a database of certified LBCIP carriers, drivers and employees. Because the program is voluntary, Customs is able to assemble and archive more detailed data on LBCIP enrollees than is possible under mandatory compliance programs. Archived LBCIP driver data elements include:

- Carrier
- Driver name
- Home address of driver
- Employment record of driver
- Driver movement history

LBCIP drivers and carriers that are found to be in compliance with program regulations may be treated more leniently by authorities in the event a third party is found to have planted narcotics on their conveyance without their knowledge. According to the CBP's Industry Partnership Program website, 825 carriers are currently enrolled in the LBCIP^x.

Business Anti-Smuggling Coalition (BASC)

The Business Anti-Smuggling Coalition is an industry-led initiative that was founded in 1996 by the private sector. The objective of BASC is to prevent legitimate international commerce from being exploited as a means of transportation by the drug trade. The impetus for forming BASC grew out of private sector concerns about potential impact of supply chain infiltration by narcotics traffickers. Carriers, customs brokers, warehouse proprietors and other private sector stakeholders work together under BASC to establish a series of self-imposed business practices

and security measures designed to ward off drug trafficking threats. Measures are based on principles that have proven effective in preserving end-to-end supply chain integrity.

Because Customs assumes an oversight and support role rather than a leadership position in BASC, enrollees have greater flexibility in tailoring standards to their unique business environments. Driver and vehicle information maintained by BASC participants includes:

- Carrier name
- Driver background information
- Power unit information
- Trailer/container seal information
- Vehicle tracking/movement history

BASC enrollment records are archived by Customs, but are generally not consulted unless illegal narcotics or other contraband are interdicted on a movement. Motor carrier members are encouraged to adhere to BASC recommendations with respect to drivers, conveyances and shipments, but these guidelines are not binding and data is not transmitted to authorities on a per-movement basis. As with the LBCIP program, compliant BASC stakeholders may receive greater leniency with regard to property confiscation, fines or other penalties in the event that drugs or contraband are deemed to have been planted on their conveyance or shipment. The principle that BASC enrollees do business with other certified members of the program has helped to perpetuate the expansion of the program throughout Mexico and elsewhere. Over 1,000 private firms are now reported to be enrolled in the initiative^{xi}. However, the non-binding nature of BASC combined with its high certification costs (tens of thousands of dollars for some firms) and a general shift towards government-led initiatives such as C-TPAT, LBCIP and FAST, has diminished the importance of BASC vis-à-vis other industry partnership programs.

Customs Trade Partnership Against Terrorism (C-TPAT)

The Customs Trade Partnership Against Terrorism is a cooperative agreement between the trade community and U.S. Customs Service to develop, improve, and sustain effective anti-terrorism

security processes throughout global supply chains. The program was developed in 2002 as a voluntary industry partnership umbrella under which total supply chain security would be addressed. C-TPAT is based on the premise of achieving enhanced border security, efficiency and productivity through industry self policing and government oversight. Building on previous and ongoing initiatives, the partnership provides the framework for the Bureau of Customs and Border Protection to assist major supply chain participants in improving security related to personnel, procedures, physical infrastructure, education and training, access controls, documentation, equipment, and conveyances. The program integrates anti-terrorism elements into to the anti-narcotics and anti-smuggling systems already employed in BRASS, LBCIP and BASC.

Current C-TPAT enrollees must commit to a sustained, shared security responsibility and communicate their practices to business partners. In return, program participants are subject to fewer examinations at U.S. ports of entry, and are eligible for account-based processing (which allows shipment information to be submitted at regular intervals, rather than on a per-shipment basis) and consolidated periodic duty payments. In some cases, Customs account managers are assigned to specific enrollees to oversee and facilitate the filing of required documentation. Trade and transportation information is electronically transferred to Customs prior to a shipment's arrival at the border and the driver's identification is manually verified. The Customs Trade Partnership Against Terrorism focuses on the shipper and other non-trucking supply chain intermediaries. Commercial truck driver and vehicle information is addressed under C-TPAT's sister program, Land Border Carrier Initiative Program.

Together, these programs enable public sector agencies to ensure that all stakeholders handling a shipment have been certified and that the movement is low risk and eligible for expedited processing and release. Participants in C-TPAT must undergo a validation assessment within three years of enrolling in the program to certify that they continue to follow the prescribed security measures. Though company-imposed personnel screening, background checks, and security measures are aspects of C-TPAT and the LBCIP, specific driver and vehicle crossing histories cannot presently be viewed by inspection personnel when shipments handled by members of these programs arrive at the border.

Free And Secure Trade (FAST)

The most technologically advanced industry partnership program introduced to date is the Free And Secure Trade initiative. FAST strengthens border security initiatives by granting shippers, carriers, drivers and other stakeholders that are enrolled in C-TPAT and LBCIP expedited travel throughout the border, not just at one point. The initiative was launched at six land-border commercial crossings between Canada and the United States in 2002. A modified version of the program is scheduled for roll out in El Paso, Texas in September 2003 and at other ports of entry along the southern border by January 2004^{xii}. Low-risk stakeholders that adopt specific risk management practices and maintain a history of compliance with customs regulations are entitled to join the program. FAST is jointly administered by the CBP and Canadian and Mexican authorities. When fully implemented, it is expected to be the first paperless import system in North America.

Paperless trade systems such as FAST are dependent on Radio Frequency Identification (RFID) and dedicated short range communication (DSRC) technology (barcodes and swipe cards at some locations). These technologies are utilized to transmit essential shipper, carrier, driver, vehicle and cargo information to appropriate government agencies as the movement nears the border crossing. Pre-authorization of compliant shippers and motor carriers, and the registration of pre-screened commercial drivers ensure only low-risk movements are eligible for FAST processing. At some FAST locations, registered commercial drivers are issued magnetic cards that are swiped at border crossings and provide details about the trucker's identity and immigration status. Other driver and vehicle data identifiers and elements transmitted to public agencies under FAST include:

- Carrier name and certifications
- Driver name
- Driver License Number (CDL)
- Driver birth date
- Driver citizenship/residency/immigration status

- Driver employment/criminal history
- Power unit license plate
- Trailer license plate

This information is electronically transmitted to the appropriate border agencies. Advantages of FAST enrollment include reduced border queues and paperwork, streamlined administration and shipment oversight, expedited clearance and quicker equipment turnaround times for carriers. Dedicated lanes have been planned at some border-crossing facilities for the exclusive use of FAST-certified shipments. Nonetheless, many of the bridge-widening and highway connection projects needed to make dedicated border-crossing lanes feasible and worthwhile have not received political support and funding^{xiii}.

The West Texas/New Mexico Customs Management Center and the El Paso port of entry have begun testing a modified version of FAST called the Free And Secure Trade – Expedited Processing (FASTEP) system. FASTEP features the barcode functionality of the standard FAST program in addition to scannable Mexican customs data and automated driver, vehicle and shipment tracking capabilities for intraport movements. The latter two elements were developed to increase the comprehensiveness of the system and accommodate unique operational considerations at the southern border. FASTEP satisfies many of the goals set out in the 22-point U.S.-Mexico border plan, including implementation of bi-national information sharing systems and technologies. A cover sheet containing barcoded carrier and driver information (as well as trade data) can be scanned by authorities on either side of the border to retrieve detailed information about the movement's carrier, driver, tractor, trailer, cargo, Mexican documentation and processing status^{xiv}. Pre-filed information is electronically matched to that on the barcoded cover sheet and the driver is guided to the facility exit or a secondary inspection location by dynamic messaging signs. Like FAST, FASTEP is designed to work in conjunction with C-TPAT, LBCIP and BASC.

A myriad of systems and databases are employed to collect and store information on commercial motor carriers and drivers operating in North America. Ratification of NAFTA in the mid 1990s prompted U.S. regulatory agencies to create and modernize these networks and explore the

feasibility of integrating Mexican truck and driver information into them. The following section provides a description of the Query Central safety and a proposed visitor entry and exit database that will be capable of tracking the movement of Mexican commercial drivers into and out of the United States.

The Query Central Information System

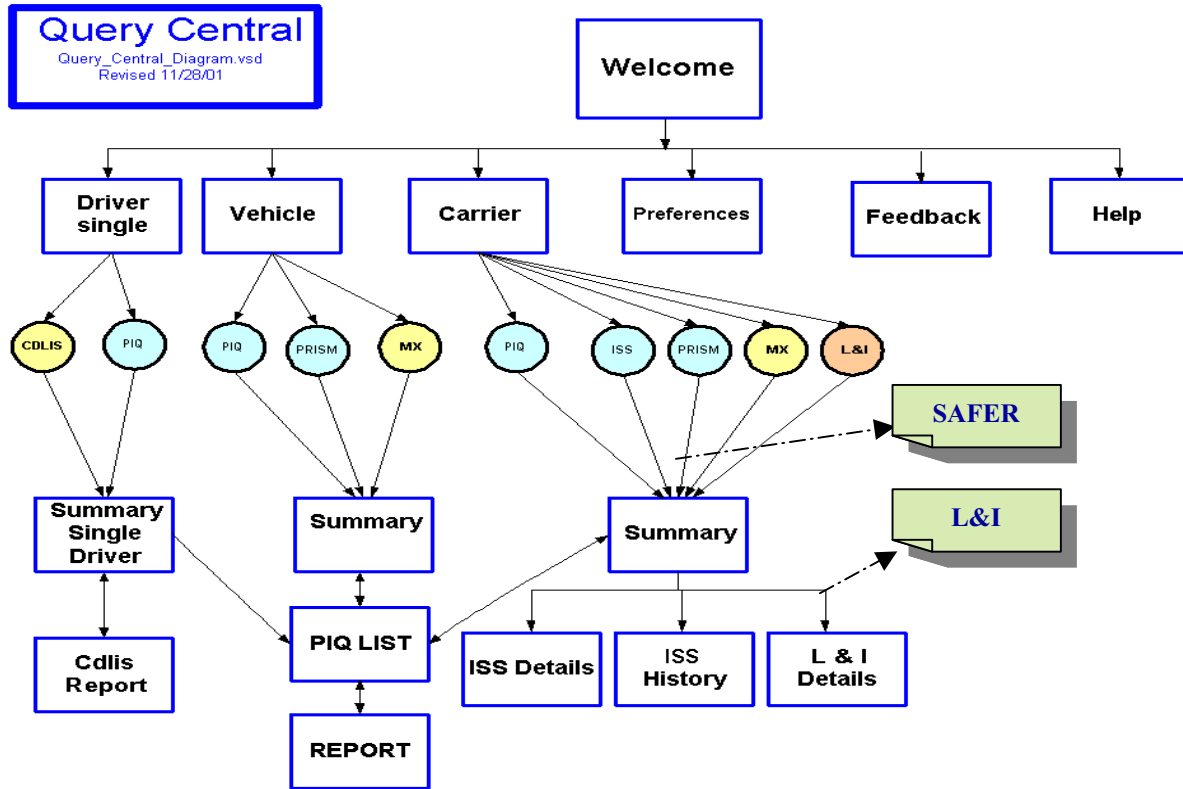
The Federal Motor Carrier Safety Administration's Query Central system is the most comprehensive source of commercial driver and vehicle safety information currently available. Initially designed as a data querying tool to compliment U.S. roadside truck inspections, Query Central has evolved into a complex tiered data clearinghouse. The system electronically links several U.S. and Mexican driver, vehicle and carrier databases to a single internet-based interface accessible to all authorized U.S. inspection and enforcement personnel.

The present version of Query Central became fully operational in September 2002. It provides real-time primary and secondary data mining capabilities with the flexibility to retrieve a broad spectrum of motor carrier information. Data output data ranges in detail from summary statistics about a carrier's operations to detailed displays of source inspection documents and reports. The primary users of Query Central are FMCSA inspectors, auditors and investigators; U.S. state DPS inspectors and investigators; U.S. state DOT truck registration, licensing and fuel tax authorities; and U.S. local law enforcement authorities. Mexican agencies do not currently have access to the Query Central system.

Query Central is comprised of various data storage and exchange elements. These are illustrated in Figure 3-1 and described below:

- U.S. Commercial Driver License Information System (CDLIS)
- Mexico's commercial drivers license system (LIFIS)
- Past Inspection Query (PIQ) system
- Performance and Registration Information Systems Management (PRISM)
- Mexican trucking information systems

- Inspection Selection System (ISS)
- Licensing & Insurance (L&I) database
- Safety And Fitness Electronic Records (SAFER) system



Source: Federal Motor Carrier Safety Administration, 2001.

Figure 3-1. Simplified Functional Diagram of Query Central System

Commercial Driver License Information System (CDLIS)

The U.S. Commercial Driver License Information System is a central repository of commercial driver's license information. It allows inspection and enforcement agencies in all U.S. jurisdictions to exchange current CDL data, including:

- Name and age of U.S. driver
- CDL validity and issuing state

- Driver address and contact information
- Driver violation history

The CDLIS also assists public entities in ensuring that drivers possess only one commercial driver's license and that disqualified drivers are not able to obtain CDLs from any jurisdiction.

Licencia Federal Information System (LIFIS)

Mexico's Licencia Federal Information System enables U.S. authorities to obtain licensing information on commercial truck drivers based in Mexico. This information includes:

- Name and age of Mexican driver
- CDL validity and federal issuing office
- Driver medical authorization
- Driver history and record of traffic convictions

The LIFIS system is electronically linked to the U.S. Commercial Driver License Information System and Mexican CDL data is consolidated and archived in what is referred to as a "52nd state" format (50 U.S. states plus District of Columbia comprise 51 jurisdictions). While privacy laws preclude U.S. agencies from collecting or storing Mexican driver phone numbers and other personal information, data is generally comparable to that collected from U.S. drivers.

Past Inspection Query system (PIQ)

The Past Inspection Query system is an electronic information retrieval system that provides access to reports issued in the past 60 days concerning:

- Driver safety
- Power unit safety
- Carrier safety

PIQ inspection reports can be accessed by any U.S. enforcement entity via SAFER and Query Central using the power unit's license plate number and issuing jurisdiction or the carrier's USDOT number. PIQ enables agency personnel to determine whether previously cited mechanical defects and driver procedural problems have been corrected.

Performance and Registration Information Systems Management (PRISM)

Performance and Registration Information Systems Management is the means by which Query Central users are able to monitor:

- Carrier safety
- Power unit safety

PRISM links carrier fitness data to a state's commercial vehicle registration system so that authorities can impose sanctions on unsafe carriers or prevent them from registering their vehicles. PRISM accepts queries based on the vehicle's plate number and issuing jurisdiction, the carrier's USDOT number or Vehicle Identification Number (VIN). Unlike plate and USDOT numbers, the VIN is a permanent identifier that cannot be changed through bankruptcy, sale, name or registration alterations. This makes it a valuable tool for screening vehicles and carriers. PRISM is closely related to two programs developed to enhance inter-jurisdictional trucking operations, the International Fuel Tax Agreement (IFTA) and the International Registration Plan (IRP). IFTA is a fuel tax reporting agreement that facilitates and standardizes the reporting of fuel use taxes by inter-jurisdictional motor carriers in North America. Similarly, the IRP simplifies and streamlines the payment of registration fees by U.S. and Canadian motor carriers operating in more than one jurisdiction. Mexican carriers cannot presently enroll in either of these programs, but the possibility of their future participation is being assessed.

Confirmation of Mexican carrier registration is complicated by several factors. Depending on where a carrier operates, its commercial vehicles may be registered and plated by an individual Mexican state (Mexican intrastate carriers) or by the Mexican federal government (Mexican interstate carriers). Mexican trucking firms operating in the state of California must also register

in that jurisdiction and display a California license plate alongside their Mexican-issued plate. When dual plated vehicles cross into the United States, only the U.S. registration information is normally checked. This is due to U.S. inspector familiarity with American data and documentation and superior connectivity to the respective databases^{xv}.

For vehicles and carriers displaying Mexican federal plates only, information is less comprehensive than that available for U.S.-based trucking firms. Similar data deficiencies apply to commercial vehicles registered and plated by individual Mexican states and those used exclusively in Mexican border drayage operations. The latter group is in the process of being issued “border-crossing” plates by the SCT. Registration information for these trucks is maintained in a new database that the FMCSA currently does not have access to^{xvi}.

Mexican Trucking Information Systems

Three related Mexican commercial driver and vehicle systems, the Infraction Information System (INIS), the Accident Reporting Information System (ARIS), and the Mexican trailer bonding system provide additional details about Mexican motor carriers, drivers and equipment.

INIS processes and archives moving violations committed on Mexico’s federal highways. Phased implementation of the system began in 2001 and is ongoing. Information reported by the system includes:

- Driver and carrier moving violations on Mexican federal highways

ARIS records motor vehicle accidents that occur on Mexico’s federal highways. Although this information system was launched in 2000 and a U.S. data interface was scheduled to be in place by 2001, delays have postponed its implementation. ARIS data elements include:

- Driver and carrier accidents on Mexican federal highways

Due to their recent implementation, these databases are not populated with a significant volume of data. Access to INIS and ARIS by U.S. agencies is anticipated in the future.

The Mexican Treasury uses a trailer bonding system to track the transborder movement of commercial trailers to ensure that equipment entering the country under duty free/temporary import status does not remain in Mexico indefinitely. The bonding database employed for this purpose is not accessible to U.S. authorities. The system's data elements include:

- Trailer owner
- Trailer identification number
- Trailer entry and exit information

Inspection Selection System (ISS)

The Inspection Selection System is a targeting tool used by U.S. authorities to identify the best candidates for roadside commercial driver and vehicle inspections. ISS draws on carrier information stored in Query Central's principal data repository, the Motor Carrier Management Information System (MCMIS). All state and federal authorities involved in commercial vehicle safety enforcement use this system either directly or indirectly. Information gleaned from inspections and accidents is uploaded on a regular basis and factored into safety ratings. The following carrier data elements are processed in ISS using an algorithm that generates one of three inspection recommendations for agents: inspect, optional or pass:

- Carrier crash history
- Carrier inspection history
- Carrier safety management history

Licensing and Insurance Database (L&I)

The Licensing and Insurance database provides Query Central users with the following information on U.S. and Mexican motor carriers operating in the United States:

- Carrier out-of-service status
- Carrier operating authority permits
- Carrier licensing
- Carrier insurance coverage

A subsystem of the L&I database, the Carrier and Vehicle Authorization Information System (CVAIS), is designed to indicate whether Mexican carriers are authorized to operate motor vehicles beyond or within the U.S. commercial zone. This database was established in 1998, but will play a greater enforcement role upon the opening of the U.S.-Mexico border to long-haul trucking.

Safety And Fitness Electronic Records system (SAFER)

The Safety and Fitness Electronic Records system is the FMCSA's primary carrier safety information integration network. Like Query Central, SAFER enhances the usefulness and efficiency of commercial vehicle inspections by facilitating access to snapshots of motor carrier data through linkages to a primary information warehouse, the Motor Carrier Management Information System, and other secondary and tertiary databases and systems. Data elements accessible via SAFER include:

- Carrier identification, name and contact information
- Carrier operations characterization
- Carrier safety, inspection, insurance, fuel tax and registration information
- Vehicle Identification Number (VIN)
- Vehicle (power unit) license plate number, issuing jurisdiction and registration
- Vehicle inspection/violation data and safety reports

A SAFER-related middleware system called the Commercial Vehicle Information Exchange Window (CVIEW) is deployed by individual states so that they can transmittal motor carrier information between their legacy systems and the national system. Driver information, while

currently limited in CVIEW and SAFER, is planned for future expansion and is expected to include:

- Driver identification and contact information
- Driver date of birth
- Driver home state and citizenship

Some of the databases described above focus on driver credentials and associated safety information as opposed to immigration or entry and exit records. A new system proposed by the Department of Homeland Security plans to capture and disseminate this latter category of information. The U.S. Visitor and Immigration Status Indication Technology (U.S. VISIT) will use biometric identifiers such as photographs, fingerprints and iris scans to monitor the arrival and departure of foreign visitors to the United States, including Mexican truck drivers^{xvii}. The implementation of U.S. VISIT at U.S. ports of entry on the southern border has tentatively been scheduled for 2004. Opposition to the system from trade and privacy advocacy groups could delay or prevent its launch. Assuming that it is eventually deployed, the system will provide the following information with respect to commercial movements:

- U.S. entry and exit information for Mexican drivers

Public stakeholders whose responsibilities center on transborder freight rather than conveyances or drivers may, nonetheless, have access to driver and vehicle information. In some cases this information is limited or unavailable elsewhere. The Bureau of Customs and Border Protection, for example, requires commercial driver and power unit information to be filed along with shipment information in its Automated Commercial System. Mexican Customs tracks U.S. trailer entry and exit information that is not maintained by or shared with other border agencies. Cross-border movements filed under voluntary U.S. industry partnership programs such as BRASS, C-TPAT and FAST provide U.S. regulatory agencies with information on drivers and vehicles that is not captured for standard cross-border movements or shared with Mexican authorities. Fragmentation of this information combined with data accessibility and information sharing deficiencies represents a significant obstacle to more efficient border inspection and clearance

practices. The following section examines ongoing efforts to ameliorate this situation through the development of comprehensive information systems that consolidate driver, vehicle, carrier and related shipment data into overarching systems similar to Query Central.

Ongoing and Proposed Data Integration Systems

A variety of other information integration initiatives are being developed for use at U.S. ports of entry and elsewhere. These efforts have been spearheaded by public sector stakeholders and industry groups that have a vested interest in improving border safety, security and efficiency. This section provides an in-depth analysis of planned data integration initiatives and a concise summary of existing and proposed carrier, tractor, trailer and driver information elements.

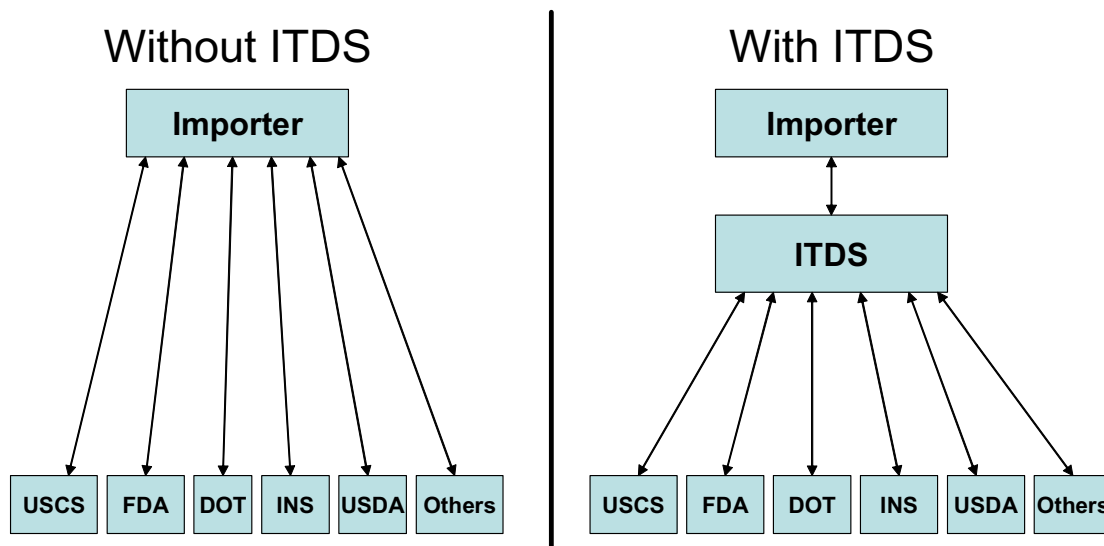
Many commercial driver, vehicle and carrier safety, credentialing and screening mechanisms employed today are linked to broader systems such as the Commercial Vehicle Information Systems and Networks (CVISN). The CVISN architecture is one of the largest information frameworks for enhancing commercial vehicle operations in North America. It enables diverse trucking information systems and networks at various levels to be consolidated into a single overarching structure linked to stakeholders. Although CVISN was not intended specifically for the border, some of its elements have important border applications. The CVISN concept of seamless system and technology integration provides the basis for transportation and trade information systems being designed for land ports of entry.

The U.S. Bureau of Customs and Border Protection and the FMCSA are both in the midst of modernization campaigns. A key group involved in this process is the E-Customs Partnership. The mandate of this public-private sector coalition is to replace the archaic information systems currently used at the border with a paperless trade system called the *Automated Commercial Environment (ACE)*. ACE will ultimately allow the trade community to electronically exchange all required import and export data with U.S. authorities through a single interface. Shipment, driver and vehicle data as well as all other transportation and trade information will be transmitted via a secure internet web portal and checked by authorities prior to the movement arriving at the border crossing. As the load approaches border facilities, RFID and DSRC

technology is used to identify the driver, tractor, trailer and cargo and match it to the pre-filed information. Account-based processing will be built into the system to reduce documentation and payment activities for compliant stakeholders. Benefits accruing to the CBP include more timely access to information and improved screening and enforcement capabilities.

The *International Trade Data System* (ITDS) is a similar electronic information conduit through which data required by government agencies regulating international trade and commercial transportation can be exchanged. The primary advantage of ITDS is that it streamlines information flows by eliminating data submission and collection redundancies. It also enables the capture of more authoritative and accurate information from the trade community, which benefits both the public and private sectors.

CVISN, ACE, ITDS and Query Central all integrate multiple information sources, but each is distinguished by its scope and content. For example, CVISN brings together general commercial vehicle information, while ACE and ITDS consolidate a wide range of transportation and trade information required by public agencies operating at the border. In the late 1990s, ACE and ITDS were merged into a single initiative as part of the customs modernization effort. The ITDS-ACE information exchange concept is illustrated in Figure 3-2.



Source: General Accounting Office, 2001.

Figure 3-2. Conceptual Diagram of ITDS Information Exchange

ITDS-ACE is scheduled for full implementation between 2005 and 2006. A series of carrier, vehicle and driver identifiers will be incorporated into the system to allow authorities easy access to required safety and performance records. The information identifiers include:

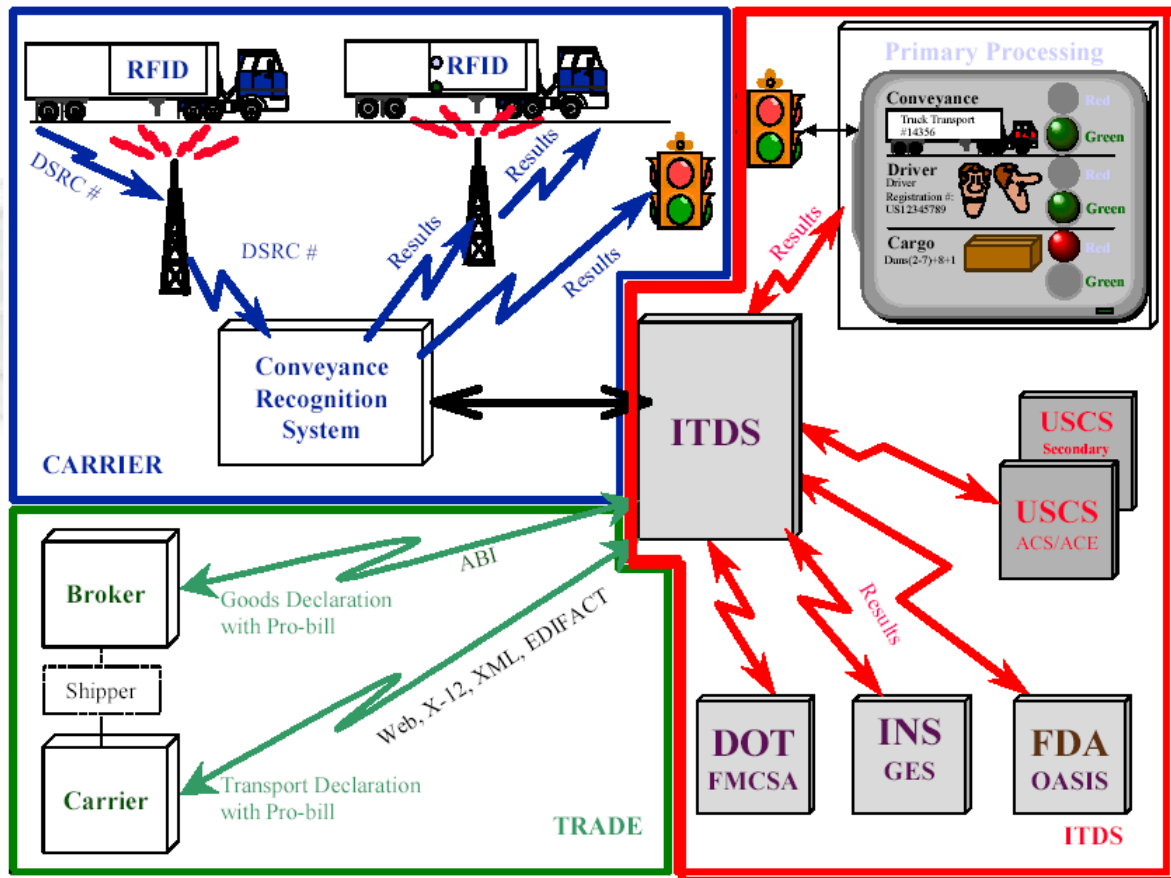
- Radio Frequency Identification
- Carrier USDOT number
- Power unit vehicle identification number (VIN)
- Power unit license plate number and issuing country, state/province
- Trailer license plate number and issuing country, state/province
- Trailer identification (Standard Carrier Alpha Code - SCAC)
- Driver date of birth, country of citizenship
- Driver CDL number and issuing country, state/province
- Hazardous materials authorization

Under the proposed ITDS-ACE framework, data will be submitted only once by the authoritative stakeholder (carrier for driver and vehicle information) and made electronically available to regulatory agencies on a need-to-know basis. Over a dozen public stakeholders may analyze the data and validate or place a hold on individual information components. Using the identifiers listed above, the FMCSA and other agencies will screen movements according to:

- Validity of carrier information, U.S. operating authority and insurance credentials
- Validity of driver information, credentials and safety
- Various other safety, inspection and operations information

Responses will be combined into an inspect or release order that is transmitted via radio frequency to the truck driver by a direct short range communication transponder located in the cab of the power unit. Unlike the Query Central data mining system currently used by inspection agencies, ITDS-ACE is designed to automate the interrogation process, producing one overall agency response. Movements requiring an inspection of the conveyance, driver or cargo (red light) will be directed to the appropriate secondary site. Movements receiving a release order

(green light) will pass through the port of entry and border safety inspection facility in an expedited manner. Figure 3-3 provides a simplified depiction of this process.



Source: Federal Motor Carrier Safety Administration, 2001.

Figure 3-3. Functional Schematic of ITDS Information Exchange

From August 27, 2001 to September 11, 2001, a scaled down pilot ITDS system was tested at the Buffalo port of entry on the U.S-Canada border. Despite its limited application and premature conclusion due to the terrorist attacks on the United States, the test was successful in establishing the technical feasibility of ITDS-ACE. While driver and vehicle information represent only a portion of the total data groupings proposed for integration into the ITDS-ACE system, they are critical to ensuring the safety and security of truck-borne commercial movements. They also help to streamline redundant data submission activities and eliminate unnecessary delays in the border-crossing process.

The challenges of successfully developing and implementing ITDS-ACE and its component systems involve establishing connectivity to all participating government agencies and private sector partners, developing and consolidating linkages to required databases and interfaces, and enabling electronic and wireless information transfer. These goals have yet to be fully achieved. It is important to note that while some of the systems, databases and information elements presented in this chapter have been planned, they may not be currently available. The study team does not consider these to be information gaps or deficiencies because a need for them has already been identified and work to integrate them is underway.

Other data elements associated with commercial conveyances at the border were deemed to be more closely related to the shipper, consignee or cargo than the driver or vehicle. For example, trailer seal information, although an important element of the border- crossing process, is the domain of the shipper and is noted on the cargo manifest. The ITDS-ACE project envisions future integration of elements such as E-seals capable of transmitting information about when, where and by whom a trailer was breeched, but this information is outside of the scope of the present study. Prior to analyzing the commercial driver and vehicle data deficiencies that do require attention, a summary of the existing and proposed data elements presented in this chapter is in order. Table 3-1 on the following page provides a synopsis of this information.

Table 3-1. Existing and Proposed Carrier, Trailer, Tractor and Driver Information

Category	Agencies	Systems, Databases	Identifiers	Information	Comments
Carrier	CBP, Mexican Customs, FMCSA, State DOTs, DPS, SCT, others	ITDS-ACE, Query Central, (SAFER-MCMIS, CVIEW, PIQ, PRISM, IFTA, IRP, INIS, ARIS, CVAIS, ISS, L&I), BASC, LBCIP, C-TPAT, FAST, others	RFID, USDOT#, Carrier Name	<ul style="list-style-type: none"> Carrier identification, name, address, contact information Carrier safety and out-of-service status, past inspections, violations and accidents, licensing and insurance, fuel tax and registration information Carrier safety management history Carrier operating authority and HazMat authorization Carrier industry partnership certifications 	U.S. and Mexican carrier databases are relatively well populated and accessible. RFID technology has yet to be implemented on a large scale.
Trailer	CBP, Mexican Customs, FMCSA, State DOTs, DPS, SCT, others	ATA-SCAC, Mexican Trailer Bonding System	RFID, SCAC, Trailer VIN, Trailer plate number and issuing jurisdiction, Trailer registration cab card	<ul style="list-style-type: none"> Trailer owner identification, name, address Trailer registration Mexican entry and exit information for U.S. trailers 	Mexican trailer bonding system is not accessible to U.S. agencies. RFID technology has yet to be implemented on a large scale.
Tractor	CBP, Mexican Customs, FMCSA, State DOTs, DPS, SCT, others	ITDS-ACE, Query Central, (SAFER-MCMIS, CVIEW, PIQ, PRISM, CVAIS, ISS) BASC, LBCIP, C-TPAT, FAST, others	RFID, VIN, Power unit plate number and issuing jurisdiction, Radio Frequency Identification	<ul style="list-style-type: none"> Power unit identification, owner Power unit inspection, violation data Power unit safety summary reports Power unit CVSA decal data U.S. and limited Mexican power unit registration information 	Tractor safety and inspection data is limited to trucks that have undergone CVSA inspections at the border. RFID technology has yet to be implemented on a large scale.
Driver	CBP (former INS), Mexican Customs, FMCSA, State DOTs, DPS, SCT, others	ITDS-ACE, Query Central, (SAFER-MCMIS, CVIEW, CDLIS, LIFIS, PIQ, ISS, INIS, ARIS), BASC, LBCIP, C-TPAT, FAST, U.S. VISIT, others	Biometrics, Social Security Number, Passport number, B-1/B-2 Visa, Laser Card, CDL number and issuing jurisdiction	<ul style="list-style-type: none"> Driver name, birth date, state of residence Driver identification, citizenship or immigration status CDL validity Driver moving violations, accident record, safety summaries and out-of-service reports Driver hazardous materials authorization Driver address, contact information, employment history 	Driver address, employment history and other information may be privacy protected or available only for truckers enrolled in voluntary programs. Biometrics and other driver information tools proposed under US VISIT, ITDS-ACE and related initiatives are under debate and have yet to be implemented.

CHAPTER 4: GAP ANALYSIS

The U.S.-Mexico import-export process is undergoing substantial change. Much of this change has been brought about by the planned introduction of cross-border trucking and the reorganization of U.S. border agencies under the Department of Homeland Security. Technology and information have also played important roles in transforming the border-crossing system. Data elements that describe transborder commercial movements are increasingly pooled by stakeholders to minimize data submission redundancies and enhance movement visibility.

Despite these improvements, certain data deficiencies persist. In some cases, there is a lack of information about commercial drivers and vehicles transiting the border. In other instances, required information exists, but is not shared with or made available to all relevant stakeholders. The framework for collecting and storing certain data exists, but is not fully utilized. This chapter examines tractor, trailer and driver information gaps that negatively impact U.S.-Mexico supply chains. Deficiencies are identified with a view to ensuring that the information systems deployed at the border are comprehensive with respect to commercial driver and vehicle information.

The data deficiencies identified by the researchers in the gap analysis can be grouped into the following categories:

- Information that does not currently exist in database format
- Information that exists in database format but is:
 - not well integrated into broader systems
 - not populated with a significant volume of data or
 - not accessible to relevant stakeholders

Non-Existent Data

U.S. and Mexican commercial driver and vehicle information exists and is accessible to stakeholders in varying degrees. The most extensive amount of data is maintained at the motor

carrier level. Researchers were not able to identify any data deficiencies in this category that were not already accounted for in existing or proposed information systems. From this broad category, the existence and availability of information declines with increasing levels of specificity. The most significant information gap occurs at the trailer level.

Trailer Information

Creating a trailer safety database similar to that which exists for tractors is complicated by trailer movement patterns and ownership and possession issues. Unlike the predominantly Mexican-owned drayage tractors whose purpose is to shuttle shipments back and forth between Mexican and U.S. commercial zones, most trailers and chassis crossing the border are U.S.-owned and operate principally between domestic points within the United States. This equipment typically crosses international boundaries on a less frequent basis than drayage tractors. In 2000, the FMCSA estimated that approximately 80,000 distinct tractors were operating across the U.S.-Mexico border^{xviii}. Most of these tractors are Mexican (and to a lesser extent U.S.) drayage units that haul between two and four distinct trailers across the border each day. As a result, a far greater number of distinct trailers than tractors transit U.S. and Mexican ports of entry annually. Keeping track of this equipment and monitoring its safety status is a significant challenge.

Another factor responsible for impeding the development of trailer safety databases is the difficulty in fairly assessing penalties for violations. U.S., Mexican and Canadian motor carriers that operate across international boundaries often haul trailers and chassis that are owned by other parties. This is especially true in the U.S.-Mexico border drayage environment. In the event that a trailer is deemed unsafe, the driver or carrier in temporary possession of the equipment may be directly or indirectly penalized. Costs accruing to truckers and motor carriers due to trailer and chassis safety issues often include fines, delays and loss of the load if the trailer is placed out of service. Legislation of trailer and chassis “roadability” regulations, in conjunction with the development of a trailer safety and inspection database, would improve accountability and facilitate equipment safety inspections and verification at border crossings.

Currently, the condition of a trailer's brakes, suspension and other critical safety equipment is determined by conducting a detailed inspection. Subjecting all commercial trailers to CVSA inspections at every border crossing, weigh station and roadside inspection location in the United States would be impractical. Conversely, the failure to conduct a sufficient number of CVSA Level 1 inspections so that baseline safety data on power units and trailers can be collected, exposes the motoring public to unknown risks. The development of a database containing the inspection history and safety status of trailers should be undertaken so that state or federal agents at the border and elsewhere can target potentially unsafe equipment for inspection. This will enable authorities to develop a complete safety profile of a commercial tractor-trailer combination as opposed to one that focuses broadly on the carrier and, perhaps, the power unit.

Trailer data deficiencies:

- Lack of U.S. and Mexican trailer safety database

Inaccessible and Unavailable Data

In some cases, binational driver and vehicle database deficiencies are due principally to data availability and accessibility issues. Pockets of information that may be of value to more than one agency are sometimes isolated by antiquated or incompatible information systems. Poor information integration can also be the result of inefficient administration or institutional problems. These problems affect both tractor and driver information.

Tractor Information

The term "vehicle" is frequently used by those involved in commercial transportation and trade at the border to refer to the tractor or power unit portion of a tractor-trailer combination. One of the rationales for focusing on the tractor, rather than both components of the conveyance or the trailer, is the existence of information. While neither is available in abundance, tractor data is typically more extensive than trailer data. Various tractor data elements are presently either

inaccessible or lack the comprehensiveness required for stakeholders to realize significant benefits from using them.

The majority of power units crossing the southern border belong to Mexican independent operators and small drayage carriers. Some of these tractors travel across multiple Mexican states and are registered for Mexican interstate operation. Basic registration information for these trucks can be retrieved by U.S. authorities through the FMCSA's SAFER system. Data pertaining to the registration of Mexican intrastate and "border-crossing" tractors, however, is not electronically available to U.S. agencies. In order to properly screen these trucks at the border, U.S. authorities require access to all registration databases maintained by Mexican state and federal governments. Connectivity to the "border-crossing" registration information is essential given the planned expansion of this registration category.

In addition to information shortfalls concerning tractor registrations, significant gaps were noted with respect to tractor safety data. Detailed tractor safety data is available only for U.S. and Mexican units that have undergone CVSA Level 1 inspections. This currently amounts to only a fraction of the tractors engaged in transborder operations^{xix}. Commercial driver and vehicle inspections conducted at permanent state facilities at Otay Mesa and Calexico, California are usually CVSA Level 1 inspections. Outside of California, where truck safety inspection facilities are not as advanced, less-rigorous CVSA Level 2 safety reviews have traditionally been most common. These "walk-around" examinations do not entail inspection of the undercarriage of the tractor or trailer.

More stringent truck safety inspection regimes have recently been introduced all along the United States' southern frontier in anticipation of the opening of the border to Mexican long-haul trucking. It is envisioned that these additional resources will enable U.S. authorities to conduct a greater number of CVSA Level 1 inspections (North American standard in motor carrier industry). The population of the MCMIS with a greater volume of U.S. and Mexican CVSA Level 1 tractor safety information is crucial to establishing baseline data needed for effective deployment of inspection targeting systems. To reap the full benefit of tractor safety information, access to Mexican authorities must also be enabled. As the development of more stringent

commercial vehicle safety regimes progresses in Mexico, connectivity to Query Central and ITDS-ACE will be necessary. This will enhance the uniformity of North American commercial vehicle inspection programs and avoid subjecting binational carriers to redundant examinations on either side of the border.

Tractor data deficiencies:

- Lack of U.S. access to Mexican intrastate and “border-crossing” tractor registration information
- Scarcity of Mexican and U.S. tractor safety data
- Lack of Mexican access to U.S.-administered tractor registration and safety information

Driver Information

Until recently, a significant amount of driver information did not exist in electronic format or was not accessible to external agencies. This precluded data sharing and the possibility of leveraging driver information to enhance border operations and safety. The introduction of SAFER and Query Central has helped to alleviate commercial driver information accessibility problems. Plans are in place to make outstanding trucker identification, immigration, licensing, safety and inspection information available to authorized stakeholders through ITDS-ACE, SAFER and other systems. In addition, the U.S. VISIT system proposed by the Department of Homeland Security will be capable of tracking the arrival and departure of Mexican drivers transporting cargo into the United States. This information is potentially valuable to a variety of authorities at border crossings. However, this system is not specifically designed for trucking applications and, as planned, lacks the comprehensiveness needed to offer significant transportation safety benefits.

The identity of commercial drivers that cross the border is currently available on shipment documentation handled by the CBP, but entry and exit information is not electronically archived or tracked. Lack of accessibility to this information weakens border security and the integrity of motor carrier safety examinations.

Mexican and U.S. border truckers that ignore work schedule regulations may pose a safety threat to the motoring public. Notwithstanding the FMCSA hours-of service exemption for truckers operating within a 100 air-mile radius (including most border drayage drivers), all commercial drivers entering the United States must comply with basic FMCSA work schedule regulations. These include limits on driver operations such as a maximum of 12 consecutive hours on duty followed by a minimum period of eight consecutive hours off duty. These regulations are retroactive for up to seven days prior to the time the driver enters the United States, regardless of their nationality or where the hours were accrued^{xx}.

Enforcement of these regulations is difficult because carriers are permitted to manage the time records of drivers that operate within a 100 air-mile radius. Under current regulations, these drivers are not obliged to keep hours-of-service logs in their vehicles. Access to records that indicate when and where Mexican and U.S. commercial drivers have crossed the border during a given period would strengthen security and provide a means for more precisely targeting potentially unsafe truckers for inspection. Due to limited crossing hours at some locations, these issues are most pertinent at large ports of entry such as Laredo and El Paso.

Another area in which increased accessibility to information would improve the integrity and precision of border inspections is driver background information. Privacy laws, delays in the implementation of biometric technology and other obstacles have prevented authorities from collecting and archiving certain driver background data. Attempts to enforce trucker background checks have thus far been limited to commercial drivers handling hazardous materials. But in September 2003, the agency spearheading this effort for the U.S. government, the Transportation Security Administration, announced the indefinite postponement of this initiative^{xxi}.

The public sector has partially circumvented driver information privacy restrictions through the introduction of an array of voluntary programs that offer expedited processing to enrollees with a history of compliance that agree to supply additional information and adopt strict security measures. CBP industry partnership programs entailing some form of driver background review include the former NCAP, LBCIP, FAST, BASC and other initiatives. There is limited

communication or sharing of driver certification information among these programs and access to information by non-CBP border personnel is restricted. Considering the time and resources invested in driver certification programs by the public and private sector, increased emphasis must be placed on inter-program and binational data sharing.

Driver data deficiencies:

- Lack of electronically accessible U.S. and Mexican driver border-crossing records
- Lack of inter-program and binational information sharing on certified drivers

Development of comprehensive commercial driver and vehicle information systems that are accessible to all relevant stakeholders will require action on all of the abovementioned items. Table 4-1 below summarizes the trailer, tractor, and driver data deficiencies identified in the gap analysis. The final chapter of this report provides succinct recommendations on how these elements could be developed and integrated into information systems to enhance the safety, security and speed of the border-crossing process.

Table 4-1. Commercial Trailer, Tractor and Driver Data Deficiencies

Category	Data Deficiency
Trailer	<ul style="list-style-type: none"> • Lack of U.S. and Mexican trailer safety and inspection database
Tractor	<ul style="list-style-type: none"> • Lack of U.S. access to Mexican intrastate and "border-crossing" tractor registration information • Scarcity of Mexican and U.S. tractor safety data • Lack of Mexican access to U.S.-administered tractor registration and safety information
Driver	<ul style="list-style-type: none"> • Lack of electronically accessible U.S. and Mexican driver border-crossing records • Lack of inter-program and binational information sharing on certified drivers

CHAPTER 5: RECOMMENDATIONS AND METHODOLOGY

Commercial driver and vehicle information is vital to the integrity of border inspections and the safety of communities surrounding land ports of entry. The impending implementation of the NAFTA motor carrier provisions raises the profile of this issue. Delays in the opening of the southern border to long-haul trucking have afforded U.S. and Mexican authorities an opportunity to address information deficiencies before cross-border trucking regulations are liberalized.

Systems such as Query Central and SAFER, already enable U.S. safety inspection personnel to access a significant amount of driver, vehicle and carrier information. ITDS-ACE proposes to broaden these capabilities and incorporate technologies that will further automate information flows and border processing. In most cases, existing and planned information exchange frameworks provide a foundation for addressing data shortfalls. Web-based systems possess greater flexibility to accommodate deficient trailer, tractor and driver data without requiring major software or hardware investments or redevelopments. However, some databases must be developed from scratch.

Trailer Information

The Mexican Treasury currently maintains a trailer bonding database that indicates how long temporarily imported U.S. trailers have been operating inside Mexico. But this database is limited in scope, does not contain safety information, and is not accessible to U.S. authorities. The Standard Carrier Alpha Code trailer and chassis identification system administered by the American Trucking Association is another trailer database presently in use, however it, too, lacks safety information and is not integrated with broader transportation and trade information systems.

The recommended approach for ensuring that the required trailer safety and inspection information can be accessed by the appropriate commercial vehicle safety authorities begins with a stepped up CVSA inspection regime. Whenever a CVSA inspection involving a trailer is conducted, data concerning that equipment should be uploaded into the Motor Carrier

Management Information System in the same manner as carrier, tractor and driver data. The primary identifiers proposed for linking trailers to their respective safety and inspection records are the trailer license plate number and issuing jurisdiction, the trailer VIN (if available), and the trailer's radio frequency identification (future applications). In the event that the vast number of trailers in use precludes integration of this quantity of data into the existing MCMIS architecture, a separate, compatible trailer data repository should be developed. The main public sector stakeholder that would be involved in the integration of trailer data into existing frameworks is the FMCSA. Because front-end access to SAFER and Query Central (the systems that directly and indirectly tap MCMIS data) is web based, this information can also be made available to relevant Mexican authorities with access to the internet. Translation of query and display screens into Spanish may be required for Mexican authorities to fully benefit from this resource.

Methodology for addressing trailer data deficiencies:

- Increase CVSA Level 1 examinations and integrate trailer safety information into MCMIS. Enable access by Mexican authorities through issuance of Query Central internet access authorization.

Tractor Information

The primary obstacle to establishing a comprehensive, binational tractor database is access to information. Mexican intrastate and "border-crossing" tractor registration databases exist, but are not presently linked to U.S. commercial vehicle information frameworks. Likewise, the power unit registration, safety and inspection information archived in the U.S.-administered MCMIS is not currently accessible to Mexican authorities. Moreover, information concerning the majority of tractors operating across the U.S.-Mexico border has yet to be captured in this database.

Various actions are required to ensure that essential registration, safety and inspection information pertaining to tractors that cross the southern border is adequately accessible to both U.S. and Mexican authorities. First, the FMCSA must establish connectivity to Mexico's stand-alone "border-crossing" and intrastate tractor registration information systems. Because "border-crossing" tractors are being registered at the federal level in Mexico, electronic access to

registration data for these vehicles will require coordination with the SCT. Registration data for intrastate tractors that may cross the border is administered by individual Mexican states and will, at minimum, require U.S. coordination with Mexican authorities in the following border jurisdictions: Sonora, Chihuahua, Coahuila, Nuevo León and Tamaulipas. The vast majority of international motor carriers from Baja California enter the United States at California ports of entry. Due to state laws requiring these vehicles to obtain California registrations and license plates, access to tractor registration information on trucks based in Baja California is less critical. The primary identifiers proposed for linking Mexican tractors to their respective registration records are the tractor license plate number and issuing jurisdiction, the tractor VIN, and the tractor's radio frequency identification (future applications – linked to permanent identifier).

Enabling Mexican access to U.S.-administered tractor registration, safety and inspection data is less complex because this information is already available to authorized users via the internet. Notwithstanding potential language and internet connectivity barriers, access to Query Central and its subsystems can be enabled through the issuance of usernames and passwords to Mexican commercial vehicle inspection and enforcement agencies. Although web functionality is restricted to “read” applications (as opposed to the “read/write” functionality available to U.S. users of CVIEW and other dedicated upload systems), this limitation is irrelevant in the short term. Mexico presently lacks established CVSA-certified commercial vehicle inspection regimes that would necessitate the ability to upload tractor safety data. Furthermore, the recommended intensification of CVSA inspections noted in the trailer methodology above should also result in increased availability of detailed tractor safety and inspection data. Electronic access to more robust tractor information resources will offer regulatory agencies in both countries an additional layer of targeting precision when selecting candidates for examination.

Methodology for addressing tractor data deficiencies:

- Enable U.S. access to Mexican “border-crossing” and intrastate tractor registration databases through link to Query Central
- Increase CVSA Level 1 examinations to populate SAFER system with baseline information on the safety of power units engaged in transborder operations

- Enable Mexican access to U.S.-administered tractor registration, safety and inspection information through issuance of Query Central access authorization

Driver Information

Existing and proposed commercial driver databases are deficient in two main areas: border-crossing records and the sharing of information on certified drivers. The Department of Homeland Security's proposed U.S. VISIT system provides a general framework that could be tailored to commercial trucking and border-crossing applications. U.S. VISIT was designed to appraise U.S. immigration authorities of foreigners that overstay their visa limitations. As such, its primary application at the southern border will be at passenger vehicle and pedestrian processing facilities. However, the exact place and time that Mexican truck drivers enter and exit the United States will also be electronically monitored by the system. In addition to providing valuable immigration and security information, U.S. VISIT will enable FMCSA inspectors to ensure that drayage drivers are not exceeding the FMCSA's work schedule regulations.

Because some U.S. drayage drivers also cross the border into Mexico, they will have to be issued credentials similar to those provided to Mexican drivers. This will enable enforcement impartiality with respect to work schedule regulations governing U.S. and Mexican truckers operating in the United States. Advanced biometric technology has tentatively been planned for incorporation into U.S. VISIT. Iris scans and related systems may reduce or eliminate the need for issuing hard copy credentials. FMCSA, State DOT and DPS personnel will require connectivity to the system in order to access the necessary information prior to and during inspections. Because U.S. VISIT is a new and highly technical information system, it may require a significant roll out period. Although the Mexican Transport Ministry does not currently enforce driver hours-of-service regulations, binational information sharing capabilities should, to the extent possible, be incorporated into the development of the system.

The final deficiency addressed in this report is the lack of inter-program and binational information sharing regarding truck drivers that have been certified in voluntary security programs. Historically, impediments to the pooling of driver certification data have included the

number and diversity of programs, and the lack of standardized enrolment requirements. At the outset of this research project, commercial drivers were certifiable in four separate CBP industry partnership programs (BASC, LBCIP, C-TPAT and FAST). The trucker certification requirements formerly imposed under C-TPAT have since been eliminated to avoid overlap with FAST, but substantial data collection redundancies and information disconnects remain.

The recommended approach for optimizing the public and private sector resources devoted to driver certification, ensuring full accessibility to enrollee information on the part of authorities, and standardizing program enrollment requirements is to consolidate the driver elements of BASC, LBCIP and FAST. Trucker background and security information should be archived in a single database that is accessible to all relevant CBP authorities. Mexican laws currently prohibit the use of U.S. driver security certifications in the processing of commercial vehicles through Mexican ports of entry. However, the possibility exists for the development of future binational security certification programs that grant enrollees expedited processing on both sides of the border. To accommodate this potential, the CBP should integrate its consolidated driver certification database with related information systems such as Query Central and the driver border-crossing system described above. Primary identifiers for newly certified CBP drivers should rely on the same biometrics employed in other systems so that a standardized set of border-processing requirements and technologies is maintained.

Methodology for addressing driver data deficiencies:

- Modify proposed U.S. VISIT system to track Mexican and U.S. trucker border-crossing information. Provide access to FMCSA and SCT (future).
- Consolidate driver certification programs and databases under CBP. Harmonize biometric identifiers with trucker border-crossing system and link information to Query Central.

These strategies will enable the development of binational driver and vehicle databases that accelerate the processing of safe, legitimate trade, while establishing increasingly impermeable barriers to dangerous or illegal cross-border movements. Table 5-1 offers a concise summary of the findings and recommendations presented in this chapter.

Table 5-1. Recommendations for Addressing Trailer, Tractor and Driver Data Deficiencies

Category	Deficiency	Agencies	Proposed Identifiers	Recommendation
Trailer	<ul style="list-style-type: none"> Lack of U.S. and Mexican trailer safety and inspection database 	FMCSA, State DOTs, DPS, SCT	RFID, Trailer plate number and issuing jurisdiction, Trailer VIN	<ul style="list-style-type: none"> Increase CVSA Level 1 examinations and integrate trailer safety information into MCMIS. Enable access by Mexican authorities through issuance of Query Central internet access authorization.
Tractor	<ul style="list-style-type: none"> Lack of U.S. access to Mexican intrastate and "border-crossing" tractor registration information 	SCT, Mexican Border States, FMCSA	RFID, Power unit plate number and issuing jurisdiction	<ul style="list-style-type: none"> Enable U.S. access to Mexican "border-crossing" and intrastate tractor registration databases through link to Query Central
	<ul style="list-style-type: none"> Scarcity of Mexican and U.S. tractor safety data and lack of Mexican access to information 	FMCSA, State DOTs, DPS, SCT	RFID, Power unit plate number and issuing jurisdiction, VIN	<ul style="list-style-type: none"> Increase CVSA Level 1 examinations to populate SAFER database with baseline information on power units engaged in transborder operations
	<ul style="list-style-type: none"> Lack of Mexican access to U.S.-administered tractor registration and safety information 	FMCSA, SCT	RFID, Power unit plate number and issuing jurisdiction, VIN	<ul style="list-style-type: none"> Enable Mexican access to U.S.-administered tractor registration, safety and inspection information through issuance of Query Central internet access authorization
Driver	<ul style="list-style-type: none"> Lack of electronically accessible U.S. and Mexican driver border-crossing records 	DHS, CBP, FMCSA, SCT (possible future)	Biometrics, CDL number & issuing jurisdiction, Passport number, B-1/B-2 Visa, Laser Card	<ul style="list-style-type: none"> Modify proposed U.S. VISIT system to track Mexican and U.S. trucker border-crossing information. Provide access to FMCSA and SCT (future).
	<ul style="list-style-type: none"> Lack of inter-program and binational information sharing with respect to certified drivers 	CBP, FMCSA, Mexican Customs (possible future)	Biometrics, CDL number and issuing jurisdiction	<ul style="list-style-type: none"> Consolidate driver certification programs and databases under CBP. Harmonize biometric identifiers with trucker border-crossing system and link information to Query Central.

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