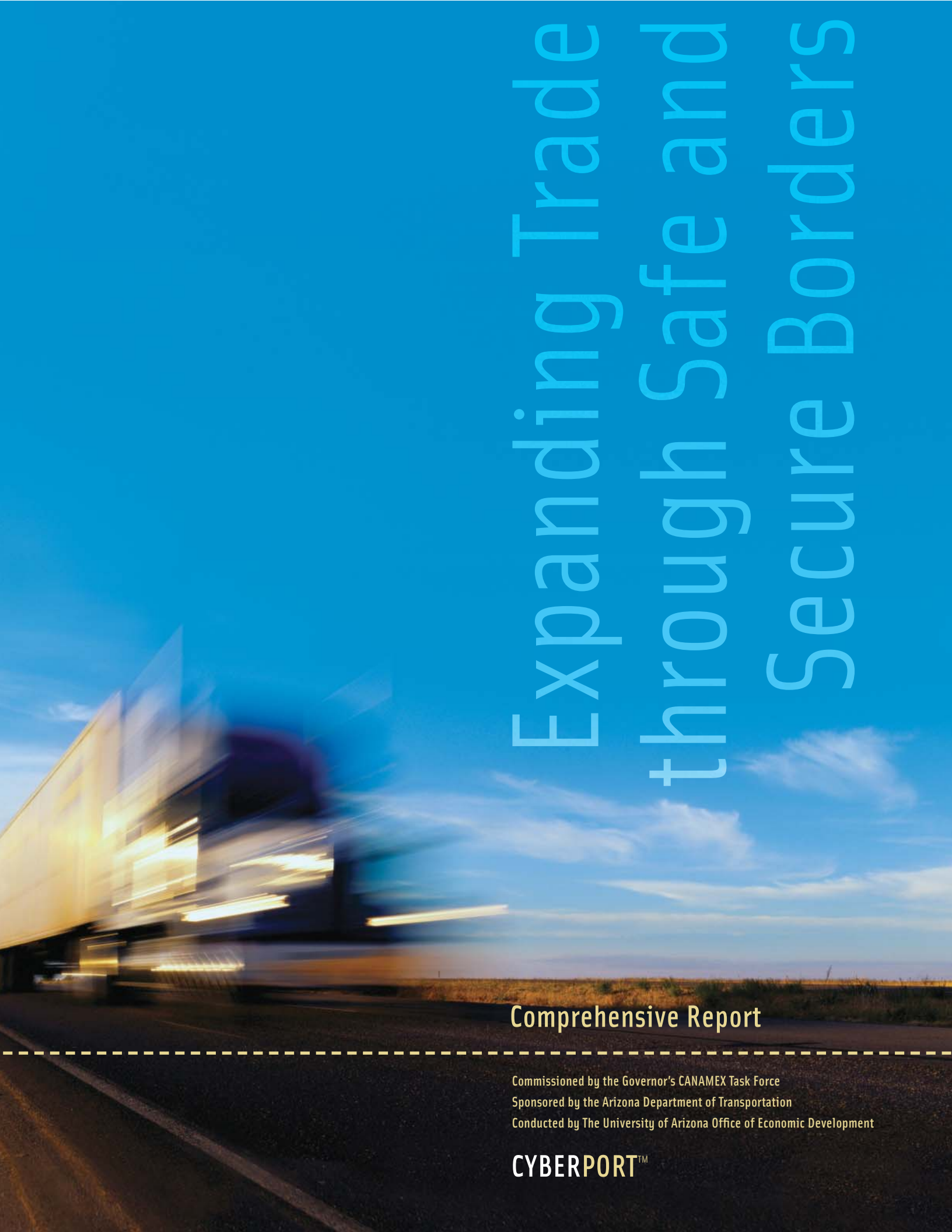

Expanding Trade through Safe and Secure Borders

Comprehensive Report

Commissioned by the Governor's CANAMEX Task Force
Sponsored by the Arizona Department of Transportation
Conducted by The University of Arizona Office of Economic Development

CYBERPORT™

Nogales CyberPort Project
Comprehensive Report, 2003

In partnership with:
Arizona Customs Management Center
A. Epstein & Sons International, Inc.
National Law Center for Inter-American Free Trade
Science Applications International Corporation
Wilbur Smith Associates

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Preface

The Nogales CyberPort Project began in the Spring of 2002 amid dramatic changes to the safety and security of U.S. borders. Throughout the following year, extraordinary change was experienced in policy and practice regarding the treatment of the border at the local, state and federal levels. While the movement toward a more efficient and effective border-crossing environment has been underway in Arizona and the U.S. for a number of years, there is perhaps a no more appropriate time to undertake the effort to define and implement a CyberPort than right now.

Because of a strong and interdependent relationship with Mexico, the southwestern U.S. border states were among the most impacted by the post-September 11th environment. The historic cultural and economic ties between the U.S. and Mexico have been tested, as border ports-of-entry have had to respond to new demands as the gateways between two nations. The new role of moving trade, people and information through these gateways will continue to be an extremely demanding and complex effort.

Without action, the social and economic livelihood of citizens in both countries may be in jeopardy – across cities, states and regions. In response to the dramatic change that has occurred in border policy and practice, equally dramatic change is needed in improvements to infrastructure, law and procedure. This will undoubtedly require significant investment and long-term commitment.

As a finding from this project, the will appears to be there. It must be tapped and coordinated and continued. Participation and support of this effort has been extraordinary and thanks go out to more than can be noted here. Former Governor Jane Dee Hull, the Governor's CANAMEX Task Force and the Arizona Department of Transportation were responsible for the commissioning of this effort, which represents the high priority each places on the Arizona-Mexico relationship. Governor Janet Napolitano has continued to provide support for the project and maintain the CyberPort effort as a high priority for the State of Arizona. A cadre of over 70 stakeholders from the trade community and government agencies in both Mexico and the United States served as advisory committee members and were invaluable in providing insight and guidance for this project. Providing direct assistance with the project were the U.S. Department of Transportation, Bureau of Transportation Statistics and the U.S. Environmental Protection Agency, Region IX.

Many thanks are also due to the project partners involved in providing data, analysis and evaluation. They are: the U.S. Bureau of Customs and Border Protection, Arizona Customs Management Center; The National Law Center for Inter-American Free Trade; A. Epstein and Sons International, Inc.; Wilbur Smith Associates; Science Applications International Corporation; and, Reebie Associates. Thanks to Jan Elster and Associates for providing professional group facilitation services. Special thanks go to the staff at the University of Arizona Office of Economic Development and the UA Center for Applied Spatial Analysis. Thanks to Godat Design for their work on the project publications and related materials and to Nexo Communications for their translation services. Coordination and cooperation, underlying principles of the CyberPort concept, have been fundamental to this project – it has been and will continue to be a team effort.

Scott Davis
Project Director

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The Nogales CyberPort Project

THE UNIVERSITY OF ARIZONA®
OFFICE OF ECONOMIC DEVELOPMENT

Project Proceedings

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Executive Summary

Nine Rules for New Global Trade

The North American Free Trade Agreement was ratified in 1993. In that same year, a great deal of activity took place to estimate the impending demands of increased trade throughout North America and to determine the types of responses that would be necessary.

The Nogales CyberPort Project revisits this analysis ten years later to develop a new conceptual model for the movement of international trade.

The ideas are not new. What is new is the presentation of a holistic and systematic framework by which the entire trade-flow process can be improved. Past improvements have largely been incremental and independent. This new approach is still incremental, but each step is coordinated with all other components in the trade-flow process.

As an example of how these ideas have been expressed elsewhere, both the banking and airline industries deal with processing, finance, security and risk at tremendous scales with a focus on customer service. In order to meet these challenges, both industries have demonstrated the application of CyberPort principles for the last 15 years. They now are operating more safely, securely and efficiently that ever before.

CyberPort's nine guiding principles and nine components of the trade-flow process come together to produce the nine rules for the future of global trade. The rules are timeless – they applied ten years ago and they continue to apply today; however, the difference is that NAFTA is no longer in its infancy and the growing pains of a North American trade community dealing with unprecedented security concerns are near crippling.

We are at a critical juncture in how we respond to this challenge. The nine rules for new global trade are simple and perhaps more important now than ever before.

1 Share the Work

When you are all tapped out, let the user do the work. More and more, companies and government agencies are realizing extraordinary gains in efficiency by enabling the user to prepare for a transaction at the front-end of the process. Whether it is making a deposit or boarding an airplane, user preparation saves everybody time and money. Giving users a secure opportunity to establish themselves as legitimate and, literally, check themselves through the process, results in labor savings and reduced congestion at processing choke points. Pre-payment of fees, pre-issuance of documents and pre-clearance for security significantly streamline the trade process.

2 Give Preferred Treatment

Good behavior is consistently rewarded. It is no secret that special treatment encourages desired behavior. This is no different in the world of trade. Specific incentives to save time and money must be provided to encourage users to modernize their traditional ways of operating.

Dedicated access to facilities as well as low-risk designations help expedite the trade-flow process and reduce the chance of time-intensive inspections. Incentives also are needed to encourage users to invest in new technology, maintain preferred safety and security standards and make infrastructure upgrades.

3 Staff to Demand

Trade is a 24-hour operation and people are involved in every minute of it. People are at the heart of commerce – more so than infrastructure, more so than technology. However, cooperative hours and levels of operation among the trade community and government agencies are not always synchronous.

Industry and agencies on both sides of the border must work together to create a flexible framework for staffing that allows for variable allocation of human resources to accommodate changes in demand throughout the day, week, month and year. Staffing levels must respond to high demand for services. Cooperation between management and labor unions (in both private industry and government agencies) also is required to best meet the needs of the system.

4 Build to Demand

Even frictionless movement needs somewhere to go. No matter how rapidly processing operations occur, the shear volume of peak flows will create a bottleneck if there is not sufficient space to accommodate the demand. At the same time, to build facilities and infrastructure that are half-empty most of the time in order to handle the occasional peak demand is not a pragmatic solution.

Large variations in flow make it difficult, if not impossible, for physical infrastructure to consistently operate at maximum efficiency. With limited resources, it is simply not feasible to accommodate all demand all the time. Variations in flow need to be reduced while facilities and infrastructure must be flexibly designed and large enough to accommodate demand the vast majority of the time.

5 Maximize Technologies

The application of technology allows for exponential leaps in efficiency and effectiveness. Technology has and will continue to play a major role, perhaps the biggest, in the movement of goods and services throughout the world. Government and industry are working closer together than ever before in developing "off-the-shelf" technologies to be quickly and easily implemented.

The application of new technologies throughout the trade-flow process and manufacturing supply-chain is essential to 1) experiencing greater and greater levels of productivity, and 2) maximizing safety and security. A uniform platform for the identification, testing and application of new technologies in a multi-national user environment must be developed.

6 Execute Placeless Transactions

*The placeless transaction is where e-trade meets e-government.*The only thing that must physically change hands in the world of trade is the good itself. All other aspects of a transaction can occur electronically. The advantage to electronic commerce is clear. However, tremendous coordination involving complex information management systems is required.

Electronic commerce must secure the transfer of information with access only allowed by authorized users. Harmonized documents also are required, ideally necessitating only a single entry of all information at the origin of a transaction, which could then be accessed by a multitude of users for varying purposes. Harmonizing trade documents within the legal and regulatory environments of multiple countries remains one of the greatest challenges in this area.

7 Manage Risk

The vast majority of transactions and shipments are made in good faith. Risk management is perhaps the single greatest principle affecting the physical flow of commerce. It is imperative that Customs and other government inspection agencies have the greatest amount of information possible to make an informed assessment as to the legitimacy of a transaction or shipment.

Quite simply, the more information, the better the judgment – and the sooner they have the information, the better prepared they are to make a judgment. Users need to be given the opportunity to demonstrate their legitimacy, thereby significantly reducing the chance of inspections. Inspection agencies need to trust users that demonstrate legitimacy and users need to trust inspection agencies to use the information provided in strictest confidence.

8 Share Inspection Responsibility

Enforcement is a team effort. Every trade shipment is subject to a multitude of authorities at the local, state and federal level. A redundancy of inspection often occurs when there is a breakdown in coordinated enforcement protocol. The challenge lies in each agency having its own criteria for inspection, which may change depending on conditions. The fact that inspection criteria are dynamic and agency-specific virtually negates the opportunity for complete harmonization of inspection procedures among agencies and countries.

However, agencies can help one another simply by knowing what each agency is trying to achieve and the protocols by which they operate. This may be demonstrated in developing a binational protocol that provides for accountability in re-sealing shipments inspected in transit. Ultimately, shared access and inspection responsibility must be granted by trading countries, where each is able to establish a designated zone in which to perform pre-inspections in the country of origin. Redundant inspections must be eliminated.

9 Measure Performance

You've got to know where you are to know where you're going. In a world of performance-based evaluation, agencies must be able to measure the degree to which they are successful. This proves to be incredibly complex when measuring the movement of international trade. Significant data gaps are the most pressing variable inhibiting comprehensive measures of success.

Standard classifications of trade and standard metrics by which to measure data are essential. The data must then be gathered in a consistent fashion and time frame among countries. Also crucial is the establishment of goals or standards of success. The development of performance standards again becomes difficult, as certain questions need to be addressed – for example, what is a reasonable amount of time for international trade to cross the border?

There is great need for an international trade-flow process that responds to these rules. CyberPort is a beginning.

The Nogales CyberPort Project

Vision

Establish the Nogales border port-of-entry (BPOE) as a port of choice for U.S.-Mexico trade.

Goal

Increase efficiency and effectiveness with regard to safety, security and trade-flow throughput.

Objective

Develop a new conceptual model for the Nogales port of the future and identify short-term recommendations designed to achieve the long-term vision.

Perspective

CyberPort looks beyond technology and beyond the port compound to identify innovation and advancement throughout the entire trade-flow process. The project employs a holistic, system-wide perspective to cooperation at the following levels:

- Local/State/Federal
- Binational/Multinational
- Public/Private

Framework for Trade

Understanding each component in the trade-flow process is essential to re-envisioning a new conceptual model. The CyberPort process was developed around the following framework of trade-flow components:

1. Physical infrastructure
2. Human resources/staffing
3. Processing
4. Regulatory environment
5. Systems integration
6. Security and access control
7. Data systems, information and communication
8. Technology
9. Planning

CyberPort's Guiding Principles

The project worked with industry and agency experts from throughout North America and Europe to identify the wide variety of functions that a CyberPort should serve under an ideal scenario. Over one-hundred ideas were put forward, which aligned with the following nine guiding principles:

1. Binational, interagency and public/private cooperation
2. Integrated and harmonized procedures and systems
3. Incentives for pre-clearance, pre-inspection and compliance programs
4. Risk identification and management
5. Safety, security and efficiency through infrastructure design
6. Secure shared information
7. New technology
8. Maximum transparency and visibility of shipments
9. Performance standards and systems for measurement

Technical Studies

A series of technical studies were conducted to inform the development of the CyberPort concept addressing legal, logistical and commodity-flow issues.

Legal Study

The National Law Center for Inter-American Free Trade conducted a legal study that provided an overview of the legal considerations regarding the implementation of the CyberPort concept. The report reviewed U.S. and Mexican federal legislation as well as the regulatory environment of customs agencies on both sides of the border. The study identified key legal challenges and areas for advancement regarding 1) duplication of inspections, 2) pre-entry certifications, 3) information exchange, 4) standard paper-based and electronic documentation, and 5) privatization of port functions.

Logistics Study

A logistics study, conducted by the engineering firm A. Epstein & Sons, examined the physical movement of people, vehicles, and freight through the Nogales port-of-entry. While operations within the port compound are identified as efficient, bottlenecks continue to occur prior to northbound arrival at the port. The logistics study found that the number of arrival lanes at the Mariposa commercial facility and the width of the Mexican approach (both roadway and bridge) were the single greatest contributors to northbound congestion.

Commodity-Flow Study

The commodity-flow study conducted by the UA Office of Economic Development examined the flow of U.S.-Mexico trade in terms of volume, value and number of vehicles in both the northbound and southbound directions. Specific focus was placed on the seven major U.S.-Mexico border crossings and their performance relative to that of the Nogales BPOE. The study also defines Arizona's natural tradeshed for U.S.-Mexico market capture. Arizona's border ports-of-entry perform in the middle of the established market share range for northbound trade and at the low-end for southbound trade. There is significant potential for increased market capture of U.S.-Mexico trade through Nogales in both directions.

The study found that in terms of weight (tons), only Laredo processes more northbound trade than the port of Nogales. However, in terms of trade value and commercial truck crossings, the port does not maintain its position of prominence. In terms of value, the Nogales share of U.S.-Mexico surface trade in 2002 (5.4 percent) was at its lowest point since 1994 when it accommodated 7.9 percent of all U.S.-Mexico surface trade. Nogales also imports the lowest average value of goods in price per ton among the major border ports-of-entry. In terms of northbound commercial truck crossings, the Nogales port has experienced a constant decline since 1998 resulting in a loss of share from 6.6 percent in 1998 to 5.8 percent in 2001.

While operations within the Nogales port compound were found to be relatively efficient, trade through the port has continued to decline despite this efficiency. This cause for concern demanded an examination of infrastructure and procedures throughout the entire trade-flow process.

Concept Model Development and Evaluation

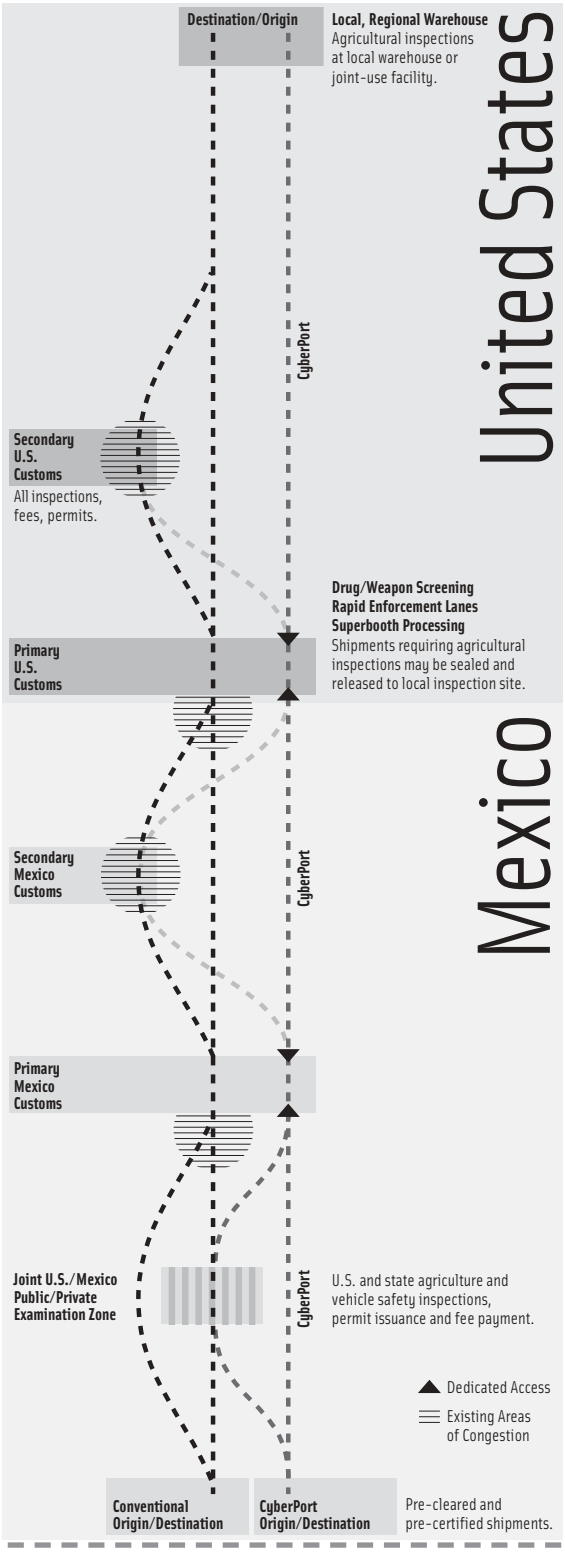
In response to the descriptive function of an ideal CyberPort trade-flow process, four concept model alternatives were developed ranging from a highly centralized border-crossing process to a highly decentralized one. Each concept alternative was consistent with the established CyberPort principles and was evaluated with respect to safety, security, efficiency, legal requirements, future growth scenarios, and impacts on the local, state, national and multinational levels.

The preferred concept model for the development of a CyberPort in Nogales was a hybrid that optimizes a mix of consolidation and decentralization of border-crossing procedures at locations throughout the process where each is the most appropriate, efficient and effective. Among the key elements of this concept is the implementation of off-site inspection for many of the activities that currently occur inside the port compound such as agricultural inspections, truck safety inspections, fee and permitting procedures, and truck weight certification.

A significant amount of congestion inside the port compound can be relieved through pre-clearance and pre-certification, as compliant trade is able to avoid the need for secondary inspection in most cases. Other key elements of the CyberPort concept include dedicated access for qualified shipments to primary customs facilities and the establishment of joint U.S.-Mexico public/private examination zones in the country of origin. Following is a diagram illustrating the CyberPort concept.

The CyberPort concept diagram illustrates the U.S.-Mexico trade-flow process under conventional and CyberPort scenarios. Critical areas of congestion in the conventional process are upon approach to customs facilities and within secondary customs compounds. Key components that relieve congestion are:

- off-site inspections (particularly for agriculture and truck safety)
- pre-certification (electronic fee payment and permitting)
- pre-clearance (sealed shipments from C-TPAT compliant warehouses and carriers)
- dedicated access to customs facilities for qualified users



Recommendations for Arizona and the Nogales Border Port-of-Entry

At the State and Customs District Level

1. Establish a binational CyberPort task force on behalf of the governors of Arizona and Sonora to oversee project development and implementation
2. Establish a dedicated hazardous materials coordination officer
3. Designate the Nogales BPOE as a national pilot test site and model port
4. Expand Northbound U.S. commercial processing capacity
5. Develop highway infrastructure improvements in Mexico and the U.S.
6. Examine and implement a user-friendly agricultural "seal and release" inspection program
7. Develop a program for the identification, testing and implementation of new technology at the Nogales POE
8. Increase inspections in Mexico
9. Enhance commercial truck and bus safety procedures
10. Develop U.S. exit control improvements
11. Implement the pilot use of a uniform cargo document (bill of lading)
12. Develop regional highway and rail infrastructure improvements
13. Develop intermodal inland port infrastructure

At the Federal and Binational Level

1. Coordinate enforcement of sealed shipments
2. Promote federal pre-inspection authority in U.S. and Mexico
3. Coordinate the application of new border technology between Mexico, Canada and the U.S.
4. Engage Arizona in the binational trade data harmonization and integration process

Further Studies

1. Examine the feasibility of passenger vehicle commuter lanes (SENTRI) through Arizona's high-use border crossings
2. Arizona trade leakage and transportation routing study
3. Regional economic impact of U.S.-Mexico trade on Arizona and the CANAMEX region
4. Cost-benefit study of major port infrastructure improvements along the U.S.-Mexico border
5. Examination of solutions addressing the impact of commercial rail traffic through downtown Ambos Nogales
6. Examine the feasibility of a port authority for Nogales and Southern Arizona
7. Detailed design, engineering and cost studies for port infrastructure improvements in Arizona
8. Environmental impact studies of port infrastructure improvements in Arizona

Project Description

History and Context

Total U.S.-Mexico surface trade has more than doubled in terms of value from approximately $88 billion in 1994 to more than $200 billion in 2001. Northbound U.S.-Mexico commercial truck crossings have experienced a similar increase from approximately 2.7 million in 1994 to over 4.3 million in 2001. This growth has simply outpaced the increase in capacity at U.S.-Mexico border ports-of-entry. The Nogales Mariposa border port-of-entry is nearing capacity and frequently operates over capacity during peak winter months, resulting in long lines to cross the border and increasing the cost of moving trade through Arizona.

Recent changes in the U.S. approach to border security and the regulation of Mexican commercial trucks have combined to place a unique set of pressures on border ports to perform in an efficient and effective manner. Border ports-of-entry have been forced to increase levels of inspection and enforcement while operating with limited capacity to accommodate significant increases in U.S.-Mexico trade. The security of hazardous material shipments and the safety of commercial motor vehicles are of particular importance.

To address this issue in Arizona and position the state as a national and global leader, the Governor's CANAMEX Task Force commissioned the Nogales CyberPort Project. The project is administered by the Arizona Department of Transportation and is conducted by the University of Arizona Office of Economic Development in partnership with the National Law Center for Inter-American Free Trade, A. Epstein and Sons International, Wilbur Smith Associates, Science Applications International Corporation, and the Arizona Customs Management Center of the U.S. Bureau of Customs and Border Protection.

The time period under which the project was conducted (Spring 2002 to Spring 2003) was one that experienced extraordinary and unprecedented change in the management structure and organization of U.S. federal border agencies. The formal creation of the U.S. Department of Homeland Security at the conclusion of the project in March 2003 began a new era of management, operations and policy regarding the federal management of U.S. borders.

The technical studies and analyses conducted within this project, however, were completed prior to the federal reorganization. As a result, the project's *Comprehensive Report* and its accompanying technical studies refer to agencies under their previous name and organization prior to March 2003. Federal agencies in the *Executive Report* are referred to under the new U.S. Department of Homeland Security reorganization structure.

The goal of the Nogales CyberPort Project is to achieve a coordinated, seamless, flexible and integrated system for the safe, secure, efficient and effective movement of trade. The project looks beyond technology and beyond the port compound to consider a holistic, system-wide approach to the development of innovation and advancement throughout the entire trade-flow process – from the point of origin to the point of destination. The project involves a specific focus on the movement of trade through commercial border ports-of-entry. However, the movement of people and passenger vehicles through the international border is an equal and inherent role of a border crossing and is considered in the development of the CyberPort process.

The project objective is the development of a new conceptual model for the future of U.S.-Mexico trade, the CyberPort concept. Phase I of the project defines the CyberPort concept and puts forward specific recommendations for the Nogales BPOE to achieve the capabilities and status of a CyberPort. Future phases of the project will be required to fully implement the identified recommendations and realize the benefits of the CyberPort process. Phase II of the project will consist of a series of feasibility and impact studies as well as detailed physical design and cost proposals for individual infrastructure projects. While operational adjustments and physical changes may occur during these two phases, Phase III will involve the physical implementation and construction of major CyberPort improvements.

CyberPort in Nogales

The Nogales port-of-entry not only serves as Arizona's primary point of access to Mexico but as a principle commercial gateway between much of Mexico and the western United States. The Nogales Mariposa commercial port facility accommodates approximately three-fourths of Arizona's northbound commercial truck traffic.

Topographic constraints have limited the capacity of roadway and port infrastructure through the canyons of Nogales, Sonora and Nogales, Arizona. The resulting bottleneck in the movement of trade and people is a primary challenge to the implementation of the CANAMEX Corridor, linking the states of Arizona, Nevada, Utah, Idaho and Montana with Mexico and Canada. As such, the Nogales port-of-entry, and the Mariposa commercial port facility in particular, is a key site in need of new and progressive ideas about how to accommodate trade in a more efficient, predictable and timely manner.

The Goals of CyberPort: Local, State, Regional, Global

The goals of the CyberPort are overarching and address the needs of multiple countries at the local, state and regional levels. The impacts of CyberPort have been considered from the local to the global. At the most direct level, the CyberPort concept is intended to increase the capacity of local border communities in Arizona and Sonora to serve as efficient and effective gateways between the U.S. and Mexico. As a result, the U.S. and Mexico sister cities of Douglas and Agua Prieta, San Luis and San Luis Río Colorado, and specifically Nogales, Arizona and Nogales, Sonora, may increase their capacity for accommodating trade while minimizing negative impacts on the local community. The goal is to make Arizona's border crossings as safe, secure and efficient as possible.

The benefits of this goal are also intended to extend to the state, regional and global level. Through the operation of efficient and effective border crossings, major metropolitan areas with access to multiple modes of transport are better positioned to become hubs for the flow of trade and tourism

between the U.S. and Mexico. Tucson has the potential to serve as an inland port, where a wide variety of trade and transportation services are provided at the intersection of primary air, rail and highway trade routes. Another goal of the CyberPort concept is to position the state of Arizona as a leading gateway between the western U.S. and Mexico, thereby increasing its regional competitiveness. The facilitation of the growth of commerce in and through Arizona will create jobs in transportation and distribution, export-related activities, tourism and other trade-related services.

The regional goals of applying the CyberPort concept in Arizona are to strengthen the relationship between Arizona and Sonora and to facilitate the development and competitiveness of the CANAMEX region. The binational Arizona-Sonora region serves as a keystone to the development of the CANAMEX Corridor and as such becomes a critical link in fostering trade throughout North America from Mexico City, Mexico to Edmonton, Canada. The CANAMEX Corridor connects the rapidly growing U.S. states of Arizona, Nevada, Utah, Idaho and Montana to the growing markets of Mexico and Canada.

The development of the CyberPort as a universal concept enables its application elsewhere along the U.S.-Mexico border. While the challenges of implementing the concept in Arizona are evaluated specifically with respect to Mexico, the CyberPort concept itself is intended to be applicable to all border ports-of-entry in the U.S. and throughout the world. While great diversity exists among all international border ports-of-entry, the CyberPort concept may serve as a comprehensive framework for developing place-specific models appropriate for use anywhere.

A History of Cooperation, Study and Innovation

The origins of the CyberPort concept, working toward new and progressive ways to enhance U.S.-Mexico trade in the region, began over forty years ago. Arizona has been a national leader in fostering U.S.-Mexico trade relationships long before the implementation of NAFTA in 1994. The establishment of the Arizona-Mexico West Coast Trade Commission in 1959 was among the pioneering efforts in integrating the two countries as a unified economic region. The relationship between the states of Arizona and Sonora developed into the Arizona-Mexico Commission and the Comisión Sonora-Arizona in 1972 and remains active today with binational plenary sessions held twice annually.

Binational study of the region also has a considerable history. The Arizona Trade Corridor Study in 1993 assessed Arizona's capacity to perform under NAFTA and served as a basis for the establishment of the CANAMEX Corridor. Since 1994, the Arizona-Mexico Program at the University of Arizona Office of Economic Development has co-coordinated a variety of study efforts on cross-border trade issues in the areas of mining, manufacturing, agribusiness, tourism, health services and transportation. The program continues to evaluate Arizona's competitiveness and monitor regional economic indicators on an annual basis.

Specific examination of the Nogales port-of-entry was the focus of the *Arizona Port Efficiency Study*, commissioned by the Arizona Department of Transportation in 1997. Conducted by TransCore in cooperation with Science Applications International Corporation (SAIC) and the National Law Center for Inter-American Free Trade, this study resulted in significant efficiencies within the port-of-entry compound.

The unprecedented concept of state and federal agents sharing the same processing space (known as a Superbooth) was subsequently implemented and is extremely successful in the operation of the commercial port's "rapid enforcement lane" system. Approximately 60 percent of northbound commercial truck traffic arriving at the U.S. Customs facility is processed through the rapid enforcement lane and proceeds into the U.S. without having to enter the secondary port compound. The commissioning of the Nogales CyberPort Project by the Arizona Department of Transportation in 2002 is an extension and continuance of this long tradition of cross-border study and cooperation.

The Process

The project has a number of components that are organized around the following areas:

- Information
- Analysis
- Concept Development
- Outreach

Information

The CyberPort project is informed by the following:

- Stakeholder Advisory Committees
- Industry Experts and Consultants
- Stakeholder Interviews
- Field Surveys and Assessments
- Literature Review

Stakeholder Advisory Committees

The project solicited input from a 42-member Technical Advisory Committee, a 17-member Steering Committee and a 10-member Oversight Committee. Meetings with these committees occurred periodically throughout the project and were invaluable in identifying key areas of focus as well as heightening the project's understanding of technical, procedural and agency issues.

Industry Experts and Consultants

The assistance of experts from both government and industry was solicited to help conceptualize the ideal trade-flow process and to inform the development of a concept model addressing areas such as process improvement, technology gaps and interagency collaboration. These experts participated in the project's advisory committees and as direct partners on the project team.

As part of the CyberPort project team, technical and legal assistance was provided by SAIC and the National Law Center for Inter-American Free Trade, both of which were part of the 1997 Arizona Port Efficiency Study. A. Epstein & Sons International, an architecture and engineering firm, provided assistance on logistical issues. Wilbur Smith Associates, an economics, engineering and planning firm, assisted in the evaluation of the CyberPort concept as well as providing economic analysis and forecasting. The firm was previously responsible for the 2000 *CANAMEX Corridor Study* commissioned by the Arizona Department of Commerce.

Stakeholder Interviews

The project was informed by over two-dozen personal interviews with various stakeholders from both government and the trade community. These interviews presented tremendous insight regarding the specific challenges facing port users, administrators and inspection agents. The institutional knowledge of these stakeholders provides an extraordinarily valuable asset toward understanding the holistic and incremental changes to cross-border trade over time.

Field Surveys and Assessments

On-site field surveys in Nogales and other U.S.-Mexico border ports-of-entry served as an excellent opportunity to identify best practices and experience how other border crossing facilities address their own site-specific challenges. As each port-of-entry is unique in its configuration, resources, capacity and history, a consistent periodic scan and assessment is invaluable in understanding the scope and diversity of problems that need to be addressed. The Technology Assessment of the Nogales, Arizona Border Port-of-Entry can be found in the *Comprehensive Report*.

Literature Review

Hundreds of documents and publications were reviewed to inform the project. Cross-border trade is a dynamic and fast-moving issue with new information presented on a weekly basis. Government, academic and trade publications in this area are numerous and general media on the issues of North American trade and U.S. border security is constant.

Analysis

A series of four technical studies was conducted to inform the project. Each study was led by a project partner in the following areas: 1) legal issues, 2) logistical issues, 3) commodity flows, and 4) concept evaluation and trade forecasts. The studies were collectively reviewed and finalized by all project partners and advisory committees. The four studies are as follows:

- *Alternative Trade Flow Projections and CyberPort Concept Models,* Prepared by Wilbur Smith Associates
- *Assessment of Legal Issues,* Prepared by the National Law Center for Inter-American Free Trade
- *Trade Flow Logistics Study*, Prepared by A. Epstein & Sons International, Inc.
- *Commodity Flow Study*, Prepared by The University of Arizona Office of Economic Development

Summaries of the study findings are presented in the *Executive Report.* The complete documents are included within the *Comprehensive Report.*

Concept Development

The development of the CyberPort concept model began with the identification of basic guiding principles that are applicable to the entire trade-flow process, from the point of origin to the point of destination. A Port Expert Roundtable was convened to identify these basic principles through a retreat-style workshop. The purpose of the roundtable was to assimilate ideas, both known and new, into a macro, system-wide framework that looks beyond the border-crossing process occurring directly at the border.

Supplemented by binational stakeholder interviews and project advisory committees, the Port Expert Roundtable served as the beginning forum to think outside the box and present creative new ideas for consideration. The results of the roundtable served to facilitate the evaluation process by public and private stakeholders as the ideas and concepts experienced refinement and further definition.

The primary objective of the Port Expert Roundtable was to convene a small group of industry specialists to identify the basic guiding principles and organizational framework for the ideal U.S.-Mexico trade-flow process, a CyberPort process. The roundtable workshop was attended by 12 project partners and 12 invited port experts. The results of the roundtable served as the foundation for the CyberPort concept. The complete roundtable summary and proceedings are included here.

Outreach

Constant outreach and feedback from a variety of agencies and organizations throughout the development of the CyberPort process was essential in developing a concept that responds to the wide range of needs by a multitude of stakeholders. All U.S. state and federal agencies involved in the U.S.-Mexico trade process were represented on the project advisory committees. In addition to the agencies and organizations represented on the project advisory committees, targeted outreach efforts were made to the following organizations and individuals:

- Nogales City Council
- Santa Cruz County Board of Supervisors
- Asociación de Maquiladoras de Sonora
- Nogales Association of the National Customs Brokers & Forwarders Association of America
- Border Trade Alliance
- Arizona-Mexico Commission
- Comisión Sonora-Arizona
- Governor's CANAMEX Task Force
- Western Governors' Association
- Good Neighbor Environmental Board and EPA Region IX Headquarters
- Transportation Research Board, National Research Council
- U.S. Department of State, U.S.-Mexico Border Coordinator
- Secretaría de Relaciones Exteriores
- Secretaría de Hacienda y Crédito Público
- Secretaría de Comunicaciones y Transportes
- Comisión de Avalúos de Bienes Nacionales
- Secretaría de Gobernación
- Comisión para Asuntos de la Frontera Norte
- Secretaría de Desarrollo Social
- Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación
- Gobierno de Sonora
- Policía Federal Preventiva

Implications for Arizona and Beyond

The Nogales port-of-entry is Arizona's primary gateway for U.S.-Mexico trade and the application of the CyberPort concept to that gateway is the focus of the project. However, the secondary Arizona commercial ports located in San Luis and Douglas are well positioned to apply the CyberPort concept to their respective border-crossing procedures. The application of CyberPort at San Luis is particularly timely and relevant as a new port-of-entry is to be constructed. CyberPort was developed initially as an ideal concept applicable to the international trade-flow process. The CyberPort concepts and ideas were ultimately refined to apply to the conditions present in Nogales. However, the CyberPort concept is a universal one and has appropriate application to other ports-of-entry along both the southern and northern U.S. borders as well as internationally.

Technology Assessment of the Nogales Port-of-Entry

Summary

Throughout the past decade, the Arizona Customs Management Center (CMC) and the State of Arizona have been leaders in the development and implementation of innovative ideas directed at improving the efficiency and effectiveness of port operations. For Customs, risk management has been the driving force in the development of creative solutions to challenges in such areas as narcotics trafficking, illegal immigration, homeland security, customs fraud, weapons and ammunition smuggling, and vehicle theft. The State seeks to increase trade flow through Arizona's land border ports. Balanced, bias-free, and sensible decision making seeks to achieve these goals while promoting civility and impartiality toward all.

The Nogales Customs District is comprised of eight ports of entry. Six of these ports are located on the Arizona-Mexico border with the Nogales port being the largest in relation to the flow of commercial cargo, pedestrians, and passenger vehicles across the border. Roughly 4.6 million passenger vehicles and 4.8 million pedestrians enter the United States from Mexico at Nogales each year. In addition, 250,000 commercial vehicles carrying a diverse array of cargo traverse this same port-of-entry annually. This represents 5.8 percent of the total incoming commercial vehicles along the entire U.S.-Mexico border.

Although similar in characteristics of many larger ports, Nogales' more manageable size has allowed for state and federal partnership, resulting in the implementation of new policies, procedures and state-of-the-art technology.

Some of the advances currently in place in Nogales include:

- Extensive use of real-time ***Remote Video Surveillance*** (60+ cameras at the Nogales port; 200+ cameras district-wide) to monitor all aspects of port operations including:
  - Facial recognition technology at the Nogales pedestrian entry point to identify known criminals and suspected terrorists;
  - Queuing Measurement System (QMS) to monitor traffic flow and help alleviate backups;
  - Air to ground monitoring with Customs air assets to assist in tactical enforcement maneuvers; and
  - Remote Non-Intrusive Inspection (NII) technology to identify contraband in commercial and rail traffic by safely monitoring scanned images at locations away from the border.
- ***Customs Automated Operations System (CAOS)*** is designed to eliminate predictable behavior in port operations that can facilitate drug smuggling activities.
- ***Land Border Vehicle Targeting System (LBVTS)*** uses variables like the vehicle owner's name, address, license number, and crossing history to assist in identifying high-risk vehicles for secondary inspection.
- ***Mariposa Cargo Redesign Project*** that includes:
  - *Pre-screening areas* to expedite clearance and identify contraband as well as safety and security hazards before entering the facility;
  - *Weigh-In-Motion (WIM)* at the border to identify vehicles that can damage highway infrastructure;
  - *Superbooths* to house both U.S. Customs and Arizona Department of Transportation (ADOT) Motor Vehicle Division personnel to facilitate the use of rapid enforcement lanes;
  - *Rapid Enforcement Lanes* to expedite compliant commercial traffic; and
  - *Arizona Department of Transportation Annex,* which involved the acquisition of ten acres of land adjacent to the port to be used for a shared-use facility for vehicle safety and hazardous material inspections.

New programs under development include:

- ***Expedited Processing at International Crossings (EPIC 2)*** – a program designed to expedite the flow of traffic across the border by providing pre-clearance for State of Arizona carriers and drivers and through the use of vehicle messaging systems (VMS) to foster more efficient movement of traffic through the port.
- ***Outbound Stolen Vehicle Detection*** – a program used to non-intrusively identify stolen vehicles exiting the country.
- ***Portal Radiation Detection Devices*** – technology used to screen trucks for nuclear devices entering the country illegally.

The Arizona CMC has made advances toward ensuring the integrity of our southern border with Mexico. These initiatives are being undertaken in a competent and professional manner without compromising the level of service provided to port users. The high level of effective intra- and inter-agency communication and partnership has been essential in making these changes happen.

The Nogales port-of-entry represents a model port for implementation of state-of-the-art innovations in the face of tight budgets and limited resources.

Introduction

The goal of the Arizona CMC and the State in working toward more efficient and effective port operations has been to foresee intelligent solutions that can be modified to, connected to, and built upon one another. At the core of this network is the Nogales Customs District Operations Center located at the Arizona CMC in Tucson, which serves as the command center for all six Nogales District land border ports. By locating the center away from the border, port operations become safer, more efficient, and more uniform.

Three main port systems are monitored and/or operated from the center—Remote Video Surveillance, Customs Automated Operation System (CAOS), and Land Border Vehicle Targeting System. Once these three dynamic systems are in place within the Operations Center, the center is conceivably open and adaptable to any number of enforcement technologies. Currently, Facial Recognition, the Queuing Measurement System, Air to Ground, and Remote NII Interpretation are being tested at Nogales District ports, and are all capable of being operated on-site or from the Operations Center.

A brief history and the implications of the current ingenuities found in the Nogales Customs District, primarily at the Nogales port-of-entry, are given in this paper. All are indicative of Nogales' prime technological and physical position for testing and modeling new border management techniques. The three main systems of the Operations Center and the three peripheral systems, all of which were spawned and/or tested in the Nogales Customs District, are described.

Remote Video Surveillance

Video surveillance was previously used on an intra-port basis across the country to monitor port activities for quality assurance and to protect officer safety. There was no continuity in the video template or equipment; the technology was outdated; the analog medium did not weather southern border conditions well; and there was no remote access from which to monitor all port district operations.

In response, the Nogales Customs District collaborated with other agencies (Immigration and Naturalization Service (INS), General Services Administration (GSA), Federal Protective Service, etc.) to develop a single template on which to monitor the pre-primary, primary, secondary, post-primary, cargo, and spotter areas of each port. By 1999, uniform digital fiber-optic off-the-shelf video surveillance technology was purchased with non-appropriated funds and installed in all six ports. Currently, all Nogales District land border ports can be monitored from the Customs Management Center in Tucson. Two-hundred-and-five cameras distributed statewide deliver real-time video 24 hours a day on a wide area network (WAN) with the exception of Douglas, which is connected by satellite.

This system is capable of extending throughout the United States so that all ports could be monitored from any connected monitoring site. The Northern Border Security Project (NBSP) used the Nogales District as a model and the state of Washington is now connected on the same remote video system.

Tied into the Remote Video system are Facial Recognition, the Queuing Measurement System, Air-to-Ground, and Remote NII Interpretation, which collectively create a unique, highly effective, intelligent enforcement and interdiction program.

Facial Recognition

ARGUS, a prototype system built by Visionics Inc., the leader in facial recognition, is currently being tested at the Nogales DeConcini pedestrian port-of-entry. The system utilizes two cameras; one directed toward the door through which all inbound pedestrians must enter, and one directed on the face of the person undergoing primary inspection at the inspection booth. The facial identity of each pedestrian is checked against a database of up to 30,000 digitally coded images of individuals wanted by local, state, and/or federal law enforcement agencies. When a "match" is recognized by the system, pictures of those in the database most resembling the pedestrian are displayed on a screen. The number of matches identified is dependent on the degree of confidence specified by the system user. The picture is also automatically sent and displayed to the supervising Customs agent on a Motorola cellular telephone (which is currently one of two in existence).

This is the only such system in the U.S. Customs network; however, the Arizona Customs Management Center has been requested to write a proposal to implement ARGUS at the Phoenix International Airport. Additionally, this technology could be used to screen passenger and commercial vehicle drivers entering the port.

Queuing Measurement System (QMS)

Based on technology developed by Premiere Wireless used to study bear behavior in Alaska, the Queuing Measurement System went online at the Mariposa passenger vehicle facility in late December of 2001. The programming adaptation required to change the system from recognizing bear behavior to recognizing passenger vehicles waiting to cross the border was solicited and purchased with non-appropriated funds by the Arizona CMC. It is the first and only system of its kind in the country.

The system samples traffic flow every 20 seconds assessing four primary characteristics: 1) cars per minute per lane, 2) total cars per minute, 3) total cars in all lanes, and 4) average wait time. To determine the number of total cars in all lanes and queue, two cameras are used. One camera looks to the front of the queue and another camera, mounted on the roof of the inspection facility, searches out the last car in line using texture recognition technology.

The system alerts inspectors when traffic patterns are abnormal (e.g., if a car is going the wrong way) and also performs sensitivity analyses for "what if" scenarios (e.g., What if there were three lanes open instead of two? What if the average processing time of a lane increases?). Currently, when the line becomes longer than the camera's field of view, the predicted wait times are not accurate. With more cameras mounted in Mexico or on viewing platforms with greater visibility, the total number of cars in the lanes and queue would be continually measured with complete accuracy.

Air to Ground

By attaching a regular video camera to the front-end of a Customs helicopter from the Customs Tucson Air Group stationed at Davis-Monthan Air Force Base, video feed can be transmitted to a receiver located at the Nogales port-of-entry. The camera is able to transmit images within a 35-mile radius of the receiver, which is also then transmitted to the Arizona CMC's remote video system. This development will be useful in monitoring and directing large-scale incidents (evacuations, pursuits, etc.).

Remote Non-Intrusive Inspection (NII)

Non-Intrusive Inspection equipment (gamma ray, x-ray machines, etc.) requires the operator to be trained and experienced in interpreting the resulting image. Identification of anomalies in the image is a technique unique to each agent and a skill that improves over time. Currently, the scans are performed and interpreted by inspectors in each port compound. Maintaining a sufficient number of inspectors qualified and well-practiced at interpreting Non-Intrusive Inspection images has been a challenge for U.S. Customs.

In response, the Arizona CMC suggests that Remote Non-Intrusive Inspection be implemented to analyze all the images scanned at all Arizona District ports in one single location on a real-time basis. This system could even be extended to one national center, where a single team of inspectors could interpret all images. Centralizing the expertise of interpretation allows a consistent, high-quality analysis of scanned images. It also moves inspectors away from the border to a safer location.

Customs Automated Operations System (CAOS)

The Customs Automated Operations System was developed and tested by the Nogales Customs District to prevent port predictability. The system randomly shuffles lane numbers and inspector lane assignments, and randomly initiates K-9 Blitzes and other enforcement techniques, all at random times throughout the day. The unpredictable nature of such events makes it difficult for "spotters" to capitalize on areas of port predictability. This helps prevent smugglers from taking advantage of deterministic port operations that reduce the probability of being caught.

The system can also be used as an emergency messaging system, which can be accessed and controlled at the Operations Center, and is color-coded according to the Homeland Security Advisory System. On September 11, this system allowed the Customs Management Center to directly affect operations at each Arizona port-of-entry immediately. National Customs recognized the value of this system developed at Nogales and has recently spent 6.2 million dollars to expand CAOS to all southern border ports.

Land Border Vehicle Targeting System (LBVTS)

Large-scale narcotics smuggling groups are organized, which means their activities are often predictable. Smuggling organizations often use the same vehicle fleet and driver pool to transport contraband. Sometimes, they cross many vehicles at once, or in a set pattern. In the past, Customs used a manual technique called "rattlesnaking" to target smugglers by identifying such crossing patterns.

The Land Border Vehicle Targeting System is a prototype developed by private industry for the Defense Information Services Agency (DISA) to test the effectiveness of automated targeting. It combines data from the Treasury Enforcement Communication System (a database containing all the border crossings for the U.S.) with Arizona car registration information provided by the Arizona Department of Transportation Motor Vehicle Division (MVD). When an inbound vehicle arrives at the port, the system employs the Multiple Port Query Tool, which uses pattern recognition, machine learning, and statistical techniques to estimate the likelihood that the vehicle is carrying narcotics.

A Douglas port supervisory inspector who successfully developed a unique and effective targeting system called "Rattlesnake" played a key role in the development of the automated system. Once the system was built, DISA shared it with the Arizona CMC for field-testing. Tests are funded for the current and coming fiscal years. Arizona was a logical choice for this test because it is the only state providing MVD data. This is another example of the cooperation enjoyed between the State of Arizona and U.S. Customs.

Mariposa Cargo Redesign Project

Since 1994, trade between the U.S. and Mexico has increased dramatically thereby placing significant capacity burdens on the Nogales port-of-entry. Processing commercial trucks is further complicated by large seasonal variation in flow caused by the produce industry. This, combined with heightened levels of security and safety inspections, has led to rethinking port infrastructure design.

In 1997, the State commissioned the *Arizona Port Efficiency Study* (APES). The collective response by the State, Customs, and port users led to significant changes in cargo processing at Nogales' Mariposa port-of-entry. The sum of these changes is the Mariposa Cargo Redesign Project.

The highlights of the Mariposa Cargo Redesign Project include the separation of commercial and passenger vehicles, the creation of a cargo drug screening area equipped with two slow-speed weigh-in-motion (WIM) scales, the implementation of the Superbooth, as well as Rapid Enforcement Lanes. These adaptations demonstrate Nogales' flexible approach to creative solutions.

Pre-Screening Area

The pre-screening area is a covered, open-air building large enough to house two trucks at a time with two WIM scales prior to its entrance. The area was constructed at the front of the commercial queue where the commercial and passenger vehicles separate.

Each truck is weighed as it approaches the pre-screening area at the front of the queue. Once the truck enters the building, it stops for inspection agents who check for contraband and any other potential hazards. If no further inspection is necessary (x-ray, safety inspection, agricultural inspection, etc.), the truck proceeds to a Superbooth or is otherwise directed into the compound. By taking advantage of the queuing system, all trucks are weighed and inspected.

Slow-Speed Weigh-in-Motion (WIM) Scales

In accordance with NAFTA compliance provisions, many state departments of transportation are seeking funding to implement WIM scales at their international borders. The Nogales port-of-entry has been using WIM scales for the past two years.

Superbooth

Before the conception of the Rapid Enforcement processing scheme, all truckers had to drive into the compound, park and proceed to the Arizona Department of Transportation (ADOT) trailer to secure their trip permits after processing through Customs. To alleviate this congestion, the Arizona CMC erected three Superbooths immediately after the drug screening area. Each booth consists of two consecutive windows. The first window houses a Customs inspector who verifies that appropriate documentation has been filed with U.S. Customs. The second window houses Arizona MVD personnel who verify truck and driver registration, vehicle insurance, and that trip permits have been procured and all fees are paid. The Superbooth combines these two stops into one, eliminating unnecessary stops in the compound.

Rapid Enforcement Lanes

The Rapid Enforcement Lanes were implemented in response to the 1997 *Arizona Port Efficiency Study*. The APES identified an increasing volume of cargo at a port limited by physical infrastructure.

Highly compliant traffic that successfully moves through the pre-screening area is directed to the Superbooth where all documentation is checked. A driver must have four documents—Customs Form 7533 (Inward Manifest), Customs Form 3461 (Entry/Immediate Delivery Form), Shipment Invoice, and an ADOT trip permit. For trucks not participating in the Rapid Enforcement Lane program, the only document legally necessary to cross the border is the Customs Form 7533. If all four pieces of documentation are in order and the truck is not randomly selected for inspection, the truck is sent to the release gate without ever entering the secondary federal compound. This program minimizes congestion in the compound and decreases the processing time.

Arizona Department of Transportation (ADOT) Annex

The State of Arizona has recently acquired a ten-acre parcel of land adjacent to the Mariposa federal compound to use as a truck inspection facility. This facility will be shared to accommodate the Federal Motor Carriers Safety Administration (FMCSA), Arizona Department of Public Safety (AZ DPS), and the Arizona Department of Transportation's Motor Vehicle Division (ADOT MVD) in preparation for the full compliance with NAFTA provisions and newly implemented safety regulations. FMCSA is poised to begin inspections in 2002. Additionally, Customs plans to use the extra space for trucks awaiting agricultural inspection.

Also, an external access way will soon be under construction on an additional 12 acres of adjacent land. The road will connect the ADOT Annex to an extra exit gate, which will reduce congestion exiting the existing gate.

Though this project has been initiated by the state, multiple agencies will benefit. This kind of cooperation is typical at the Nogales port-of-entry and is reflective of its progressive approach to port operations.

Present and Future Projects

Expedited Processing at International Crossings (EPIC 2)

EPIC 2 focuses on processing commercial vehicles at the border. The goal of the program is 1) to provide electronic pre-clearance to qualifying Arizona carriers and drivers and 2) to provide traffic congestion and queuing information to carriers and shippers. The first component involves placement of transponders in trucks that enable automatic identification of the vehicle to Customs inspectors as it enters the port with subsequent validation of vehicle registration, licensing, and insurance records. The second component of the system involves use of vehicle messaging systems (VMS) to direct the properly identified and authorized vehicle into an expedited processing area.

Outbound Stolen Vehicle Detection

Customs is installing two cameras at the outbound lanes of the Douglas port-of-entry: one to capture the driver's face and one to capture a rear image of the car. These cameras are used in conjunction with the outbound license plate readers (LPRs) already installed at the Douglas port. The camera and LPR data will be sent to the Arizona CMC in Tucson where it will be combined with DPS' Mexican vehicle data as a tool against auto theft and car insurance fraud. Arizona DPS will have direct access to this new system once their network connection is installed at the Arizona CMC.

Portal Radiation Detection Device

Technology designed to detect radiation being emitted from commercial vehicles passing through the detection device are being considered for the Nogales port. This technology is specifically targeted at vehicles transporting weapons of terror making their way into the United States through Mexico.

Conclusion

With risk management as a primary objective for all international ports-of-entry throughout the United States, Arizona CMC has taken the initiative to introduce new and innovative technology to meet this objective. It has been able to accomplish this goal due to the close and collaborative working relationship it maintains with the State of Arizona and port users. The Nogales port exists within a cooperative community environment that has supported the development of creative and flexible solutions to new and existing challenges. This has allowed for successful implementation of a number of technologies and creative programs not in use at any other port. In taking the lead to promote safety and security while maintaining efficient and cost-effective operations, the Nogales port-of-entry serves as a model port facility.

Evaluación Tecnológica del Puerto Fronterizo de Entrada de Nogales

Resumen

Durante la ultima década el Centro de Administración de Aduanas de Arizona (CMC) y el Estado de Arizona han sido líderes en el desarrollo e implementación de nuevas ideas dirigidas a mejorar la eficacia y efectividad de las operaciones del puerto fronterizo. Para Aduanas, la administración de riesgos ha sido la fuerza propulsora en el desarrollo de soluciones creativas a los retos en áreas tales como el tráfico de narcóticos, emigración ilegal, seguridad de la patria, fraude de aduanas, contrabando de armas y municiones y robo de vehículos. El estado busca incrementar el flujo del intercambio comercial a través de los puertos fronterizos de Arizona. Una toma de decisiones equilibrada, libre de prejuicios y sensible busca conseguir estos objetivos al tiempo que promueve una actitud civil e imparcial para todo.

El Distrito de Aduanas de Nogales está compuesto por ocho puertos fronterizos de entrada. Seis de estos puertos están ubicados en la frontera de Arizona-México con el puerto de Nogales siendo él mayor en relación con el flujo de cargas comerciales, peatones y vehículos de pasajeros que atraviesan la frontera de Nogales. Aproximadamente 4.6 millones de vehículos de pasajeros y 4.8 millones de peatones entran cada año a los Estados Unidos desde México en Nogales. Además 250,00 vehículos comerciales transportando una variedad de cargas atraviesan este mismo punto de entrada anualmente. Esto representa el 5.8 por ciento del total de los vehículos comerciales que entran a los Estados Unidos a lo largo de toda la frontera de Estados Unidos y México.

A pesar de que es similar en características a muchos de los grandes puertos fronterizos, el tamaño más manejable de Nogales ha permitido una cooperación del Estado y Aduanas, pruebas de campo e implementación de nuevas políticas, procedimientos y de la tecnología más moderna.

Alguno de los adelantos actualmente implantados en Nogales incluyen:

- Un amplio uso de ***Vigilancia Remota por Video*** en tiempo real (más de 60 cámaras en el puerto de Nogales; más de 200 cámaras en todo el distrito) para controlar todos los aspectos de las operaciones del puerto:
  - *Tecnología de reconocimiento facial* en el punto de entrada de peatones de Nogales para identificar a delincuentes conocidos y terroristas sospechosos;
  - *Sistema de medida de Colas (QMS)* para controlar el flujo del trafico y ayudar a aliviar los apilamientos;
  - *Control aire a tierra* con elementos aéreos de Aduanas para ayudar en operaciones tácticas de las fuerzas de la ley; y
  - *Inspección remota no intrusiva (NII)*, tecnología usada para identificar contrabando en trafico comercial y de ferrocarril controlando desde ubicaciones lejanas a la frontera y de una forma segura, las imágenes rastreadas.
- ***Sistema de Operaciones Automático de Aduanas (CAOS)*** está diseñado para eliminar el comportamiento predecible en las operaciones del puerto que puede facilitar las actividades de contrabando de estupefacientes.
- ***Sistema de Localización de Vehículos en la Frontera (LBVTS)*** usa variables como el nombre del propietario del vehículo, dirección, número de la matrícula, y el historial de cruces para ayudar a identificar vehículos de alto riesgo para una inspección secundaria.
- ***Proyecto de Rediseño de Carga de Mariposa que incluye:***
  - *Areas de control previo* para agilizar el despacho de aduanas y la identificación de contrabando así como los peligros de seguridad antes de entrar en la instalación;
  - *Pesada en Movimiento (WIM)* en la frontera para identificar vehículos que pueden dañar la infraestructura de las carreteras;
  - *Supercasetas* para personal de la División de Vehículos del Departamento de Transporte de Arizona (ADOT) y de Aduanas de los Estados Unidos para facilitar el uso de los carrilles de imposición rápida;
  - *Carriles de Imposición Rápida*, para agilizar el tráfico comercial que está en cumplimiento; y

– *El Anexo del Departamento de Transporte de Arizona* que supone la adquisición de diez acres de terreno adjunto al puerto para ser usado de una instalación de uso compartido para las inspecciones de seguridad de vehículos y de materiales peligrosos.

Nuevos programas en desarrollo incluyen:

– ***Procesamiento Agilizado en los Cruces Internacionales (EPIC2)***-un programa diseñado para agilizar el flujo del trafico a través de la frontera proporcionando un despacho aduanan previo para los transportistas y conductores del Estado de Arizona y a través del uso de sistemas de señalización para vehículos (VMS) fomentar un movimiento más eficaz del trafico a través del puerto.
– ***Detección de Vehículos Robados de Salida***–un programa usado para identificar de forma no intrusiva los vehículos robados que salen del país.
– ***Dispositivos de Portales de Detección de Radiación***- Tecnología usada para cribar camiones para detectar dispositivos nucleares que entran en el país ilegalmente

El CMC de Arizona ha hecho adelantos para asegurar la integridad de nuestro borde sur con México. Estas iniciativas están siendo llevadas a cabo en una forma competente y profesional sin comprometer el nivel del servicio proporcionado a los usuarios del puerto. El alto nivel de una efectiva comunicación y colaboración entre las agencias y hacia ellas ha sido esencial para hacer que ocurran estos cambios.

El puerto fronterizo de entrada de Nogales representa un puerto modelo para la implementación de las innovaciones más modernas a la vista de presupuestos apretados y recursos limitados.

Introducción

El objetivo del CMC de Arizona y del Estado al trabajar hacia unas operaciones de puerto más eficaces y eficientes ha sido el prever soluciones inteligentes que pueden ser modificadas, conectadas, y construida unas sobre otras. En el Centro de esta red de trabajo está el Centro de Operaciones del Distrito de Aduanas de Nogales ubicado en el CMC de Arizona en Tucson, que sirve como el centro de control para todos seis puertos fronterizos de tierra del Distrito de Nogales. Colocando el centro alejado de la frontera, las operaciones del centro se hacen más seguras, más eficaces y más uniformes.

Tres principales sistemas del puerto son controlados y / u operados desde el centro–Vigilancia Remota por Video, Sistema de Operación de Aduanas Automático (CAOS) y el Sistema de Localización de Vehículos en la Frontera. Una vez que estos tres sistemas dinámicos estén instalados en el Centro de Operaciones, el centro estaría conceptualmente abierto y sería adaptable a cualquier número de tecnologías de imposición de la ley. Actualmente, Reconocimiento Facial y el Sistema de Medidas de Líneas, Aire a Tierra e Interpretación NII Remota están siendo probados en los puertos del Distrito de Nogales, y todos son capaces de ser operados en el sitio o desde el Centro de Operaciones.

En este documento se proporciona un breve historial de las implicaciones de las actuales ingeniosidades encontradas en el Distrito de Aduanas de Nogales, principalmente en el puerto fronterizo de entrada de Nogales. Todas son indicativas de la posición física y tecnológica prima de Nogales para probar y usar como modelo nuevas técnicas de administración de la frontera. Los tres sistemas principales del Centro de Operaciones y los tres sistemas periféricos, todos los cuales fueron creados y o probados en el Distrito de Aduanas de Nogales quedan descritos aquí.

Vigilancia Remota por Video

La vigilancia por video fue previamente usada entre puertos a lo largo del país para controlar las actividades del puerto para asegurar la calidad y para proteger la seguridad de los oficiales. No había una continuidad en el equipo o plantilla de video, la tecnología era antigua; el medio analógico no soportaba bien las condiciones de la frontera del sur y no había acceso remoto desde donde controlar todas las operaciones del distrito de puerto.

En respuesta a ello, el Distrito de Aduanas de Nogales colaboró con otras agencias (El Servicio de Inmigración y Naturalización (INS), la Administración General de Servicios (GSA), el Servicio Federal de Protección, etc.) para desarrollar una sola plantilla en el cual controlar la pre-primaria, primaria, secundaria, pos primaria, carga y areas de observador de cada puerto. Para 1999, fue comprada con fondos no asignados tecnología comercial de vigilancia de video uniforme digital de fibra óptica e instalada en todos los seis puertos. Actualmente, los puertos de la frontera del Distrito de Arizona pueden ser controlados desde el Centro de Administración de Aduanas en Tucson. Doscientas cinco cámaras distribuidas en todo el estado proporcionan video en tiempo real 24 horas al día en una de red de amplia área (WAM) con la excepción de Douglas que está conectado por satélite.

Este sistema es capaz de extenderse a través de los Estados Unidos de forma que todos los puertos pueden ser controlados desde cualquier centro de control conectado. El proyecto de Seguridad del Norte (NBSP) usó en Distrito de Nogales como modelo y el estado de Washington está ahora conectado en el mismo sistema remoto de video.

Unido al sistema Remoto de Video están el Reconocimiento Facial y el Sistema de Medidas de Líneas, Aire a Tierra e Interpretación Remota NII, que colectivamente crean un programa especial de prevención e imposición de la ley altamente efectivo e inteligente.

Reconocimiento Facial

ARGUS, un sistema prototipo construido por Visionic Inc, el líder en reconocimiento facial está siendo actualmente probado en el puerto de entrada de peatones DeConcini de Nogales. El sistema utiliza dos cámaras: Una dirigida hacia la puerta a través de la cual han de entrar todos los peatones que entran, y una dirigida a la cara de la persona que sufre la inspección primaria en la caseta de inspección. La identificación facial de cada peatón es chequeada en una base de datos de hasta 30,000 imágenes, codificadas digitalmente, de individuos buscados por las agencias de la ley Estatal o Federal. Cuando una identificación es reconocida por el sistema, las fotografías de aquellos en la base de datos que más se parecen al peatón son mostradas en la pantalla. El número de identificaciones depende del grado de confianza especificado por el usuario del sistema. La fotografía es también automáticamente enviada
y mostrada al agente de Aduanas supervisor en un teléfono celular Motorola (que actualmente es uno de los dos en existencia).

Este es el único sistema de este tipo en la red de Aduanas de los Estados Unidos, de todas formas, se le ha solicitado al Centro de Administración de Aduanas de Arizona que presente una propuesta para implementar AARHUS en el Aeropuerto Internacional de Phoenix. Además, esta tecnología podría ser usada para controlar pasajeros y chóferes de vehículos comerciales que entran en el puerto.

Sistema de Medid de Líneas (QMS)

Basado en tecnología desarrollada por Premiere Wireles usada para estudiar el comportamiento de osos en Alaska, el Sistema de Medidas de Líneas se puso en funcionamiento en la instalación de vehículos de pasajeros de Mariposa a finales de Diciembre del 2001. La adaptación de la programación requerida para cambiar el sistema del reconocimiento del comportamiento de osos al reconocimiento de vehículos de pasajeros que esperaban cruzar la frontera fue solicitada y comprada con fondos sin asignación por el CMC de Arizona. Es el primero y único sistema de este tipo en el país.

El sistema toma muestras del flujo de trafico cada 20 segundos evaluando las cuatro características principales: 1) carros por minuto por carril, 2) total de carros por minuto, 3) total de carros en todos los carriles, 4) promedio de tiempo de espera. Para determinar el número total de carros en todos los carriles y líneas, fueron usadas dos cámaras. Una cámara mira hacia el frente de la línea y otra cámara, montada en el techo de la instalación de inspección, busca el último carro en la línea usando tecnología de reconocimiento de texturas.

El sistema alerta a los inspectores cuando los patrones de tráfico son anormales (por ejemplo, si un carro va en dirección contraria) y también realiza análisis de sensitividad de "¿qué ocurriría si" hubiera tres carriles abiertos en lugar de dos? ¿Que pasaría si el tiempo de proceso promedio de un carril aumenta?). Actualmente, cuando un carril es más largo que el campo de visión de la cámara, los tiempos de espera predichos no son exactos. Con más cámaras montadas en México o en plataformas de visión con mayor visibilidad, el número total de carros en los carriles y la línea serian medidos continuamente con total exactitud.

Aire a Tierra
Instalando una cámara de video normal en la parte delantera de un helicóptero de Aduanas del Grupo Aéreo de Aduanas de Tucson estacionado en la Base de la Fuerza Aérea de Davis-Montham, se puede trasmitir conexión de video a un recibidor ubicado en el puerto de entrada de Nogales. Esta cámara es capaz de transmitir imágenes en un radio de 35-millas del recibidor, que son también transmitidas al sistema remoto de video del CMS de Arizona. Este desarrollo será útil en controlar y dirigir incidentes de gran escala (evacuaciones, persecuciones, etc.)

Inspección Remota no Instrusiva (NII)
El equipo de Inspección No Intrusiva (rayos gama, maquina de rayos x, etc.) requiere que el operador esté entrenado y tenga experiencia en interpretar el resultado de las imágenes. La identificación de anomalías en la imagen es una técnica específica de cada agente y una técnica que mejora a lo largo del tiempo. Actualmente, los rastreos son realizados e interpretados por inspectores en cada uno de los complejos del puerto. El mantener un número suficiente de inspectores calificados y con buena practica en la interpretación de las imágenes de la Inspección No Intrusiva ha sido un reto para Aduanas de los Estados Unidos.

En respuesta a ello, CMC de Arizona sugiere que la Inspección Remota No Intrusiva sea implementada para analizar en una única ubicación y en tiempo real, todas las imágenes rastreadas en todos los puertos del Distrito de Arizona. Este sistema podría incluso ser expandido a un centro nacional donde un solo equipo de inspectores podría interpretar todas las imágenes. Centralizar la experiencia de interpretación permite un análisis consistente y de alta calidad de las imágenes rastreadas, también saca a los inspectores fuera de la frontera poniéndolos en una ubicación segura.

Sistemas de Operaciones de Aduanas Automático (CAOS)

El Sistema de Operaciones de Aduanas Automático fue desarrollado y probado por el Distrito de Aduanas de Nogales para prevenir la predicibilidad de puerto. El sistema cambia, al azar, los números de carriles y las asignaciones de inspector a cada carril e inicia al azar K-9 Blizers y otras técnicas de imposición, todo ello a horas al azar durante el día. La naturaleza imprevisible de tales eventos hace que sea difícil que los observadores se aprovechen de áreas de previsibilidad del puerto. Esto ayuda a evitar que los traficantes se aprovechen de las operaciones de puerto que pueden ser determinadas que reducen la probabilidad de ser atrapados.

Este sistema también puede ser usado como un sistema de mensajes de emergencia que puede ser accedido y controlado desde el Centro de operaciones y está codificado con color de acuerdo con el Sistema de Aviso de Seguridad de la Patria. El 11 de Septiembre, este sistema permitió que el Centro de Administración de Aduanas afectara inmediatamente y directamente las operaciones en cada

puerto de entrada en Arizona. Aduanas Nacional reconoció el valor de este sistema de seguridad en Nogales y ha gastado recientemente 6.2 millones de dólares para ampliar CAOS a todos los puertos fronterizos del Sur.

Sistema de Localización de Vehículos en la Frontera (LVTS)

Los grupos de contrabando de narcóticos a gran escala están organizados, lo cual significa que sus actividades a menudo se pueden predecir. Las operaciones de contrabando a menudo usan la misma flota de vehículos y la misma lista de chóferes para transportar el contrabando. A veces, cruzan muchos vehículos al mismo tiempo o en una forma determinada. En el pasado Aduanas usó una técnica manual llamada "serpiente de cascabel" para localizar a los contrabandistas identificando tales formas de cruce.

El Sistema de Localización de Vehículos en la Frontera es un prototipo desarrollado por la industria privada para la Agencia de Servicios de Información de Defensa (DISA) para probar la eficacia de la identificación automática. Combina datos del Sistema de Comunicación de Imposición de la Ley del Tesoro (una base de datos que contiene todos los cruces de la frontera para los Estados Unidos) con la información de registros de carros de Arizona proporcionada por la División de Vehículos de Motor (MVD) del Departamento de Transporte de Arizona. Cuando un vehículo que entra llega al puerto, el sistema emplea la Herramienta de Pregunta Múltiples de Puerto, que usa modelos de reconocimiento, aprendizaje de maquina y técnicas estadísticas para calcular la posibilidad de que ese vehículo lleve estupefacientes.

Un inspector supervisor del puerto de Nogales que desarrolló con éxito un sistema de reconocimiento efectivo y especial llamado "Serpiente de Cascabel" tuvo un papel fundamental en el desarrollo del sistema automático. Una vez que el sistema fue construido, DISA lo compartió con el CMC de Arizona para su prueba de campo. Las pruebas están financiadas para el año fiscal actual y el próximo. Arizona fue una elección lógica para esta prueba por que es el único estado que proporciona datos de MVD. Este es otro ejemplo de la cooperación disfrutada entre el Estado de Arizona y Aduanas del los Estados Unidos.

Proyecto de Nuevo Diseno de Cargas de Mariposa

Con la implementación de NAFTA, el intercambio comercial entre los Estados Unidos y México ha aumentado dramáticamente imponiendo con ello cargas de capacidad significativas en el puerto de entrada fronteriza de Nogales. El procesamiento de los flujos de los puertos ha sido más complicado por él trafico comercial legitimo siempre en aumento, con variaciones de temporada causadas por la industria de productos agrícolas. Durante los meses de invierno, más del cincuenta por ciento de los productos agrícolas que entran en los Estados Unidos es entregado a través de Nogales. Esto, combinado con inspecciones de niveles de seguridad más altos, ha llevado a volver a pensar en el diseño de la infraccstrutura del puerto.

En 1997, se publicó un estudio de eficacia del puerto de Arizona encargado por el Estado (APES). La respuesta colectiva del Estado, Aduanas, y de los usuarios del puerto llevó a cambios significativos en el procesamiento de las cargas en el puerto fronterizo de entrada Mariposa de Nogales. La suma de estos cambios es el Proyecto de Rediseño de Cargas de Mariposa.

Los aspectos principales del Proyecto de Rediseño de Cargas de Mariposa incluyen la separación de los vehículos comerciales y personales, la creación de un área de control de estupefacientes en las cargas equipada con dos balanzas de pesada en movimiento a poca velocidad (WIM), la implementación de una súper caseta, así como Carriles de Imposición Rápida. Estas adaptaciones demuestran el enfoque flexible de Nogales para hacer soluciones creativas.

Area de Pre-Control
El área de pre-control es un edificio al aire libre suficientemente largo para acomodar dos camiones al mismo tiempo con dos balanzas WIM antes de la entrada. Esta zona fue construida al frente de la línea comercial donde los vehículos de pasajeros y comerciales se separan.

Cada camión es pesado al aproximarse a la zona de pre-control en la parte delantera de la línea. Una vez que el camión entra en el edificio, se detiene para la inspección de los agentes que comprueban si hay contrabando y cualquier otros peligro potencial. Si no es necesaria más inspección (rayos-x, inspección de seguridad, inspección agrícola, etc.), el camión continúa a la súper caseta o si no es dirigido a un complejo. Al aprovecharse del sistema de líneas, todos los camiones son pesados he inspeccionados.

Básculas de Pesada en Movimiento a Poca Velocidad (WIM)
De acuerdo con las disposiciones de cumplimiento de NAFTA, muchos departamentos de transporte del Estado están intentando obtener financiación para implementar balanzas WIM en las fronteras internacionales. El puerto fronterizo de entrada de Nogales ha estado usando balanzas WIM durante los últimos dos años.

Súper Caseta
Antes de la concepción de la idea del proceso de Imposición Rápida, todos los camiones tenían que ir al complejo, estacionarse y dirigirse al trailer del Departamento de Transporte de Arizona (ADOT) para obtener sus permisos de viaje antes de continuar a través de Aduanas. Para aliviar esta congestión, CMC de Arizona ha construido tres Súper Casetas inmediatamente después de la zona de Control de estupefacientes. Cada Caseta consiste de dos ventanillas consecutivas. La primera ventanilla tiene a un inspector de Aduana que verifica que la documentación apropiada ha sido presentada a Aduanas de los Estados Unidos. La segunda ventanilla tiene a personal de MVD de Arizona que verifica que la registracion del camión y el chofer, seguro del vehículo y los permisos de viaje han sido obtenidos y todas las tarifas han sido pagadas. La Súper Caseta combina estas dos paradas en una, eliminando paradas innecesarias en el complejo.

Carriles de Imposición Rápida
Carriles de Imposición Rápida fueron implementados como respuesta al Estudio de Eficiencia de Puerto de 1997. El APES identificó un aumento de volumen de carga en un puerto limitado por su infraestructura física.

El tráfico en buen cumplimiento de los requisitos que se mueve con éxito a través de la zona de pre-control es dirigido a la Súper Caseta donde se comprueba toda la documentación. El chofer tiene que tener cuatro documentos-La Forma de Aduanas 7533 (Declaración de Entrada), la Forma de Aduanas 3461 (Forma de Entrada/Entrega inmediata), Factura de la Carga y un permiso de viaje de ADOT. Para los camiones que no participan en el programa de Carril de Imposición Rapida, el unico documento legalmente necesario para cruzar la frontera es la Forma de Aduanas 7533. Si todos los cuatro documentos están en orden y el camión no es seleccionado al azar para su inspeccion el camión es enviado a la puerta de salida sin entrar nunca en el complejo federal. Este programa minimiza la cogestión en el complejo y disminuye el tiempo de procesamiento.

Anexo del Departamento de Transporte de Arizona (ADOT)
El Estado de Arizona ha adquirido recientemente una parcela de diez acres de terreno adyacente al complejo federal de Mariposa para ser usada como una instalación de inspección de camiones. Esta instalación será compartida para acomodar la Administración de Seguridad de Transportes de Motor (FMCSA), el Departamento de Seguridad Publica de Arizona (AZDPS), y la División de Vehículos de Motor del Departamento de Transporte de Arizona (ADOT MVD) en preparación para un total cumplimiento con las disposiciones

de NAFTA y de las regulaciones de seguridad implementadas recientemente. FMCSA está preparada para comenzar inspecciones al final de este año en el sitio. Además, Aduanas planea usar el espacio extra para camiones que esperan la inspección agrícola.

También, pronto estará en construcción un acceso externo en un terreno adyacente de 12 acres adicionales. La carretera conectará el anexo ADOT con una puerta de salida extra, lo cual reducirá la congestión que existe en la puerta actual.

A pesar de que este proyecto ha sido iniciado por el Estado, varias agencias se beneficiarán. Este tipo de cooperación es típico en el puerto fronterizo de entrada de Nogales y es una razón principal de su enfoque agresivo de operaciones de puerto.

Proyectos Actuales y Futuros

Procesamiento Agilizado en los Cruces Internacionales (EPIC 2)

EPIC 2 se ocupa de procesar los vehículos comerciales en la frontera. El objetivo del programa es 1) proporcionar un despacho de aduanas electrónico previo a los transportistas y chóferes de Arizona que califiquen y 2) proporcionar información de líneas y de congestión de tráfico a los transportistas y compañías de fletes. El primer componente supone el emplazamiento de transmisores en camiones para permitir la identificación automática del vehículo a los inspectores de Aduanas al entrar en el puerto con la validación subsiguiente de la registracion del vehículo, licencia y documentación del seguro. El segundo componente del sistema supone el uso de sistemas de señalización a vehículos (VMS) para dirigir el vehículo adecuadamente identificado y autorizado a una zona de procesamiento rápido.

Detección de Vehículos Robados Que Salen

Aduanas está instalando dos cámaras en los carriles de salida en el puerto fronterizo de entrada de Nogales, uno para capturar la cara de los chóferes y otro para tomar la imagen trasera del carro para ser usada en conjunción con los lectores de matriculas de automóviles que salen (LPR) ya instalado en el puerto de Nogales. La cámara y los datos de LPR serán enviados al CMC de Arizona en Tucson donde serán combinados con los datos de vehículos Mexicanos del DPS como una herramienta contra el robo de autos y el fraude de seguro de automóviles. El DPS de Arizona tendrá acceso directo a este nuevo sistema una vez que su conexión con la red esté instalada en el CMC de Arizona.

Dispositivo de Portal de Detención de Radiación

La tecnología diseñada para detectar radiación emitida por vehículos comerciales que pasan a través del dispositivo de detención está siendo considerada para el puerto de Nogales. Esta tecnología esta específicamente dirigida a vehículos que transportan armas de terrorismo que van en dirección a los Estados Unidos a través de México.

Conclusion

Siendo la administración de riesgo el principal objetivo de todos los puertos de entrada fronteriza internacional a través de los Estados Unidos, el CMC de Arizona ha tomado la iniciativa de introducir tecnología nueva e innovadora para cumplir este objetivo. Ha sido capaz de conseguir este objetivo debido a la relación de trabajo intima y en colaboración que mantiene con el Estado de Arizona y los usuarios del puerto. El puerto de Nogales existe dentro de un ambiente de comunidad en cooperación (no hay guerras de control) que ha apoyado el desarrollo de soluciones creativas y flexibles a los actuales y nuevos retos. Esto ha permitido la implantación con éxito de un número de tecnologías y programas creativos que no son usados en ningún otro puerto. Al tomar el liderazgo para promover la seguridad, al tiempo que mantiene operaciones eficientes y efectivas en cuanto a su costo, el puerto fronterizo de entrada de Nogales sirve como instalación de puerto modelo.

Port Expert Roundtable: Summary and Proceedings

Project Summary

The Nogales CyberPort Project

The goal of the Nogales CyberPort Project is to develop a new conceptual framework for the Mariposa port-of-entry that optimizes efficiency and effectiveness with regard to safety, security and trade-flow throughput. The development of the CyberPort concept model begins with the identification of basic guiding principles that are applicable to the entire trade-flow process, from the point of origin to the point of destination.

Supplemented by binational stakeholder interviews and project advisory committees, the Port Expert Roundtable serves as the beginning forum to think outside the box and present creative new ideas for consideration. This document presents the ideas that were put forward at the roundtable; it serves to facilitate the evaluation process by public and private stakeholders as these ideas and concepts underwent further refinement and definition. The goal of the Nogales CyberPort Project is to apply these principles specifically to the Nogales Mariposa commercial port-of-entry.

Objective

The primary objective of the Port Expert Roundtable was to convene a small group of industry specialists to identify the basic guiding principles and organizational framework for the ideal U.S.-Mexico port-of-the-future, a CyberPort. The roundtable workshop was attended by 12 project partners and 12 invited port experts. A list of those participating is provided in this report.

Roundtable Goals

Based on the knowledge and experience of Port Experts:

Establish the basic guiding principles for the trade flow process and port operations of an ideal U.S.-Mexico port-of-the-future, a prototypical concept model (the CyberPort Model) that optimizes efficiency and effectiveness with regard to safety, security and trade-flow throughput.

Based on participants' prior knowledge and a site visit to the Nogales Port-of-Entry:

Gather ideas on how the ideal port-of-the-future, the CyberPort Model, as well as other creative, innovative approaches can be used to restructure the Nogales port-of-entry in order to improve the processing of trade through Arizona in all respects.

Planning

In order to prepare the participants for their role in the roundtable workshop, each was sent a packet of background information pertaining to the Nogales CyberPort Project, the goals of the roundtable and the results of other relevant workshops and studies. The professional facilitation services of Jan Elster & Associates were obtained to design an agenda and facilitate a series of exercises and discussions to achieve the roundtable goals. A great degree of flexibility was incorporated into the process to respond to group dynamics and the wealth of expertise that was available. Some exercises and discussion topics were modified during the roundtable to accommodate additional approaches for gathering the desired information in the most productive manner. The final agenda was redesigned to allow optimal achievement of the goals.

Agenda

Sunday, 7 July 2002

5:30-6:00 pm – Reception

6:00-7:00 pm – Dinner

7:00-8:30 pm – Welcome and Introductions
Nogales CyberPort Project Overview, Review goals, agenda, participant roles, working group norms and decision-making model

Monday, 8 July 2002

8:00 am-12:00 pm – Working Group Sessions
Generate guiding principles for the design of the ideal CyberPort model to ensure best practices in security, safety, efficiency and effectiveness

12:00 pm-1:00 pm – Lunch

1:00-4:30 pm – Working Group Sessions
Conclude and agree on guiding principles, discuss critical issues regarding the ideal binational trade-flow process, and discuss site visit to Nogales

4:30-5:00 pm – Travel to Nogales, Arizona

5:00-6:00 pm – Port tour in Nogales, Arizona

6:30-8:00 pm – Dinner in Nogales, Arizona

8:30 pm – Return to Tubac

Tuesday, 9 July 2002

8:00 am-12:00 pm – Working Group Sessions
Review Nogales port tour, gather port experts' impressions, discuss action steps necessary to apply the ideal CyberPort concept to Nogales, and closing remarks

Discussion Framework And Organization

The roundtable workshop was initially designed to address port-of-entry and trade-flow issues within the following 9-point framework. This framework attempts to address the various components or characteristics involved in the port-of-entry and trade-flow process.

1 Physical Infrastructure
2 Human Resources/Staffing
3 Processing
4 Systems Integration
5 Data Systems, Information and Communication
6 Security and Access Control
7 Planning
8 Technology
9 Regulatory Environment

However, as a result of discussion with the roundtable participants, it was decided that given the time allotted to the working sessions, it would be best to condense the discussion framework to the basic goals of the CyberPort to allow for a more thorough discussion of each. The adapted discussion framework for the roundtable addressed the following issues each in regard to the topics listed above:

1 Security
2 Safety
3 Efficiency and Effectiveness

There were a total of seven working sessions. The session topics were as follows:

Working Session No.1 – Broad Concepts and Big Ideas
Working Session No.2 – Security
Working Session No.3 – Safety
Working Session No.4 – Efficiency and Effectiveness
Working Session No.5 – Critical Issues
Working Session No.6 – Nogales Port Observations
Working Session No.7 – Nogales CyberPort Actions Steps

Because of the opportunity to convene and learn from a highly experienced and knowledgeable group, the role of the port experts differed from the role of the project partners. The port experts were there to share their knowledge, while the project partners were there to serve as resources and to gather state-of-the-art information and progressive ideas to apply to the Nogales CyberPort Project. For this reason, much of the event was designed to allow the port experts to discuss issues while seated in an inner table, while the project partners were seated away from the main table and around the room. There were specific times designated for the experts to work or converse and for the project partners to observe, listen, and take notes. At other times, the project partners were invited into the conversation or encouraged to ask specific questions and provide necessary information. The roles were initially explained as follows:

Participant Roles

Port Experts

- Determine guiding principles for the ideal CyberPort model
- Make suggestions about how to apply the ideal CyberPort Model to Nogales

Project Partners

- Observe port experts' discussion toward identifying the guiding principles for the ideal CyberPort concept.
- Record information and ideas
- Provide information and input as necessary
- Take part in the discussion of how to apply the ideal CyberPort Model to Nogales

The facilitator helped design and ran all working group sessions based on input from the roundtable planning team and project partners. Nominal Group Technique was used for sessions where port experts were asked to determine the guiding principles for the ideal CyberPort of the future. This technique, which uses a point rating system to weigh ideas, was chosen as a means for capturing all ideas while allowing the port experts to give more weight to those principles they determined as most important. Because many ideas were closely related to one another, they were grouped together to represent one larger concept were appropriate.

Often, a grouping of ideas would receive more points than a single idea. The ideas that received few or no points should not be diminished, for as the process evolved, groups of ideas tended to be more heavily weighted than single ideas due to their size and scope. Thus, while it is interesting to note which ideas or groups of ideas received the most points, all of the guiding principles listed are valid and should receive due consideration.

The port experts selected and discussed critical topics they felt most relevant to the design of the ideal CyberPort while the project partners listened and asked questions.

Finally, a working session to develop an action-plan was held in which the port experts generated ideas for restructuring the Nogales port-of-entry. All working group sessions were recorded on paper and audio taped to capture salient points and ideas.

Working Session Summaries

Working Session No. 1 – Broad Concepts

Purpose: To allow a free flow of ideas (an opportunity to "think outside the box") regarding an ideal binational trade flow process.
Question: What are the "big" concepts you (port experts) would want to be considered when designing the ideal binational trade flow process?
Outcome: The port experts concurred that the following points should be taken into account when designing the ideal binational trade flow process:

Planning

- There must be parity in operations and enforcement among all ports.
- Consider the impact and development of trade policy, immigration policy and policy that enables or drives the application of technology, enforcement and inspection.
- Consider sources of supply and demand – global trade flows.
- Establish benchmarks and performance measures for port operations and private industry.
- Data collection that is comprehensive, integrated, ongoing and consistent.
- Establish a formal mechanism for keeping ports up to date.
- Consider the border's impact on the economy and on local communities.

Operational Structure

- Distribution of port processes away from border.
- Holistic or systems perspective to addressing port issues and the entire NAFTA trade-flow process.
- The use of incentives to promote desired behavior.
- Optimize the application of risk management – focused and targeted use of resources.
- The border as the last security checkpoint.
- Perpetual and seamless motion – reduce need/reasons for stops and transfers.
- Greater use and development of intermodal transportation networks.
- Coordination with supply-chain management.
- Harmonized and integrated procedures.
- Security seamlessly integrated into the entire trade-flow process.
- Flexibility in infrastructure, procedures and staffing.

Cooperation

- Understanding of local, state, regional, national, NAFTA and global perspective.
- Secure information exchange between countries, agencies and users.
- Bi-national state and federal cooperation.
- State authorization and certification for federal agriculture and vehicle inspections.

Working Session No.2 – Security

Purpose: Identify the guiding principles for the ideal CyberPort model with regard to security.

Question: In terms of the ideal CyberPort model, what guiding principles should govern its design to ensure best practices regarding security?

Outcome: Port experts defined the elements and characteristics of security before identifying the guiding principles.

Elements and characteristics to be considered under "Security":

- national perspective
- prevention of intentional harm
- minimize risk
- drugs
- firearms
- terrorists
- guns
- weapons of mass destruction
- bio-agents
- HAZMAT

Guiding Principles for Security: The design for the ideal CyberPort should…

Priority Principles

(28 points) Information management

- Have real-time binational integrated information systems.
- Have harmonized look-out systems.
- Provide integrated support for national and international issues.
- Have binational federal, state, and local cooperation.
- Use databases to identify low-risk movement.

(13 points) Compliance systems

- Have provisions for origin compliance for agriculture products.
- Allow for communication with shipper and receiver for problem shipments.
- Ensure that shippers and carriers have ways of certifying cargo to be free of contraband before reaching port.

(9 points) Intelligence and risk identification

- Allow for appropriate personnel training in security and intelligence.
- Have clear behavior and reporting responsibility on suspicion of security risk.
- Be able to intercept terrorism prior to critical infrastructure and should have port intelligence functions.

(9 points)

- Port design should support the segregation of low- and high-risk traffic

(8 points)

- Deploy rapid screening technology for hazards and contraband.
- Utilize non-intrusive inspection technology.

(3 points)
- Have one centralized information checkpoint that satisfies both sides of the border.

(1 point)
- Have enhanced area communication (border zone beyond port-of-entry).

(1 point)
- Exhibit redundancy.

Additional Principles
- Predictability in times of operation and procedures.
- Have emergency plans and procedures to minimize the impact of heightened security.
- Have binational procedures to handle incidents.
- Have ability to divert suspicious entities to remote areas.
- Apply appropriate technology to procedures and passengers.
- Expedited and accurate crossing information for people.

Working Session No.3 – Safety

Purpose: Identify the guiding principles for the ideal CyberPort model with regard to safety.

Question: In terms of the ideal CyberPort model, what guiding principles should govern its design to ensure best practices regarding safety?

Outcome: Port Experts defined the elements and characteristics of safety before identifying the guiding principles.

Elements and characteristics to be considered under "Safety":
- personnel, cargo and equipment
- non-intentional harm
- preventing or minimizing
- compliance with procedures

Guiding Principles for Safety: The design for the ideal CyberPort should…

Priority Principles

(24 points) Compliance systems
- Have a certification process for compliant carriers.
- Inform users of port requirements.
- Be origin compliant.
- Offer a process that credentials each shipment with coherent data transfer along the route.

(17 points) Risk identification and management
- Target high-risk crossers through the use of shared databases.
- Maximize the remote or automated detection of unsafe factors.

(16 points) Facility design
- Have a physical facility that minimizes safety problems.
- Separate types of flow (truck, passenger vehicle, commodity type).
- By design and working practices, protect users and agents.
- Have adequate staging areas.
- Ensure personal safety for compliance and inspection personnel.

(4 points)
- Ensure unified inspection procedures (binational and across ports).

(3 points)
- Catch 100 percent of non-compliance.

(2 points)
- Provide incentives for consistently safe movement.

Additional Principles
- Accommodate changing standards on a real time basis.
- Find ways to reduce traffic that has high probability of non-compliance.
- Be commensurate with inbound and outbound flow.
- Provide correct training of vehicle operators and personnel.
- Ensure screening for public health issues.
- Comply with best prevailing legislation on working conditions.
- Provide procedures for drayage operations.
- Should have a trained HAZMAT team to respond to issues on both sides of the border.
- Identify non-compliant and high-risk crossers and have processes and facilities to handle them.

Ensures safety for the community that hosts the port.

Working Session No.4 – Efficiency and Effectiveness

Purpose: Identify the guiding principles for the ideal CyberPort model with regard to efficiency and effectiveness.

Question: In terms of the ideal CyberPort model, what guiding principles should govern its design to ensure best practices regarding efficiency and effectiveness?

Outcome: Port experts defined the elements and characteristics of efficiency and effectiveness before identifying the guiding principles.

Elements and characteristics to be considered under "Efficiency" and "Effectiveness":

Efficiency:
- input to output
- throughput
- cost
- consumption of resources
- frictionless trade

Effectiveness:
- how much is achieved
- what is the outcome
- has a perceptual component
- the degree to which the desired outcome is achieved
- zero security incidents

Guiding Principles for Efficiency and Effectiveness: The design for the ideal CyberPort should…

Priority Principles

(25 points) Harmonized System
- Have a single port management entity or agency.
- Have cooperation between state and federal inspection agencies.
- Minimize error through common processes and training.
- Uniform import and export filings and revisions.
- Harmonized regulatory environment.
- Have duty payment after entry – southbound.
- Operate 24 hours a day.
- Have a clear understanding of expectations from state and federal agencies.
- Be coordinated among the binational agencies involved.

(15 points) Technology
- Have expeditious access for pre-approved crossers.
- Employ intelligent transportation systems (ITS).
- Pre-clearance, electronic pre-payment, pre-inspection / ultimate perimeter clearance.
- Provide incentives for desired behaviors.
- Ensure efficient use of non-intrusive inspection (NII), which minimizes resources.

(10 points) Good Business Practices
- Identify systems and responsibility overlap.
- Not discriminate between transport modes.
- Establish benchmarking for system performance with feedback to users.
- Subject all major investments to cost/benefit analysis.
- Be holistic in approach to port efficiency and effectiveness.
- Define measure of effectiveness and develop data collection to quantify.
- Define needs of the private sector involved in commerce.
- Have a mechanism for ongoing dialogue with stakeholders.

(6 points) Handling Demand
- Have staffing to meet demand.
- Be able to manage demand and capacity.
- Be able to effectively handle the normal variations in foreseeable trade without compromising standards (facility/infrastructure to accommodate peak flows).

(2 points)
- Not require a breakpoint between origin and destination.

(2 points)
- Have complete visibility from origin to final destination.

(2 points)
- Be able to understand and evaluate the trade-offs between heightened security restrictions and throughput.

(2 points)
- Use free trade zones.

Additional Principles
- Be data collection efficient but intensive for multiple purposes.
- Support competition in hours and practices among customs brokers.
- Serve as a conduit for value-added services based on customer requests.
- Have flexibility in design so it can be altered over time.
- Have minimal negative impact to the host community.
- Eliminate intermediaries.

Working Session No. 5 – Critical Issues

Purpose: To discuss critical issues regarding the ideal binational trade flow process.

Task: Identify and discuss the issues that are the most important for the Nogales CyberPort Project.

Outcome: The port experts identified the following issues as critical:

1 Barriers to harmonization
2 Staffing
3 Unlimited binational access for commercial vehicles
4 How to sell these concepts

Other Critical Issues (identified but not discussed):
- Mexican customs brokers' control of the trade-flow process
- Entry/exit controls
- Security technology
- Future of inland ports

Working Session No. 6 – Nogales Port Observations

Purpose: To gather initial impressions of the Nogales port-of-entry.

Question: Based on your expertise, the site visit to Nogales and a tour of the port, what are your initial impressions of the Nogales port-of-entry?

Outcome:

- The port is currently state-of-the-art. There is much innovative technology in use.
- The Tucson Customs Management Center is "impressive" and should be commended.
- The port director and field director have a big impact on the type of technology implemented at the port.
- There are some constraints. The upgrades to the port have been done somewhat haphazardly. Placement of the drug screening area, such that every truck is screened, restricts flow. The process can be quite effective but also restrictive. It would be interesting to compare the effectiveness of this method with other drug interdiction practices that aren't as tedious as looking at every truck.
- The agriculture-intensive nature of the commodity flow makes the Nogales port very unique. The need for agriculture inspection requires more dock space than most ports.
- Nogales looks like every other port. CyberPort needs to look different. There should be architecture to support the concept.
- The future holds more rail and more containers so CyberPort needs to accommodate this eventuality.
- All attendees were impressed with the coordination between federal and state agencies that occurs at the port.
- Relative to the new state compound, will out-of-service trucks "clog" things up? Will there be enough service people to repair the out-of-service vehicles?
- The state annex is impressively large.
- The two-lane bridge entryway into the port is a huge bottleneck.
- Take the rail line out of the city. It would be very difficult to fold rail design into a new facility.
- There is, generally speaking, a need to centralize port management but the current system of informal cooperation at Nogales may not require this.
- The flow at the port would be much different if it was designed from scratch.
- Needs incentives—the behavior you want won't occur if everyone has to go through the prescreening (bottleneck) area.
- The port needs vehicle-messaging systems in Mexico to direct trucks through the rapid enforcement lanes.
- Expedited pre-clearance trucks need to have dedicated approach lanes.
- Why are all trucks going through the same lanes? Dedicated lanes would sharply define the pre-clearance incentives.
- The incentives must be working for the truckers or there wouldn't be an increase to 60% in the pre-filings reported by Customs.
- There is a problem with too many trucks with different requirements intermingling inside the compound.
- If you want to make a well-run facility better, look at infrastructure changes. There needs to be a survey of users to see how and why they use the port.
- Need for adequate highway system to access the approach to the port-of-entry facilities.
- Need for a wider bridge (additional lanes) on the northbound approach in Mexico and a wider controlled access road from I-19 on the southbound approach.

Working Session No. 7 – Nogales CyberPort Action Steps

Purpose: To provide a forum for port experts to discuss action steps necessary to apply the ideal CyberPort model to Nogales based on existing knowledge and the Nogales port visit.

Question: What action steps need to be taken to make Nogales the CyberPort of the future?

Outcome: Experts identified the following action items:

1. Separate traffic: passenger vehicles, pre-cleared trucks, rail. There are other ports along the border where this is occurring, Otay Mesa and Laredo.
2. Move agricultural inspection processes into Mexico so they are completed before reaching the border. There also may be the opportunity to move drug screening or other inspections. The CAADES facility would be an ideal potential site.
3. Determine changing market characteristics. There is a need to understand why fewer truckers are using Nogales, if that is true. This information is required so that changes that are implemented are cost effective and address the needs of users.
4. Increase Mexican involvement at the federal, state, and local level: Aduanas, SCT (Secretaría de Comunicaciones y Transportes), and the Mexican counterpart to the U.S. General Services Administration. This would help promote actions such as placement of vehicle messaging systems in Mexico.
5. Add street signage on final approach to the port to direct trucks to appropriate areas.
6. Design a signature structure at the port to aid in promoting the uniqueness of the port.
7. Understand the supply and demand pattern of the port.
8. See the port as a "package of services." What are people paying for? Some of these services include: rapid processing (time) and those services supporting the port's role as a critical link in the supply chain.
9. Take the border out of it.
10. Look at what it would take to have direct shipping with either U.S. or Mexican transportation.
11. Provide comfort and convenience at the port for users.
12. Examine the impact of U.S. and Mexican infrastructure on the trade flow process.
13. Promote long-haul trucking, avoiding stops at the border.
14. Create a design plan to sell to federal officials. Focus on the ports "total" impact on the entire supply chain to sell its merits. Improvements at Nogales will positively impact other elements in the supply chain.
15. Focus on trade facilitation. Actions should support the transportation process, which itself serves trade.

Discussion of CyberPort Concept Alternatives

Port experts were asked to consider a port concept model where there is a single binational port facility that straddles the border. Both U.S. and Mexican officials would work out of the same facility. "Cross-docking" would occur where Mexican trucks bring agriculture into the facility and U.S. trucks pick agriculture up and deliver it into the U.S. No trucks or drivers would need to cross the border, thereby eliminating the need for much of the inspection process. Responses from the port experts follow:

- Straddling the border may have great symbolic value but might not be practical.
- "Cross-docking" is used successfully by WalMart and other large chain stores. However, this is under the control of one central authority that tells truckers where to be and when to be there.
- This process works successfully with cattle on the border. Mexican trucks deposit cattle at the border. The cattle walk across and are picked up by U.S. trucks. The main problem with this has been recent drug smuggling activity at these sites.
- It is an interesting idea but might be ruled by the nature of the involved commodities.

- It may be logistically possible as this is how terminal markets in the U.S. operate.
- This concept is in direct conflict with the movement toward a borderless border and it flies in the face of open trade.
- This concept is working successfully in Munich.
- This process may have a positive effect on perishable agricultural products as there would be less handling.
- Might be better to handle this at CAADES. It would be a natural site for application of electronic seals on the cargo.
- This also works against the intent of the upcoming NAFTA accord on transportation movements (i.e., free truck flows.)
- Columbia bridge in Texas is an example of cross-dock service where goods are dropped off and then picked up for distribution into Mexico.
- How do inland ports such as Kansas City play into the whole picture? This concept would conflict with the recent movement toward inland ports.
- Is it possible to divorce the buy/sell function from the physical infrastructure?

Concluding Comments

- First, you need to look at the overall dynamics of the situation including supply chain dynamics. There must be agreement on the process. Second, determine the operational model that fits the process. Once the operational model is determined, there must be infrastructure design to support it. Then, secure financing to put the plan in action. Market research would validate the decisions to ensure cost-effective actions.
- You need a clean approach to the port on both sides. The U.S. needs a clean approach like the Corridor Fiscal in Mexico. U.S. 189 (Mariposa Road) is not a secure corridor.
- Look at the ports of Laredo and San Ysidro as examples of ports where commercial truck traffic is successfully separated from passenger vehicles.
- Future intermodal requirements must be taken into account. There is a new business climate in Mexico with privatization of the railroads. This may be a separate planning track to pursue.
- Is shipping agricultural products by rail feasible? Possibly, Fresh Mex is pursuing shipping by rail. However, rail performance has not been as dependable. The Port of Laredo is a good example of intermodal transfer.

Results

The roundtable participants identified over 110 concepts and principles as well as 15 specific action steps that need to be taken in order to create the Nogales CyberPort. The concepts and principles identified ranges from broad to specific; many were closely related and applied to a number of port functions and trade-flow processes. The same principle was often applied to all areas: security, safety, efficiency and effectiveness.

Nearly all concepts and principles fell within nine overarching or guiding principles. The Nine Guiding Principles are as follows:

1 Binational, interagency and public/private cooperation
2 Integrated / Harmonized procedures and systems
3 Incentivized pre-clearance, pre-inspection and compliance programs
4 Risk identification and management
5 Safety, security and efficiency through infrastructure design
6 Secure shared information
7 Maximize new technology
8 Complete transparency / visibility of shipments
9 Development of performance standards and systems for measurement

The 9 guiding principles are not mutually exclusive; many relate to and are dependent on one another. Risk management comes through cooperation; cooperation involves shared information; shared information requires the use of new technology; etc.

Binational Smart Border Action Plans

Each of the 9 guiding principles works in support and agreement with the 22-point U.S.- Mexico Border Partnership Action Plan. Each principle advances a number of the initiatives identified in the binational smart border agreement. At the multi-national level, the 9 guiding principles are also consistent in support of the 30-point U.S.-Canada Smart Border Action Plan. These binational plans focus on the secure movement of people, goods and information as well as secure border infrastructure.

Development of the Nogales CyberPort Concept Model

The Nogales CyberPort concept model will be a product of how each of the guiding principles can be specifically applied to the areas of security, safety, efficiency and effectiveness at the Nogales Mariposa commercial port facility. The guiding principles will also be further developed in reference to the nine previously identified components of the trade-flow process. The Nogales CyberPort concept model will focus on the application of the guiding principles not exclusively within the port-of-entry compound, but along the entire binational trade-flow process.

Summary of CyberPort Principles

Following is a summary of the complete listing of CyberPort principles that resulted from the port expert roundtable. The principles are grouped in the areas of security, safety, efficiency and effectiveness for each of the major 9 guiding principles.

1 Binational, Interagency and Public/Private Cooperation

Security

- Be able to intercept terrorism prior to critical infrastructure.
- Develop system for binational port intelligence functions.
- Provide integrated support for national and international issues
- Have binational federal, state, and local cooperation.
- Joint training in security and intelligence.
- Be able to intercept terrorism prior to critical infrastructure and should have port intelligence functions.
- Have binational emergency plans and procedures to handle dangerous incidents.

Safety

- Inform users of port requirements.
- Accommodate changing standards on a real time basis.
- Standardized binational training of vehicle operators and personnel.
- Comply with best prevailing legislation on working conditions.
- Should have a trained HAZMAT team to respond to issues on both sides of the border.

Efficiency and Effectiveness

- Have a single port management entity or agency.
- Have cooperation between state and federal inspection agencies.
- Flexible/extended hours of operation.

- Have a clear understanding of expectations from state and federal agencies.
- Be coordinated among the binational agencies involved.
- Identify systems and responsibility overlap.
- Establish mechanism for addressing needs of the private sector involved in commerce.
- Have a mechanism for ongoing dialogue with stakeholders.
- There should be competition in hours and practices among customs brokers.
- There should be decreased impact to the host community.

2 Harmonized Procedures and Systems

Security
- Have real time binational integrated information systems.
- Have harmonized look out systems.
- Predictability in times of operation and procedures.

Safety
- Ensure unified inspection procedures among countries and across ports.
- Be commensurate with inbound and outbound flow.

Efficiency and Effectiveness
- Minimize error through common processes and training.
- Uniform import and export filings and revisions.
- Harmonized regulatory environment.
- Have duty payment after entry.
- Identify systems and responsibility overlap.
- There should not be a breakpoint between origin and destination.
- Eliminate intermediaries.

3 Incentivized Pre-clearance, Pre-inspection and Compliance Programs

Security
- Have provisions for origin compliance for agriculture products.
- Ensure that shippers and carriers have ways of certifying cargo to be free of contraband before reaching port.

Safety
- Have a certification process for compliant carriers.
- Be origin compliant.
- Offer a process that credentials each shipment with coherent data transfer along the route.
- Provide incentives for consistently safe movement.
- Catch 100 percent of non-compliance.
- Find ways to reduce traffic that has high probability of non-compliance.

Efficiency and Effectiveness

- Have expeditious access for pre-approved crossers.
- Have pre-clearance, pre-pay, pre-inspect – ultimate perimeter clearance.
- Provide incentives for desired behaviors.

4 Risk Identification and Management

Security

- Use databases to identify low risk movement.
- Be able to intercept terrorism prior to critical infrastructure and should have port intelligence functions.
- Have clear behavior and reporting responsibility on suspicion of security risk.

Safety

- Target high-risk crossers through the use of shared databases.
- Maximize remote or automated detection of unsafe factors.
- Ensure screening for public health issues.
- Identify non-compliant and high-risk crossers and have processes and facilities to handle them.

Efficiency and Effectiveness

- None

5 Safety, Security and Efficiency through Infrastructure Design

Security

- Port design should support the segregation of low and high-risk traffic.
- Have ability to divert suspicious entities to remote areas.

Safety

- Have a physical facility that minimizes safety problems.
- Separate types of flow (truck, passenger, commodity).
- By design and working practices, protect users and agents.
- Have adequate staging areas.
- Ensure personal safety for compliance and inspection personnel.
- Ensure safety for the community that hosts the port.

Efficiency and Effectiveness

- Employ intelligent transportation systems (ITS).
- Should have flexibility in design so it can be altered over time.
- There should be decreased impact to the host community.

6 Secure Shared Information

Security

- Allow for communication with shipper and receiver for problem shipment.
- Have one centralized information check point that satisfies both sides of the border.
- Accurate and timely crossing information for people/commercial drivers.

Safety

- None

Efficiency and Effectiveness

- It should be data collection efficient but intensive for multiple purposes.
- Expected and accurate crossing information for people.

7 Maximize New Technology

Security

- Deploy rapid screening technology for hazards and contraband.
- Maximize use of non-intrusive inspection technology.
- Extend appropriate technology to passengers.

Safety

- None

Efficiency and Effectiveness

- Employ intelligent transportation systems (ITS).
- Ensure efficient use of non-intrusive inspection (NII), which minimizes resources.

8 Complete Transparency / Visibility of Shipments

Security

- Allow for communication with shipper and receiver for problem shipments.
- Have enhanced communication with shipments from point of origin to point of destination.

Safety

- None

Efficiency and Effectiveness

- Should have complete visibility from origin to final destination.

9 Performance Standards and Systems for Measurement

Security

- None

Safety

- None

Efficiency and Effectiveness

- Establish benchmarking for system performance with feedback to users.
- Subject all major investments to cost/benefit analysis.
- Should be a holistic approach to port efficiency and effectiveness.
- Define measure of effectiveness and develop data collection to quantify.
- Have staffing to meet demand.
- Be able to manage demand and capacity.
- Be able to effectively handle the normal variations in foreseeable trade without compromising standards (facility/infrastructure to accommodate peak flows).
- Identify the trade-offs between security and flow.

Project Advisory Committees

Committee Roles and Responsibilities

Each committee was comprised of a diverse body of individuals directly involved with the movement of international trade through the U.S.-Mexico border. The overarching common role of the project advisory committees is threefold:

1 To lend specific expertise in assisting the project team to best understand the complexity of the international trade flow process and port operations and provide general direction regarding specific issues of concern.

2 Assist the project team in problem identification, the development of standards of port success, and the development of solution alternatives.

3 To review the work and findings of the project team.

The Steering Committee and the Technical Advisory Committee met three times during the project. The Oversight Committee met periodically to review progress and recommend direction.

The focus of the meetings of the Steering and Technical Advisory Committees was as follows:

1st Meeting

- Problem and issue identification through small group discussion.

2nd Meeting

- Presentation and comment on preliminary CyberPort principles
- Review of project technical reports.

3rd Meeting

- Comment and discussion on CyberPort concept alternatives.
- Selection by consensus of preferred concept model alternative.
- Evaluation and comment on preliminary findings and recommendations.
- Solicitation of additional recommendations and comment.

The three project committees served as review bodies for all technical reports, the CyberPort concept, project findings and recommendations, and the final *Executive Report*. Comment and feedback was solicited from each committee member.

Project Advisory Committees

Oversight Committee

Dale Buskirk
Chair, Director of Transportation Planning,
Arizona Department of Transportation

Ruben Alvarez
Mexico Policy Advisor
to Former Governor Jane Dee Hull

Tom Belshe
Assistant Deputy Director,
Arizona Department of Commerce

Consul General Rubén Beltrán
Consul General
Mexican Consulate in Phoenix

John Carlson
Transportation Policy Advisor
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Carol Colombo
Steering Committee,
Governor's CANAMEX Task Force

Donna De La Torre
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U.S. Bureau of Customs and Border Protection

Gail Howard
Economic Development Policy Advisor
to Governor Janet Napolitano

George Cunningham
Transportation Policy Advisor
to Governor Janet Napolitano

Dr. Arnold Maltz
Professor of Supply Chain Management,
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Arizona Department of Transportation

David Randolph
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Steering Committee

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Ignacio Barraza
Nogales Alliance: Port of the Future

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The Maquiladora Association

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Technical Advisory Committee

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Technical Advisory Committee (continued)

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Governments Organization

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Technical Advisory Committee (continued)

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Customs Brokers UPS

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H.M. Distributors

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ASARCO Incorporated

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Mexican Maquiladora Association

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William R. Stockton
Texas Transportation Institute

Bryan A. Stone
European Intermodal
Transportation Consultant

Schedule of Project Advisory Committe Meetings and Presentations

Meetings

February 4, 2002
Economic Impact of Border Security, Yuma, AZ

February 5, 2002
Economic Impact of Border Security, Nogales, AZ

February 5, 2002
Economic Impact of Border Security, Tucson, AZ

February 6, 2002
Economic Impact of Border Security, Douglas, AZ

March 14, 2002
Oversight Committee, Phoenix, AZ

March 26, 2002
Oversight Committee, Tucson, AZ

April 30, 2002
Technical Advisory Committee, Tucson, AZ

May 2, 2002
Steering Committee, Tucson, AZ

May 9, 2002
Oversight Committee, Phoenix, AZ

June 10, 2002
Oversight Committee, Phoenix, AZ

July 7-9, 2002
Port Expert Roundtable, Tubac, AZ

July 16, 2002
Oversight Committee, Phoenix, AZ

July 18, 2002
Steering Committee, Nogales, AZ

July 19, 2002
Technical Advisory Committee, Nogales, AZ

August 6, 2002
Mexico Federal Multi-Agency Meeting,
Mexico City, MX

August 15, 2002
Oversight Committee, Phoenix, AZ

September 17, 2002
Oversight Committee, Phoenix, AZ

September 18, 2002
Technical Advisory Committee, Nogales, AZ

Meetings (continued)

September 19, 2002
Steering Committee, Nogales, AZ

October 15, 2002
Oversight Committee, Nogales, AZ

November 26, 2002
Technical Advisory Committee, Tucson, AZ

November 26, 2002
Steering Committee, Tucson, AZ

December 10, 2002
Oversight Committee, Phoenix, AZ

March 25, 2003
Oversight Committee, Phoenix, AZ

Presentations

February 1, 2002
Border Trade Alliance, Mexico City, MX

February 14, 2002
CANAMEX Task Force Transportation Committee,
Phoenix, AZ

February 20, 2002
Arizona-Mexico Commission
Border Issues Committee, Nogales, AZ

March 14, 2002
CANAMEX Task Force, Phoenix, AZ

March 21, 2002
University of Texas Center
for Transportation Research, Austin, TX

March 27, 2002
New Mexico State University, Las Cruces, NM
Border Technology Deployment Center

May 9, 2002
CANAMEX Task Force Transportation Committee,
Phoenix, AZ

May 16, 2002
National State Departments of Agriculture –
Tri-National Accord, Nogales, AZ

May 23, 2002
Arizona-Mexico Commission Plenary Session,
Phoenix, AZ

Presentations (continued)

May 29, 2002
Pima Association of Governments, Tucson, AZ
Freight Advisory Committee

June 24, 2002
Western Governors' Association
Annual Conference, Phoenix, AZ

July 10, 2002
Environmental Protection Agency, Region IX,
San Francisco, CA

August 8, 2002
CANAMEX Task Force Transportation Committee,
Phoenix, AZ

September 12, 2002
CANAMEX Task Force, Phoenix, AZ

September 26, 2002
Governor's Small Business Executive Council,
Nogales, AZ

October 10, 2002
EPA Good Neighbor Environmental Board,
Nogales, AZ

October 17, 2002
CANAMEX Task Force, Tucson, AZ

November 13, 2002
Nogales City Council, Nogales, AZ

November 21, 2002
Comisión Sonora-Arizona Plenary Session, Puerto
Peñasco, SON

December 17, 2002
Santa Cruz County Board of Supervisors, Nogales, AZ

March 5, 2003
Nogales Port Users Group, Nogales, SON

April 18, 2003
Arizona Annual Roads and Streets Conference,
Tucson, AZ

May 9, 2003
Securing and Developing
Our Southern Border Symposium, Tucson, AZ

June 6, 2003
Arizona-Mexico Commission Plenary Session,
Tucson, AZ

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Commodity-Flow Study

The University of Arizona®
Office of Economic Development

Prepared by the Office of Economic Development
for the Nogales CyberPort Project

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Executive Summary

The analysis of international trade is a complex endeavor. The reasons for analysis are as numerous and varied as the metrics for measurement and evaluation. Additionally, as with all analysis, the basis of judgment must be considered in relation to the completeness and accuracy of available data. With this understanding, the Nogales CyberPort Project *Commodity Flow Study* attempts to provide as much information to the reader as possible to inform policy and infrastructure development decisions.

As trade is analyzed in terms of its different characteristics (mode, weight, value, port, commodity type, container, etc.), different pictures appear—and these pictures may often times contrast with one another. The character of trade through any one port or region cannot be defined by a single variable. The complex character of international trade is perhaps nowhere more evident than through the Nogales border port-of-entry (BPOE) with its unique mix of agricultural, maquiladora, and bulk trade via both rail and truck transport.

Data and Methodology

In order to present the most comprehensive picture of trade through Nogales as possible, a number of data sources were used. The lack of data from U.S. agencies regarding the gross weight of U.S. exports, the actual Mexican state of origin for U.S. imports, and the number of trucks and rail containers exiting the U.S. results in significant information gaps. To supplement this data, the Reebie Associates TRANSEARCH U.S.-Mexico trade database was used. This database involves trade-route modeling and other types of estimation. Although less accurate than primary data, the TRANSEARCH database is valuable in completing the picture of trade where data does not exist.

The *Commodity Flow Study* identifies Arizona's tradeshed or geographic area of market capture for U.S.-Mexico trade based primarily on topography and transportation infrastructure. Through the identification of Arizona's tradeshed, reasonable and appropriate expectations of trade-flow through the region can be made.

Different Variables, Different Pictures

Commercial Truck Crossings

While there is great variability in truck crossings as a measure of international trade (e.g., differences in percent of empty trucks, average weight per truck, and average value per ton carried), it is still a helpful metric in determining the need for overall port capacity at primary inspection lanes as well as roadway infrastructure on both sides of port facilities.

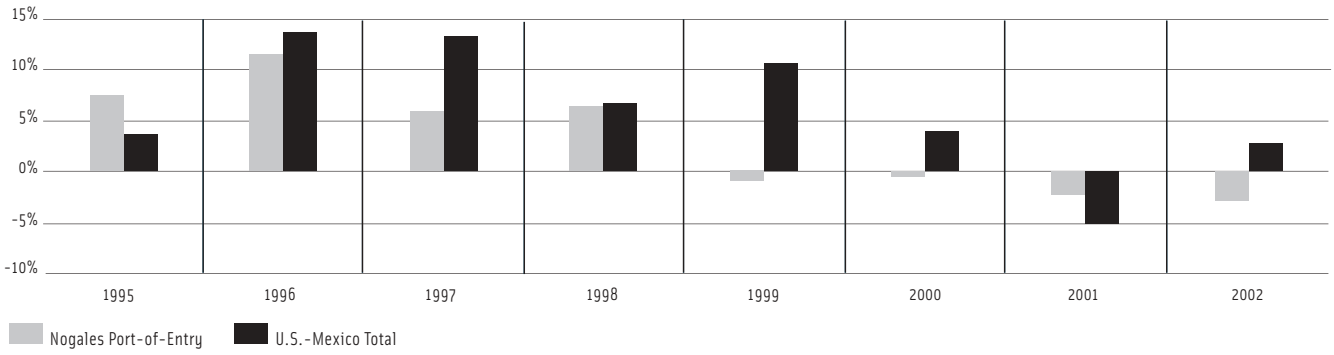
The port of Nogales has witnessed a constant decline in northbound commercial truck crossings since 1998 with 242,237 truck crossings reported for 2002. This represents a 6.4 percent decrease over the period 1998 to 2002. While most U.S.-Mexico border ports-of-entry witnessed a decline of truck crossings in 2000, none experienced this trend for an extended period of time, as did Nogales. This resulted in a loss in share for Nogales of northbound truck crossings among all U.S.-Mexico border ports from 6.6 percent in 1998 to 5.5 percent in 2002. Nearly one quarter (24 percent) of Nogales' market share of northbound truck crossings has been lost since 1995.

However, it must be noted that during this period of decline in northbound truck crossings through Nogales, the average number of tons per truck increased from 12.4 tons per truck in 1998 to 14.9 tons per truck in 2001, a gain of 20.2 percent over that time period. The rate of decrease in truck volume was overcome by a corresponding increase in truck productivity, which resulted in more tons of freight processed northbound by truck through Nogales in 2001 than at any previous time. The following table and charts display northbound commercial truck crossings for the Nogales port-of-entry.

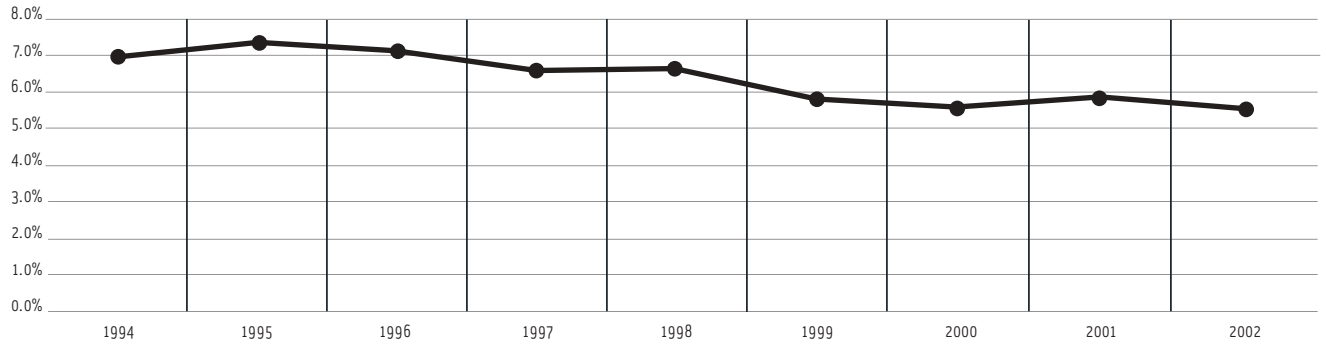
Northbound Commercial Truck Crossings

Year	Nogales BPOE	Annual Percent Growth/Decline	All US-Mexico Border Ports	Annual Percent Growth/Decline	Nogales Relative Share of US-Mexico Total
1994	191,902	N/A	2,763,120	N/A	6.9%
1995	206,032	7.4%	2,860,625	3.5%	7.2%
1996	229,337	11.3%	3,254,084	13.8%	7.0%
1997	242,830	5.9%	3,689,665	13.4%	6.6%
1998	258,828	6.6%	3,946,543	7.0%	6.6%
1999	256,426	-0.9%	4,358,721	10.4%	5.9%
2000	254,694	-0.7%	4,525,579	3.8%	5.6%
2001	249,237	-2.1%	4,304,959	-4.9%	5.8%
2002	242,237	-2.8%	4,426,593	2.8%	5.5%

Percent Growth/Decline of Northbound U.S.-Mexico Commercial Truck Crossings



Nogales Port-of-Entry Relative Share of Total Northbound U.S.-Mexico Truck Crossings



Source for Northbound Commercial Truck Crossings: U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data.
Source for Percent Growth/Decline of Northbound U.S. – Mexico Commercial Truck Crossings: U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data.
Source for Nogales Port-of-Entry Relative Share of Total Northbound U.S. – Mexico Truck Crossings: U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data.

U.S. Imports from Mexico by Weight

As reflected through increases in truck productivity as well as increases in the number of rail containers per train northbound through Nogales, the overall weight (in tons) of trade imported to the U.S. through the port by both rail and truck has grown consistently since 1994. Again, however, the picture is more complex. The mix of commodities moving northbound through Nogales is high-volume and low-value relative to that moving through other ports.

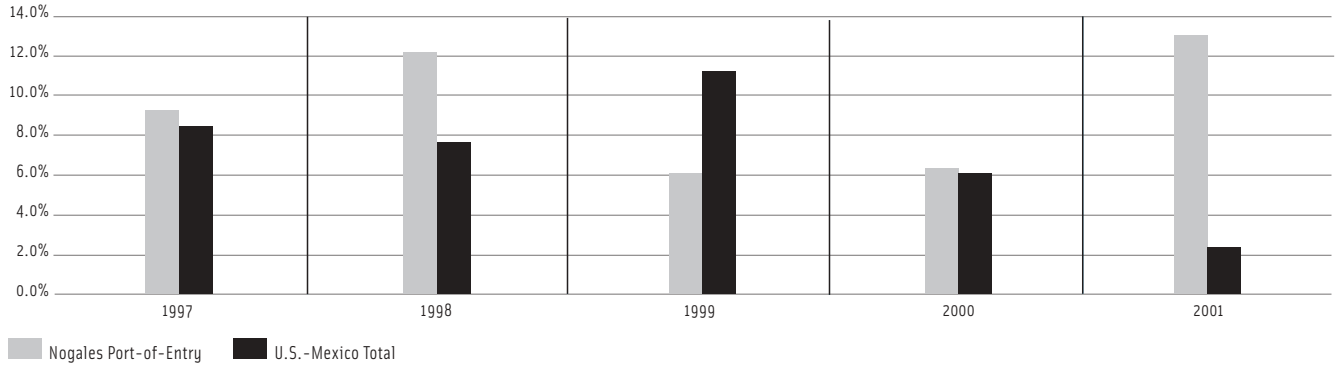
Growth in the movement of bulk products by rail combined with a relatively stable agricultural market in the region has resulted in greater and greater amounts of trade processed through the Nogales port-of-entry year after year. While the rate of growth of U.S. imports by weight through Nogales rarely mirrors that of the entire U.S.-Mexico border, Nogales' relative share of U.S. imports by weight has increased from 12.9 percent in 1996 to 14.3 percent in 2001. The following table and charts display U.S. imports by weight for the Nogales port-of-entry.

U.S. Imports from Mexico by Weight (in Metric Tons)

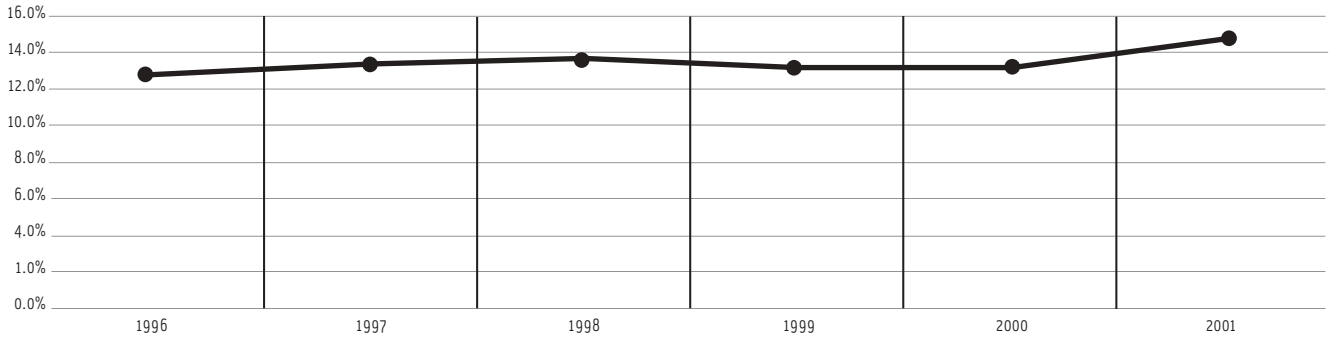
Year	Nogales BPOE	Annual Percent Growth/Decline	All U.S.-Mexico Border Ports	Annual Percent Growth/Decline	Nogales Relative Share of US-Mexico Total
1995	N/A	N/A	N/A	N/A	N/A
1996	2,590,643	N/A	20,093,599	N/A	12.9%
1997	2,831,946	9.3%	21,766,838	8.3%	13.0%
1998	3,174,390	12.1%	23,393,738	7.5%	13.6%
1999	3,369,398	6.1%	26,009,466	11.2%	13.0%
2000	3,580,200	6.3%	27,578,400	6.0%	13.0%
2001	4,045,255	13.0%	28,230,689	2.4%	14.3%

Source for U.S. Imports from Mexico by Weight: U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data.

Percent Growth/Decline of U.S. Imports from Mexico by Weight



Nogales Port-of-Entry Relative Share of U.S. Imports from Mexico by Weight



Source for Percent Growth/Decline of U.S. Imports from Mexico by Weight: U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data.
Source for Port-of-Entry Relative Share of U.S. Imports from Mexico by Weight: U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data.

Total U.S.-Mexico Surface Trade by Value

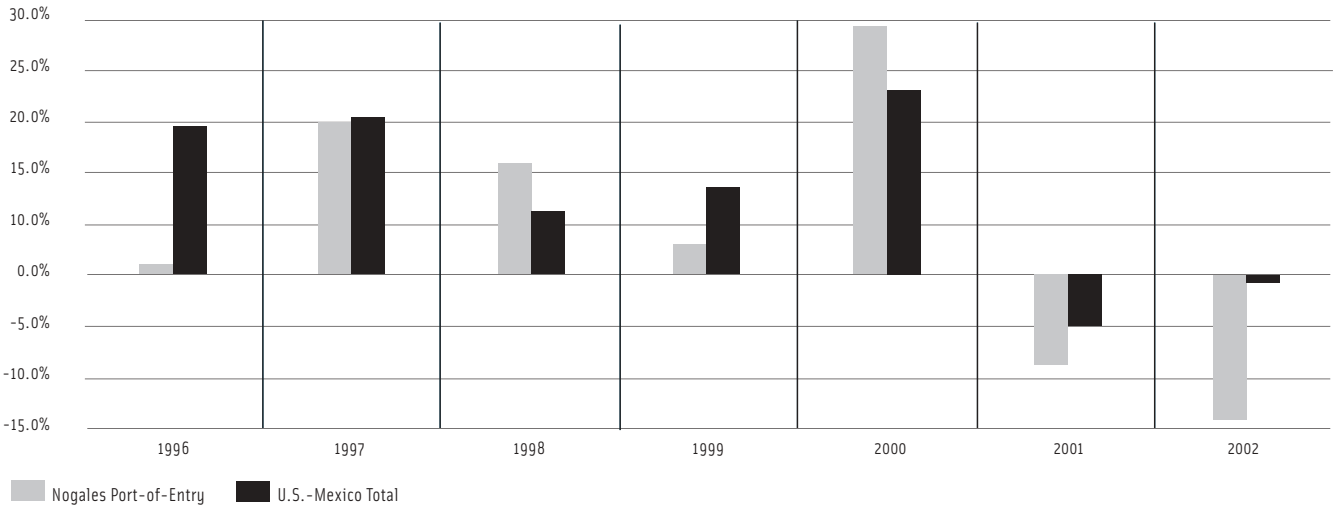
Total surface trade includes both northbound and southbound trade movement (U.S. imports and exports) combined. The years of the U.S. and Mexican recession (2001 and 2002) had a greater negative impact on the port of Nogales than on the U.S.-Mexico border as a whole in terms of total surface trade by value. As a result, Nogales has lost approximately 30 percent of its market share of trade by value since 1995. The Nogales port accommodated only 5.4 percent of all U.S.-Mexico surface trade by value in 2002, its lowest point over the last eight years.

Total U.S.-Mexico Surface Trade by Value (in current U.S. Dollars)

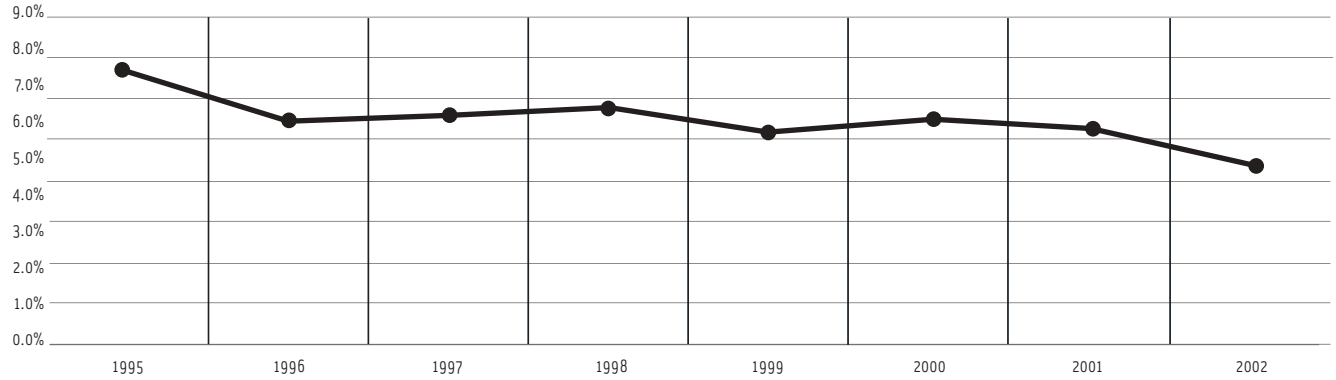
Year	Nogales BPOE	Annual Percent Growth/Decline	All US-Mexico Border Ports	Annual Percent Growth/Decline	Nogales Relative Share of US-Mexico Total
1994	N/A	N/A	88,161,772,018	N/A	N/A
1995	7,301,461,642	N/A	94,824,296,399	7.6%	7.7%
1996	7,353,144,363	0.7%	113,440,789,296	19.6%	6.5%
1997	8,830,939,184	20.1%	136,324,510,964	20.2%	6.5%
1998	10,237,296,021	15.9%	151,884,698,381	11.4%	6.7%
1999	10,532,407,243	2.9%	171,152,325,535	12.7%	6.2%
2000	13,630,809,409	29.4%	210,595,380,416	23.0%	6.5%
2001	12,508,628,243	-8.2%	200,796,702,776	-4.7%	6.2%
2002	10,794,216,340	-13.7%	199,538,614,515	0.6%	5.4%

Source for Nogales Port-of-Entry Relative Share of U.S. Imports from Mexico by Weight: U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data.
Source for Total U.S.-Mexico Surface Trade by Value: U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data.

Percent Growth/Decline in Total U.S.-Mexico Surface Trade by Value



Nogales Port-of-Entry Relative Share of Total U.S.-Mexico surface Trade by Value



Source for Percent Growth/Decline in Total U.S.-Mexico Surface Trade by Value: U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data.
Source for Nogales Port-of-Entry Relative Share of Total U.S.-Mexico surface Trade by Value: U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data.

Arizona's Tradeshed and Regional Market Share

Through an analysis of production and consumption (origin and destination) by state in both Mexico and the United States, a range was established that identifies what Arizona's ports-of-entry can reasonably expect to accommodate among all U.S.-Mexico surface trade. Arizona's tradeshed was defined as encompassing the western states of the U.S., the western mainland states of Mexico and the southern states of Mexico below Mexico City. This tradeshed is closely related to those regions served by the CANAMEX corridor.

The identified range of potential market share for Arizona was between 4.3 percent and 22.7 percent of all northbound U.S.-Mexico surface trade and between 4.8 percent and 15.7 percent of all southbound trade. According to the Reebie TRANSEARCH database for the year 2000, Arizona accommodated 13.1 percent of northbound trade and 5.5 percent of southbound trade—both figures are within the established ranges.

Arizona's figure of 13.1 percent is firmly in the middle of the range for northbound market share. However, through targeted regional analysis, it was identified that a significant amount of northbound trade within Arizona's tradeshed was traveling farther along Mexico's highways to enter the U.S. through California border ports-of-entry. This leakage of northbound trade warrants further investigation and strategic actions to accommodate that trade movement through Arizona. Opportunities also exist for Arizona's secondary ports of San Luis and Douglas to accommodate a significant share of this northbound leakage.

Arizona's southbound figure of 5.5 percent is at the bottom of the market-share range and illustrates the state's underperformance in providing U.S. exports to Mexico's accessible market regions. Arizona is challenged in that just over 11 percent of Mexico's exports to the U.S. originate in its western region. Conversely, only 18 percent of U.S. exports to Mexico originate in its western region. This results in the strong majority of U.S.-Mexico trade occurring between states that Arizona is not geographically best positioned to accommodate. Efforts should be taken at the state and regional level to enhance the national strength and position of export-related activities within the western regions in both countries.

Commodity Types

Nogales ranks 7th out of 7 major ports in processing electrical equipment. Four of the six other major ports process more than double the tonnage of electrical equipment than does Nogales. When examining general industrial machinery, Nogales ranks 6th out of the 7 ports. Both of these commodities are important in contributing to maquiladora manufacturing operations. The poor competitive position of the Nogales port in processing these commodities indicates that Arizona needs to develop focused efforts to increase export-related activity in these two commodity areas.

Hazardous Materials

Sulfuric acid accounts for nearly all of the hazardous material flows through Nogales in the northbound direction. Year 2002 data for sulfuric acid indicates 369,838 metric tons crossing northbound through Nogales, all by rail. The only other hazardous materials transported northbound by rail are paints/varnishes and perfumes/deodorizers.

It is important to note that the rail line for the port-of-entry runs through the heart of the urban centers of Nogales, Arizona and Nogales, Sonora. The rail line is surrounded by residential, retail, office and industrial land use and is densely populated with people. These factors contribute to increased risk in the case of an accident. Appropriate steps must be taken to minimize and mediate this risk.

Project Background

Purpose

The goal of the Nogales CyberPort Project is to improve the efficiency and effectiveness of the trade-flow process while strengthening safety, security and throughput procedures. CyberPort improvements as applied to trade through the Nogales border port-of-entry are expected to increase the competitiveness of the port and region. To accomplish this goal, a commodity flow analysis was conducted to examine the relative and aggregate flow of goods moving northbound and southbound between Mexico and the United States through major land-based border ports-of-entry. This information will help stakeholders better understand the distinctive nature of commodities moving through the Nogales, Arizona port-of-entry and its relationship to the trade-flow process. The analysis also identifies commodity types and market regions for increasing trade through Arizona's border ports-of-entry.

The *Commodity Flow Study* is accompanied by three companion technical reports:

1 A definition of the CyberPort concept and presentation of alternative concept models
2 An assessment of the legal and regulatory implications of the CyberPort concept
3 A logistical analysis of trade-flow movements through the Nogales port-of-entry

The examination of commodity flows is best complemented by a thorough logistical understanding of the movement of goods as presented in the logistics analysis. Further study is recommended to better understand and identify the reasons why goods move through particular ports and along selected trade corridors.

An awareness of the unique characteristics of the trade flow process through Nogales will allow stakeholders to affect change that will streamline and expedite the flow of goods. Improving both the efficiency and effectiveness of the trade flow process through Nogales will help to maximize the safe, secure and predictable movement of goods through Arizona and Sonora and position the Nogales port-of-entry as a premier border-crossing among other ports along the U.S.-Mexico border.

Since the ratification of the North American Free Trade Agreement (NAFTA) in December 1993, both commercial truck traffic and the value of commodities crossing the U.S.-Mexico border has approximately doubled. This increase in cross-border trade has placed significant pressure on state and federal agencies to inspect and process increasingly greater volumes of commercial traffic, without compromising the effectiveness of inspection procedures. The integration and utilization of new technology among all agencies will help maintain high levels of integrity of border management procedures.

Arizona border ports-of-entry face immediate pressure to enhance procedures and expand physical resources at a rate commensurate with increased trade flows. These facilities experience delays in the processing of commercial traffic and a queuing of trucks at border crossings, which impedes trade and increases the cost of doing business. While commercial truck traffic across the U.S.- Mexico border has increased overall in recent years, a decline in commercial truck traffic through the Nogales port-of-entry has resulted in a drop in the port's relative share of northbound U.S.- Mexico truck traffic from 7.2 percent in 1995 to 5.5 percent in 2002.

A number of factors have contributed to this trend, most notably: 1) geographic shifts in the location of maquiladora manufacturing operations and consumer markets, 2) more predictable and cost-efficient shipping and distribution alternatives through other regions, and 3) larger global and industry-specific economic forces. However, to the extent that port operations are a factor in influencing trade flow patterns, it is important that Arizona's border ports-of-entry continue to operate in the most timely, efficient and predictable manner possible throughout the day, week and year.

Data Sources

The commodity flow analysis was conducted using trade data from Reebie Associates of Stamford, Connecticut. The central source of the Reebie Associates TRANSEARCH-International database is U.S.-Mexico transborder statistics produced by the U.S. Bureau of the Census, under contract to the U.S. Department of Transportation's Bureau of Transportation Statistics (U.S. DOT, BTS). This source provides information on transborder shipments in terms of declared value (U.S. dollars) at customs inspection points on the border. Information on southbound shipments includes U.S. state of origin and Mexican state of destination. For northbound shipments, U.S. state of destination is shown, but origins are shown simply as Mexico. Physical volume (converted to metric tons) as well as value (in U.S. dollars) is reported for all northbound shipments. Commodities are indicated by the Mexican version of the harmonized tariff schedule (HTS).

Data processing by Reebie Associates involves:

- conversion of HTS to STCC commodity codes
- conversion of volume units (bushels, pallets, etc.) to gross weight in tons
- conversion of dollar value to weight (tons) for southbound trade
- allocation of Mexican state of origin for northbound traffic
- additional adjustments to apply seasonality factors, and
- routing assignments for specific commodity flows to primary gateways or border crossing points based on states of origin and destination as well as reported trade processed by respective ports-of-entry.

To standardize the commodity definitions to conform to the domestic U.S. and Canada/U.S. TRANSEARCH data, the Mexico/U.S. data are converted from harmonized code to Standard Transportation Commodity Classification (STCC) form. This is done by creating a bridge table. After a review, further checks are made during the process of converting volume units from dollars to tons. Adjustments are made in some instances where a dollar value is deemed more appropriate for a given STCC category.

The basic information is expressed as volume in U.S. dollars. A conversion is made to tons using a table of product values (e.g., U.S. dollars per pound for STCC groups to the 4-digit level of detail). As mentioned above, some individual checking is performed where there are possible ambiguities or areas of sensitivity.

The source data are processed further for the assignment of the Mexican state of origin for northbound shipments. The methodology employed is based on a set of tables produced by Reebie Associates from a variety of Mexican sources. These tables give a quantified breakdown of all 32 states within Mexico as origin areas for world exports from Mexico. Further, each table represents an industrial group, approximating a two-digit STCC code. It is assumed that Mexican exports to the U.S. are proportionately in the same source patterns as exports to the rest of the world.

Seasonality factors are also applied, especially for agricultural and food products, to attain a more reasonable picture of volume of freight activity for the full year.

U.S. imports from and exports to Mexico are further allocated from the state level down to the county level. This procedure utilizes domestic U.S. production and consumption levels within counties, by specific commodity types. The relative weighting of each county's inbound and outbound volumes, as a percent of the state's total volumes by specific commodity type, are used to create disaggregation factors, which are then applied to the Mexico traffic flows.

Users of these data, however, should be cautioned that this assignment to the county level was undertaken to maintain uniformity within the database, and also for the purpose of developing flow routing assignments. Once the commodity flow data are broken down to the county level (within the U.S.) the "routings" can be identified using Reebie's highway and rail network models. The final enhancement to the data set is the assignment of border crossing points to each of the flows, using U.S. county identifications and U.S. Bureau of Transportation Statistics reports of border crossing total volumes.

Sources of data used in the commodity flow analysis, in addition to the TRANSEARCH database, include the U.S. Bureau of Customs and Border Protection, U.S. Department of Commerce, U.S. Department of Transportation Bureau of Transportation Statistics, and the U.S. Department of Agriculture. Information was obtained from Internet websites of these organizations and directly from the U.S. Customs Management Center in Tucson, Arizona.

Methodology

The commodity flow data were first examined at the macro level to develop a picture of the overall movement of goods through the U.S.-Mexico border. The seven major U.S.-Mexico ports-of-entry—Otay Mesa, Calexico, Nogales, El Paso, Laredo, McAllen (also known as Hidalgo or Pharr) and Brownsville—were studied. According to the U.S. DOT Bureau of Transportation Statistics, these seven ports account for 90 percent of northbound U.S.-Mexico surface trade by value. Trade by mode (both truck and rail) was examined from the implementation of NAFTA in 1994 to 2001.

The Reebie/TRANSEARCH data were disaggregated based on origin and destination of commodities by region and port-of-entry. To facilitate analysis of the data, the United States and Mexico were divided into regions along state lines based on topography, highway and rail infrastructure. The regions represent natural trade corridors, or "tradesheds", for purposes of analyzing commodity flow. This method of analysis is based on watershed-based ecological planning.

In principle, trade corridors (much like rivers) serve to capture flows of trade from surrounding areas of production and transport that trade to the destined points of distribution or market areas. The assignment of trade to regions and ports-of-entry considers proximity to markets and transportation costs as the primary variables in the determination of trade-flow routing. In reality, trade flow routing decisions are based on a much more complex variety of factors and are unique to the type of commodity being transported. However, for purposes of analysis, the tradeshed and trade corridor principles are helpful tools to understand the overall movement of trade through large regions.

The tradeshed principle of analysis begins to address the complex system of interrelated factors that determine not only the movement of trade but also the geographic location of production activities in relation to market areas.

The Mexican states of Baja California Norte and Baja Sur, although representing a separate trade region, were not included in the targeted analysis. It is assumed that trade to and from this region is naturally positioned to flow directly through the ports at the California–Baja California Norte border.

Trade data were specifically examined to identify trade flows that occur outside of their natural tradesheds based on topography and infrastructure. The focus of this analysis was on the West region of the United States and the West and South regions of Mexico. Both truck and rail trade movements were examined.

Once major patterns were identified, individual commodities were summarized with a focus primarily on agriculture and maquiladora (maquila) trade. To understand the patterns associated with these commodities, maquiladora employment was mapped. Extensive interviews were conducted with U.S. and Mexican customs brokers, agriculture distributors and maquila industry representatives to gain greater awareness of local influences, perspectives and concerns.

Figure 1: CANAMEX Trade Corridor

CANAMEX Trade Corridor Nogales serves as a principal gateway for U.S.-Mexico trade. Arizona's direct tradeshed encompasses 14 states in the western U.S. and Mexico. Arizona's extended tradeshed serves the entire U.S. for southbound trade destined for western Mexico as well as Mexico's 13 southern states for trade destined for the western U.S. and Canada. Arizona's tradeshed is that of the CANAMEX Corridor. In addition to key north-south access, Arizona is also positioned along three major east-west freight corridors: I-8, I-10 and I-40.

Figure 2: Arizona's Tradeshed Regions

Direct Tradeshed

For trade between West U.S. and West Mexico

Arizona should be the primary gateway for trade between these regions. It should accommodate nearly all trade within this tradeshed.

Extended Tradeshed A

For trade between West U.S. and South Mexico

Arizona should be a primary gateway for trade between these regions. It should accommodate the strong majority of trade within this tradeshed.

Extended Tradeshed B

For trade between entire U.S. and West Mexico

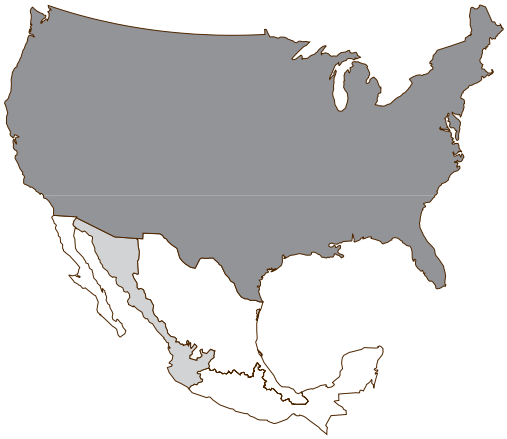
Arizona should be a primary gateway for trade between these regions. It should accommodate a significant amount of trade within this tradeshed.

Key

Origin for trade goods

Destination for trade goods

Figure 2: Arizona's Tradeshed Regions (continued)

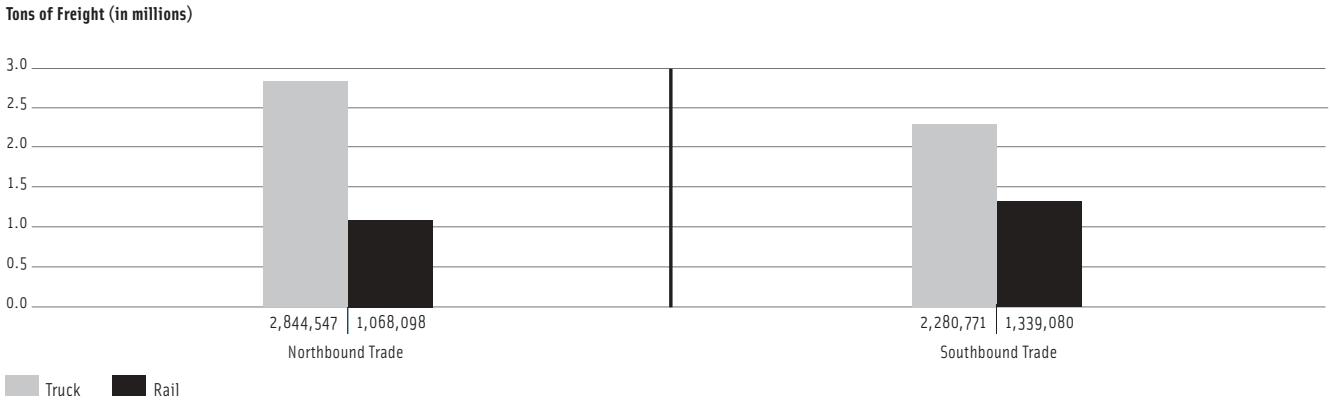
Southbound Trade Originating in the U.S. and Destined for Mexico	Northbound Trade Originating in Mexico Destined for the U.S.
	
	
	

Method of Transport

Surface Trade by Truck and Rail

The two primary methods for transporting commercial goods through the Nogales Mariposa port-of-entry are truck and rail. The largest percentage of goods, based on volume by weight, crosses the border by commercial vehicle. This is true for both northbound and southbound movement of goods. A comparison of commercial vehicle and rail trade flow volumes is shown in Figure 3 below.

Figure 3: Rail and Truck Trade by Weight through Nogales, AZ, 2000



A significant modal characteristic is that commercial trucks transport nearly triple the volume of trade than does rail for northbound movement. However, commercial trucks move less than double that of rail for southbound trade.

Modal Split

The truck/rail modal split for the Nogales port-of-entry is 73%/27% for northbound trade and 63%/37% for southbound trade. The difference in modal split is primarily a reflection of the type of commodities moving in each direction. As illustrated in Table 22, fresh fruits and vegetables are among the top commodities processed northbound through Nogales. These perishable commodities are very sensitive to factors of time and temperature and currently lend themselves more favorably to shipment by truck. The leading commodities transported southbound through Nogales are mineral ores and bulk grains. The lack of time and temperature sensitivity of these products lends itself to transport by rail.

It is important to note that fresh fruits and vegetables have been transported by rail in the past. The current unpredictability in the timeliness of rail service through Nogales and the lack of widely-used refrigerated rail cars has led to the transport of nearly all fresh fruits and vegetables by truck. However, with recent privatization of the Mexican rail line (Ferromex) and a willingness on their behalf to work with the U.S. rail line (Union Pacific) toward greater compatibility, the exclusive movement of fresh fruits and vegetables by truck may not necessarily remain the case in the future.

Source for Figure 3: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Commodities from a point of origin with a significant amount of volume (such as Culiacan, Sinaloa) destined for an intermodal hub in the U.S. (such as may be developed in Tucson, Arizona) could allow for timely delivery of fresh produce in temperature-controlled rail cars in the future.

The existing stock of warehouse/distribution space and related services in Nogales, Arizona serves as a terminal buyer market for agricultural products. Buyers of fresh fruits and vegetables such as wholesalers, chain grocery stores and big-box retailers currently conduct their wholesale purchases in Nogales. The location of this buyers market in Nogales is inherently tied to the current prohibition of Mexican commercial trucks to transport goods to distribution points beyond the specified border zone. As a result, Nogales serves as a domestic distribution point for shipment of agricultural products throughout the United States.

However, the impact of the recent U.S. action permitting Mexican carriers to apply to travel throughout in the United States cannot be fully known at this time. A significant amount of building space and trade-related service employment in border cities such as San Diego, Nogales, El Paso and Laredo currently accommodates the domestic distribution of all Mexican trade destined for the U.S. and Canada. It is unlikely that this physical and human resource infrastructure will cease to be useful in the near future. However, as entrepreneurial trade relationships develop solutions for more cost-efficient shipping, new distribution patterns may appear.

Inland cities with accessible air, rail and interstate highway infrastructure such as San Antonio, Kansas City and Tucson are in the process of positioning themselves to develop their locational advantage as distribution hubs along major trade corridors. However, if inland port concepts are to succeed, they must provide not only efficient transportation and distribution infrastructure but also the full array of trade-related services currently offered at border port cities.

The modal split for all seven major U.S.-Mexico border ports combined is 77%/23% for northbound trade and 69%/31% for southbound trade. The truck/rail modal split for Nogales (73/27 NB; 63/37 SB) represents the same shifts between northbound and southbound trade as experienced at the larger scale. However, the relative share of trade moved by rail through Nogales is noticeably higher than the combined total among the seven major ports.

Among all U.S.-Mexico border ports-of-entry, only a few have the infrastructure capacity to accommodate a significant amount of trade by rail—namely Calexico East, Nogales, El Paso, Eagle Pass, Laredo and Brownsville. As indicated in Table 1, among the ports examined, only the port of Laredo accommodates more trade by rail in terms of weight than Nogales. However, according to the U.S. Department of Transportation, Nogales ranks third among all U.S.-Mexico ports in terms of dollar value of trade by rail for both imports and exports ($2.5 billion) behind Laredo ($24.2 billion) and Eagle Pass ($3.1 billion).

Table 1: Surface Trade by Weight (Ton) and Port, 2000

Northbound [1]	Truck	Rail	Other	Total
Otay Mesa	2,866,815	10,710	263	2,877,788
Calexico	1,214,635	87,109	0	1,301,744
Nogales	2,844,547	1,068,098	0	3,912,645
El Paso	2,545,137	746,793	1,358	3,293,288
Laredo	8,653,674	3,999,792	24,356	12,677,822
McAllen	1,876,429	299	0	1,876,658
Brownsville	1,137,774	352,970	0	1,490,744
Other	1,534,004	1,047,405	823,801	3,405,210
Total	**20,796,586**	**7,313,106**	**849,778**	**30,835,899**

Northbound [2]	Truck	Rail	Other	Total
Otay Mesa	2,265,250	9,676	31,920	2,306,846
Calexico	1,062,104	78,632	0	1,140,736
Nogales	2,504,677	1,074,817	706	3,580,200
El Paso	2,205,764	673,308	51,694	2,930,766
Laredo	7,681,330	3,606,328	9,482	11,297,140
McAllen	1,639,561	245	75,954	1,715,760
Brownsville	993,847	319,005	20,867	1,333,719
Other	2,335,466	873,660	64,107	3,273,233
Total	**20,687,979**	**6,635,671**	**254,750**	**27,578,400**

Southbound [2]	Truck	Rail	Other	Total
Otay Mesa	3,806,429	179,596	6,387	3,992,412
Calexico	1,623,472	120,354	0	1,743,826
Nogales	2,280,771	1,339,080	0	3,619,851
El Paso	8,325,661	1,144,539	21,961	9,492,161
Laredo	16,087,158	12,687,004	317,474	29,091,636
McAllen	2,692,686	78,071	116	2,770,873
Brownsville	2,411,864	1,023,163	24,473	3,459,500
Other	1,740,219	4,297,737	0	6,037,956
Total	**38,968,260**	**20,869,544**	**370,411**	**60,208,215**

Sources: 1. U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data. 2. TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

U.S. Department of Transportation figures were included in the Northbound portion of Table 1 to serve as a cross-reference. Trade data by weight and port from the U.S. DOT for southbound trade are not available. This is the primary reason for using the Reebie TRANSEARCH database in this analysis. It is apparent that discrepancies exist between the two databases–up to 20 percent in the most extreme case of Otay Mesa. However, the relative trends between ports remain similar between the two databases.

It is important to note that according to both databases, the only port processing a greater volume of northbound surface trade from Mexico than Nogales is Laredo. Due to the type of commodities crossing through Nogales (high volume, low value) this relative position looks dramatically different when considering the port's performance in terms of processing trade value, rather than volume. According to the U.S. Department of Transportation, Nogales drops to a fourth-place rank in terms of total import value ($8.3 billion) behind Laredo ($44.4 billion), El Paso ($21.9 billion), and Otay Mesa ($10.7 billion).

When examining southbound trade, Nogales fails to occupy such a prominent relative position in terms of processing trade volume among the seven major ports. The port of Laredo continues to exhibit its dominance, accommodating nearly half of all southbound surface trade to Mexico by volume. However, in terms of southbound trade volume transported by truck, Nogales occupies a sixth-place rank among the seven major ports. This illustrates how the U.S. tier of Arizona's tradeshed fails to compete as a major region of production for exports to Mexico.

Figure 4 illustrates the relationship between northbound and southbound trade volumes. As illustrated in Table 1, total U.S.-Mexico southbound surface trade volumes are approximately twice that of northbound trade. This trend is most clearly pronounced through the Texas ports of Laredo, El Paso and Brownsville. By contrast, the port of Nogales represents a more balanced ratio of northbound to southbound trade.

One possible conclusion to draw from this phenomenon is that the ports of California and Arizona are more dependent on maquiladora activity where southbound inputs are returned northbound again in the form of a finished product. The ports of Texas, however, appear to be handling the majority of the non-maquila exports from the United States to consumer destinations in Mexico. The mix of commodities being shipped through each port also plays a factor (Tables 24 and 25).

As illustrated in Figure 16, the Central and East regions of the U.S. produce approximately 73 percent of U.S. exports destined for Mexico. The strength of these regions to produce both maquila manufacturing inputs and finished products for export also serves as a contributing factor to this trend.

Figure 4: Trade by Weight, Direction and Port, 2000

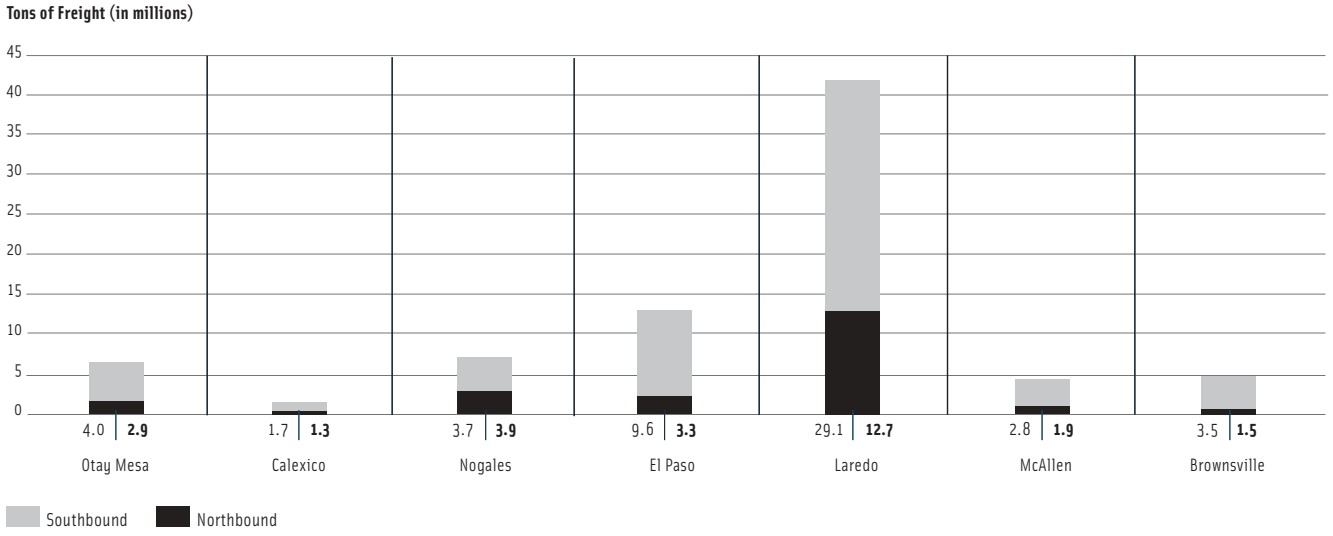
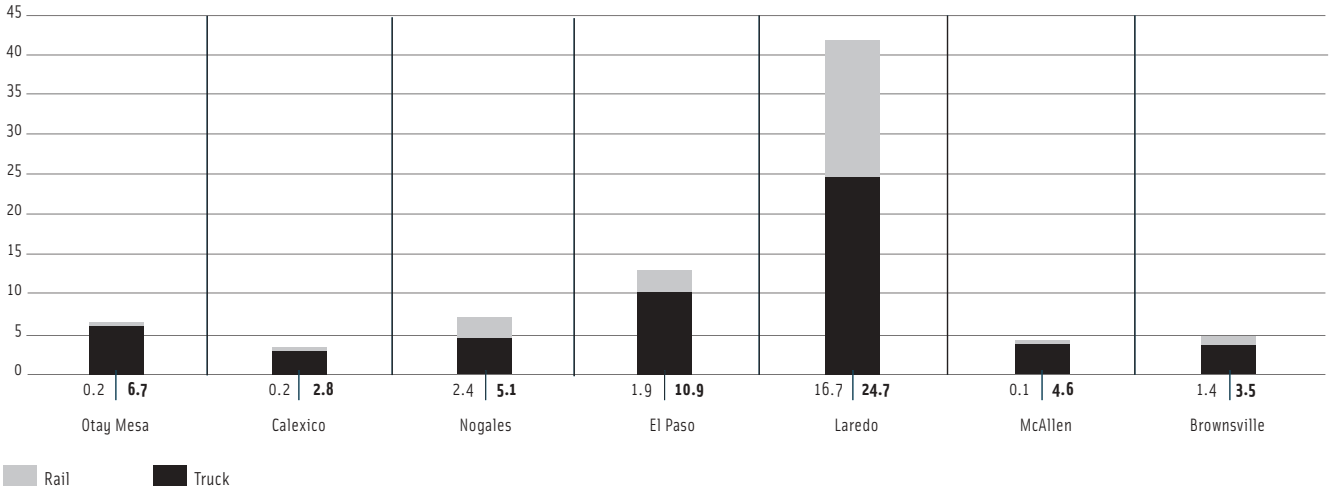


Figure 5 illustrates total northbound and southbound trade flow by mode among the seven major ports. It must be noted that Eagle Pass, TX, also accommodates a significant amount of northbound trade both by truck and rail. According to the U.S. Department of Transportation, Eagle Pass processes 632, 957 tons of trade by truck and 832,357 tons by rail for a total of approximately 1.5 million tons of northbound surface trade.

Figure 5: Trade by Weight, Mode and Port, 2000



Source for Figure 4: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.
Source for Figure 5: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Commercial Truck Crossings

An analysis of commercial truck crossings provides additional insight into U.S.-Mexico cross-border trade facilitated through border ports-of-entry. Both loaded and total truck crossings were analyzed. This information is available from the U.S. Department of Transportation, Bureau of Transportation Statistics. Tables 2, 3 and 4 display information on the number of northbound truck crossings through Arizona ports-of-entry as well as the seven major U.S.-Mexico ports-of-entry. No government agency records information on the number of U.S.-Mexico truck crossings in the southbound direction. Consequently, these data are not available for comparison with northbound trends.

As is displayed in Table 2, Nogales accounted for 78 percent of all northbound truck crossings through Arizona ports-of-entry in 2002. The smaller ports of San Luis and Douglas accounted for 12 percent and 8 percent, respectively. Combined, these three ports account for approximately 98 percent of all northbound commercial truck traffic through the state. The data show that the total number of northbound truck crossings through the state of Arizona as well as through the Nogales Mariposa port-of-entry has slowly declined since 1998.

Table 2: Northbound Arizona Commercial Truck Crossings by Port, 1994-2002

Port Name	1994	1995	1996	1997	1998	1999	2000	2001	2002
Douglas	37,140	36,272	38,089	35,718	35,656	32,568	33,594	31,520	24,362
Lukeville	2,498	2,673	2,682	3,671	3,769	4,291	3,840	4,367	1,562
Naco	5,240	5,613	6,057	6,575	8,197	7,766	9,137	8,949	4,078
Nogales	191,902	206,032	229,337	242,830	268,828	266,426	264,694	249,237	242,237
Sasabe	1,230	1,297	1,417	1,545	2,131	2,442	2,662	1,995	2,007
San Luis	44,472	44,455	46,663	42,351	40,613	44,829	40,348	40,032	37,671
Total	**282,482**	**296,342**	**324,236**	**332,691**	**349,194**	**348,322**	**344,265**	**336,090**	**311,907**

Recent declines in northbound truck crossings from 2000 to 2001 were experienced by six of the seven major U.S.-Mexico ports (Otay Mesa being the exception, Table 3). However the important characteristic to note is that while the decline in northbound truck traffic began for Nogales in 1998, all other major ports experienced stable and consistent growth in truck traffic through 2000. It was not until the onslaught of the U.S. and Mexican economic recessions and post–September 11 economic repercussions of 2001 that most other ports began to experience a decline. This extended period of decline for the Nogales port has resulted in a loss of its relative share of northbound commercial truck traffic from 6.6 percent in 1998 to 5.5 percent in 2002.

Source for Table 2: U.S. DOT, BTS based on data from US Customs Service, Mission Support Services, Office of Field Operations, Operations Management Database.

Table 3: Northbound Truck Crossings, U.S.-Mexico Border, 1994-2002

Port Name	1994	1995	1996	1997	1998	1999	2000	2001	2002
Otay Mesa	439,654	445,770	530,704	557,715	606,384	646,587	688,340	708,446	731,291
Calexico	178,428	175,983	170,525	166,198	206,218	261,545	278,811	256,715	276,390
Nogales	191,902	206,032	229,337	242,830	258,826	256,426	264,694	249,237	242,237
El Paso	573,933	606,742	556,134	582,707	605,980	673,003	720,406	660,583	706,199
Laredo	667,907	747,241	1,015,905	1,251,355	1,352,198	1,486,489	1,493,073	1,403,914	1,441,653
McAllen	164,900	177,459	205,028	234,800	266,547	325,225	374,150	3,68,395	390,282
Brownsville	267,316	223,689	226,367	247,578	276,779	303,540	299,238	251,613	248,869
Total	**2,763,120**	**2,860,625**	**3,254,084**	**3,689,655**	**3,946,543**	**4,358,721**	**4,525,579**	**4,304,959**	**4,426,593**

Loaded vs. Unloaded

It is important to understand the relative mix of loaded vs. unloaded trucks for each border port-of-entry. This is helpful in two ways: 1) empty trucks are not subject to the same degree of inspection and processing procedures as loaded trucks, thereby placing a lighter demand on labor and dock space within the port compound, and 2) the proportion of northbound empty truck crossings can be used as a measure of the level of southbound staging and distribution activity among U.S. border-port cities.

Figure 6 illustrates the amount of southbound staging and distribution activity represented in the proportion of empty truck to total truck crossings. The ports of Otay Mesa, El Paso, Laredo and Brownsville all have a significant percentage of northbound empty truck traffic, representing nearly half of all northbound trucks. However, less than one quarter of northbound truck traffic through Nogales is empty.

The data indicate that a significant amount of trucks in Otay Mesa, El Paso, Laredo and Brownsville are crossing northbound to pick-up freight for a return southbound haul. It is not possible to know the proportion of these shipments that is destined for local or regional maquiladora operations versus long-haul market destinations to the interior of Mexico. However, mill and manufacturing products are among the top five southbound commodities for these ports (Table 25) and are highly used in value-added maquiladora manufacturing operations primarily located in adjacent northern border states.

Figure 7 illustrates the relative percentage of northbound truck crossings for the seven major border ports-of-entry from 1994 to 2001. The figure illustrates that little change has occurred in the shifting of relative shares of truck traffic among the seven major ports since 1997. The port of McAllen (also referred to as Hidalgo or Pharr) is the only port to have experienced a slow but consistent increase in the relative share of commercial truck traffic since 1997.

Source for Table 3: U.S. DOT, BTS based on data from U.S. Customs Service, Mission Support Services, Office of Field Operations, Operations Management Database.

Figure 6: Percent of Loaded Northbound Truck Containers by Port, 2002

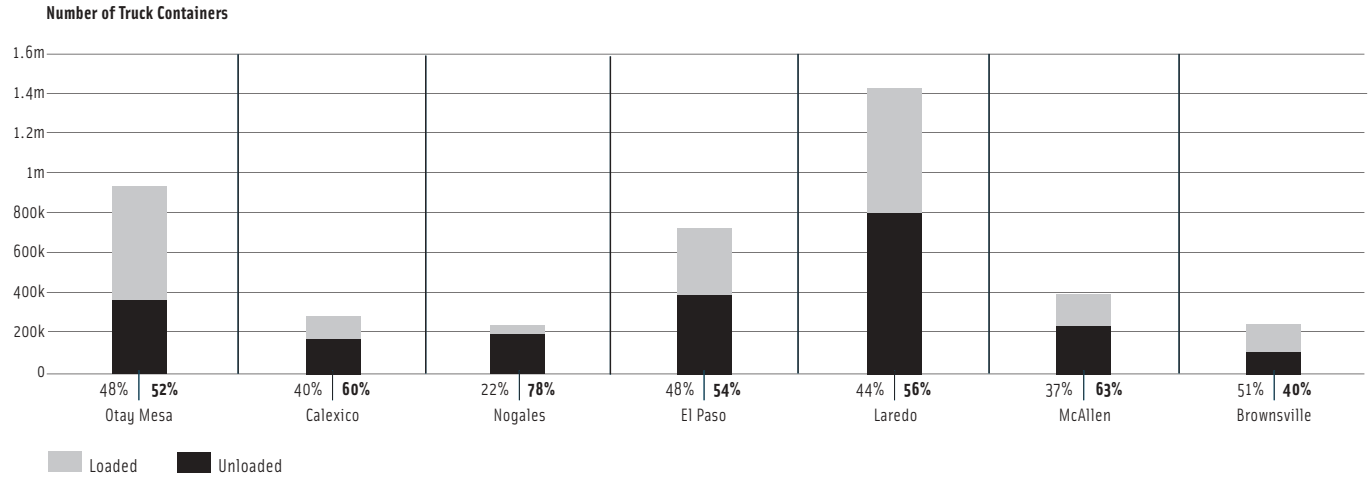
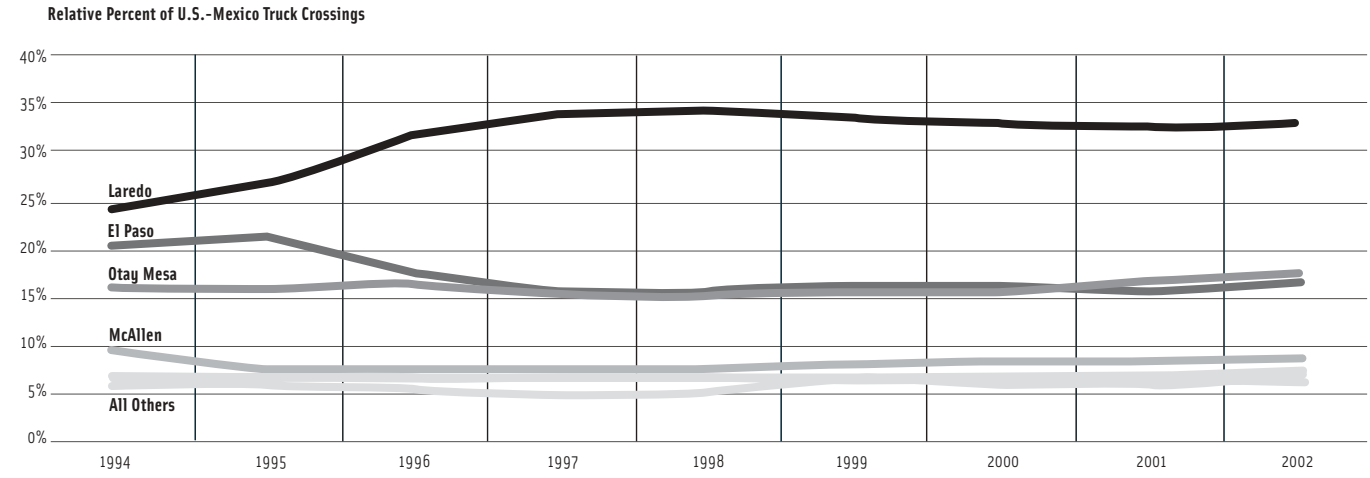


Figure 7: Percent of Northbound Truck Crossings, U.S-Mexico Border, 1994-2002



Northbound commercial truck traffic for all Arizona border ports-of-entry has decreased from 10.2 percent in 1994 to 7.0 percent in 2002. However, while the Arizona-Sonora region experienced a loss of 3.2 percent in relative share, the Nogales port in particular experienced a loss in share of 1.4 percent from 6.9 percent in 1994 to 5.5 percent in 2002.

As U.S.-Mexico trade increased dramatically in the years immediately following the implementation of NAFTA in 1994, some ports-of-entry and their respective border cities positioned themselves to facilitate trade better than others. This can be seen in the redistribution of market share from El Paso to Laredo in the years 1995 to 1997. However, since 1997, the only port-of-entry to experience greater than a one percent gain or loss in relative market share of truck traffic was McAllen (from 6.4 percent in 1997 to 8.6 percent in 2001). These seven major ports-of-entry accounted for 90 percent of total northbound truck traffic in both 1994 and 2001.

Source for Figure 6: U.S. DOT, BTS based on data from US Customs Service, Mission Support Services, Office of Field Operations, Operations Management Database.
Source for Figure 7: U.S. DOT, BTS based on data from US Customs Service, Mission Support Services, Office of Field Operations, Operations Management Database.

Trade Volume per Truck

One factor that may account for the lack of growth in the number of northbound truck crossings through Nogales over recent years is the weight being carried by each truck. By examining the number of loaded trucks relative to the tons of trade processed by truck, it is possible to identify the average tons per truck for both the Nogales port and the entire U.S.-Mexico border. Table 4 illustrates the average weight per truck from 1997 to 2001.

Table 4: Average Tons per Truck for Loaded Northbound Trade

Nogales	1997	1998	1999	2000	2001
Tons of Trade by Truck	2,143,449	2,320,764	2,385,097	2,504,677	2,800,415
Number of Loaded Trucks	165,801	187,057	200,358	191,381	187,963
Average Tons per Truck	12.9	12.4	11.9	13.1	14.9
Total U.S.-Mexico	**1997**	**1998**	**1999**	**2000**	**2001**
Tons of Trade by Truck	16,157,181	17,496,146	19,677,279	20,687,979	20,429,488
Number of Loaded Trucks	1,742,414	1,991,368	2,309,816	2,350,100	2,372,125
Average Tons per Truck	9.3	8.8	8.5	8.8	8.6

The data reveal that the average weight of a loaded truck through Nogales has increased from 11.9 tons per loaded truck in 1999 to 14.9 tons per loaded truck in 2001. This represents a 33.6 percent increase in the average weight per truck over this time period. This trend, however, is not exhibited at the national level. Total northbound U.S.-Mexico truck productivity has actually declined over a four-year period from 9.3 tons per loaded truck in 1997 to 8.6 tons per loaded truck in 2001, a 7.5 percent decrease.

Increases in truck productivity (maximizing the load per truck) results in fewer trucks required to move the same amount of trade. It appears that the absence of growth in truck crossings that corresponds to the increase in tonnage through Nogales may in part be due to greater efficiency and productivity in the trucking industry through this region. However, it is important to note that this increase in productivity is not being experienced across the entire U.S.-Mexico border.

Source for Table 4: U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data.

Rail Transport

There are two railroad companies that utilize the Nogales port-of-entry—Union Pacific Railroad and Ferrocarril Mexicano (Ferromex). Union Pacific Railroad, based in Omaha, Nebraska, is the only railroad moving goods southbound into Mexico through Nogales. Figure 8 shows the Union Pacific rail network throughout the United States.

Figure 8: Union Pacific Rail System

Ferromex handles northbound movement of goods by rail through the Nogales port-of-entry. Figure 9 shows the Ferromex rail network throughout Mexico. The Union Pacific and Ferromex rail networks interconnect to form a rail system that bridges the U.S. and Mexico. In addition to Nogales, the majority of rail trade into the United States is primarily accommodated by the four ports along the Texas-Mexico border—El Paso, Eagle Pass, Laredo, and Brownsville. California also accommodates a significant amount of northbound trade via rail through the port of Calexico-East, with limited service through San Ysidro. No trade is transported via rail through the New Mexico border.

Source for Figure 8: Union Pacific Railroad.

Figure 9: Ferromex Rail System

Source for Figure 9: Ferromex

Northbound Trains and Containers

There are approximately three trains moving northbound and southbound each direction per day through Nogales. A single set of tracks running though the urban center of Nogales, Arizona and Nogales, Sonora limits the number of trains that can transport goods through this corridor. Table 5 displays the number of northbound train crossings by port.

Data available for six of the seven major ports-of-entry indicate that the primary ports account for a less dominant share of northbound rail movement in terms of train crossings than truck crossings. The major ports (with the exception of McAllen) account for 76 percent of the total train crossings in 2001. It is important to note that train crossings as a measure of trade flow volume is entirely dependent on the number of rail containers pulled by each train. Rail data in Table 5 for the port of McAllen could not be confirmed with the Bureau of Transportation Statistics and appears to be an error.

Table 5: Northbound Train Crossings, U.S.-Mexico Border, 1994-2001

	1994	1995	1996	1997	1998	1999	2000	2001
Otay Mesa	185	436	241	246	193	223	204	232
Calexico	296	264	255	242	227	249	241	246
Nogales	492	456	533	560	531	587	774	635
El Paso	884	1,431	780	889	644	621	970	785
Laredo	5,240	4,925	3,206	2,400	2,141	2,276	2,700	2,941
McAllen	0	0	267	1,399	0	0	0	0
Brownsville	593	631	726	613	631	663	694	803
U.S.-Mexico Border Total	**8,726**	**9,432**	**7,509**	**7,678**	**5,681**	**6,019**	**5,812**	**7,469**

As Table 6 shows, the number of northbound rail containers through Nogales has more than doubled since 1996. The rate of increase in the number of rail containers far outpaces the rate of increase in the number of trains, thereby resulting in a greater number of rail containers per train. The number of containers per train has nearly doubled from 48 in 1996 to 92 in 2001. The significant increase in the length of trains through Nogales is a cause for concern regarding congestion through the downtown urban core on both sides of the border.

Source for Table 5: U.S. DOT, BTS based on data from US Customs Service, Mission Support Services, Office of Field Operations, Operations Management Database.

Table 6: Nogales Northbound Trains and Containers, 1996-2001

	1996	1997	1998	1999	2000	2001
Total Trains	533	560	531	587	774	635
Total Containers	25,352	28,483	35,706	33,692	50,602	58,667
Containers per Train	48	51	67	57	65	92
Percentage of Full Containers	53%	55%	57%	58%	50%	61%

The transfer of rail cars from Ferromex to Union Pacific locomotives occurs north of the city of Nogales in Rio Rico, Arizona. U.S. Customs requires that the train slow down to 5 to 7 miles per hour for image scanning through the VACIS gamma-ray system at the border. In the vast majority of cases, it is unnecessary for the train to come to a complete standstill while crossing the border.

In addition to congestion for passenger vehicles, emergency vehicles and pedestrians, the location of the rail line through downtown Nogales presents another problem: a significant amount of hazardous material imported into the United States through Nogales is transported by rail. These shipments consist primarily of sulfuric acid. Risk of an accident increases with corresponding increases in the number of hazardous rail containers and length of trains.

It appears that the rail system can accommodate the movement of more trains through Nogales. However, it is unknown at what point the length of trains necessitates the addition of a separate train. It is also unknown at what point the single mainline infrastructure will meet capacity in terms of the number of daily trains it can accommodate. These issues are closely tied to local concerns and will require collaborative planning and negotiations with the private railroad companies.

Source for Table 6: U.S. DOT, BTS based on data from US Customs Service, Mission Support Services, Office of Field Operations, Operations Management Database.

Regional Commodity Flows

This analysis examines the movement of goods from state of origin to state of destination through seven primary U.S.-Mexico gateways or border ports-of-entry. Types of goods include packaged retail goods moving from manufacturers to stores, industrial products moving from producer to user, manufacturing inputs moving through the international supply chain, and agricultural products moving from growing fields and packing plants to regional distribution centers.

As discussed previously, the United States and Mexico are divided into individual regions consisting of groups of states for purposes of macro analysis of regional trade flows (Table 7). The regions are delineated based on transportation infrastructure and topography.

Figure 10: Trade Flow Analysis Framework

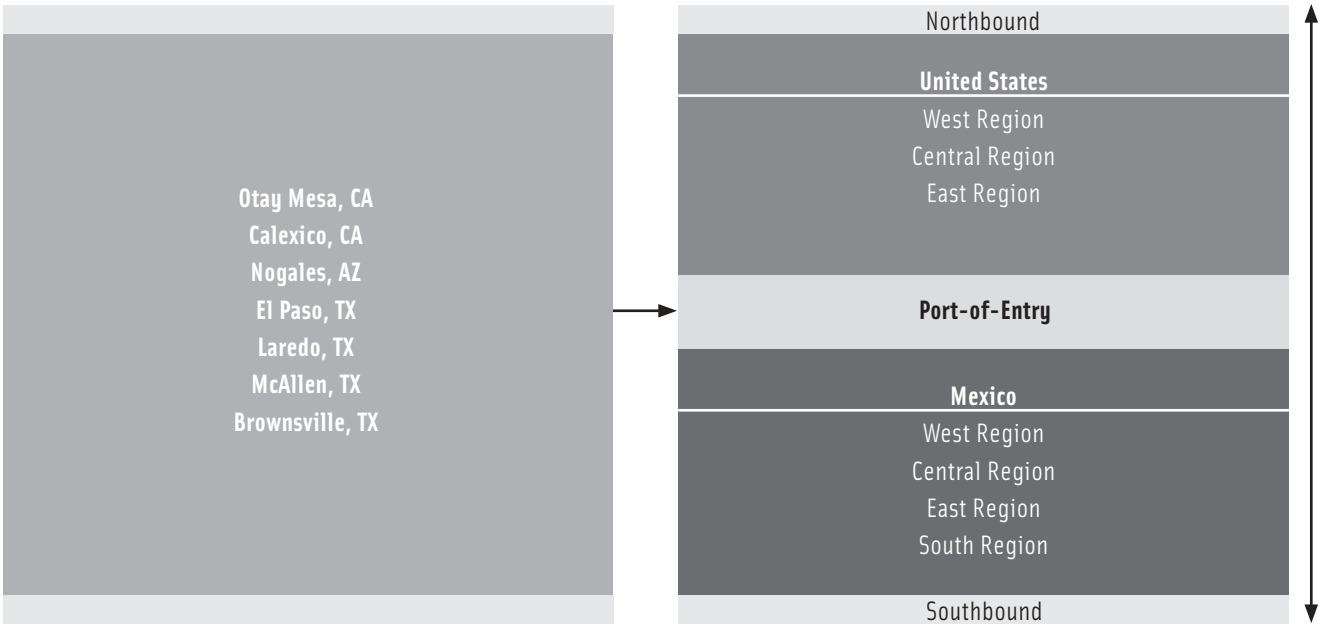


Table 7: United States and Mexico Trade Regions

	United States	Mexico
West Region	Alaska, Arizona, California, Idaho, Montana, Nevada, Oregon, Utah, Washington	Colima, Jalisco, Nayarit, Sinaloa, Sonora
Central Region	Arkansas, Colorado, Illinois, Iowa, Kansas, Louisiana, Minnesota, Missouri, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Wisconsin, Wyoming	Aguascalientes, Chihuahua, Durango, Zacatecas
East Region	Alabama, Connecticut, Delaware, Florida, Georgia, Indiana, Kentucky, Maine, Maryland, Massachusetts, Michigan, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, Virginia, West Virginia	Coahuila, Guanajuato, Hidalgo, Nuevo Leon, Queretaro, San Luis Potosi, Tamaulipas, Veracruz
South Region		Campeche, Chiapas, Distrito Federal, Guerrero, Mexico, Michoacan, Morelos, Oaxaca, Puebla, Quintana Roo, Tabasco, Tlaxcala, Yucatan

Highway Infrastructure

The routing of commercial vehicle traffic is highly dependent on topography and highway infrastructure. The quality and capacity of highways and roads between points of origin, border ports-of-entry and market destinations are primary factors in determining where trade enters and exits the country. The ease with which a commercial vehicle can move (e.g., mountain curves and steep grades vs. straight, level flatland) also plays a major factor in routing decisions. These factors translate directly into time, labor and direct-cost considerations.

The United States has numerous well-established corridors along which trade travels. The major corridors involved in moving trade throughout the United States are shown in Figure 11. The Nogales port-of-entry serves as the principle gateway accessing two major U.S. trade corridors: the north-south CANAMEX Corridor currently under development and the east-west I-10 Corridor.

The National I-10 Freight Corridor Study has been under way since October 2001 and is scheduled for completion in March 2003. The study evaluates a variety of multimodal freight scenarios to determine recommended strategies for the I-10 states to pursue. An analysis of freight traveling along I-10 is being conducted to determine what percentage of future cargo is truck/rail competitive (i.e., capable of being transported by truck or rail). A number of corridor improvement scenarios are being evaluated as part of the study including: the addition of vehicle lane miles, expanded use of Intelligent Transportation Systems (ITS), separation of commercial truck traffic from passenger vehicle traffic, development of a multimodal rail corridor, commercial truck bypasses around urban areas and increases in commercial truck productivity.

As improvements to complete the CANAMEX Corridor continue, such as the construction of a bridge for commercial vehicles over the Hoover Dam, the I-10 freight corridor remains Arizona's primary link to the movement of goods throughout the United States. The three U.S. trade regions were defined in response to the access of southwest border states to north-south distribution corridors, such as I-5, I-25, and I-35. All southwest border states have equal and immediate access to the I-10 east-west corridor.

Figure 11: United States Trade Regions and Corridors

A similar network of highways exists in Mexico that interconnects with U.S. Interstates via U.S.-Mexico ports-of-entry. Due to extreme topographical constraints, there is no major east-west freight corridor traversing the northern portion of Mexico. Tradeshed regions in Mexico were also defined primarily in relation to access to north-south trade corridors. The delineation of these regions is identified in Figure 12.

Figure 12: Mexico Trade Regions and Corridors

Classification Schemes

One major obstacle in conducting a commodity flow study is the differing commodity code classification systems used by federal agencies and private industry. The U.S. Customs service uses the Harmonized Tariff Schedule (HTS). The U.S. Department of Commerce uses Standard Industrial Trade Classification (SITC) codes. The Association of American Railroads and Reebie Associates use Standard Transportation Commodity Codes (STCC). Lastly, the International Trade Commission uses the North American Industry Classification System (NAICS). Although similar, different systems of commodity classification codes do not translate directly from one scheme to the next making comparisons between systems difficult. This is compounded by the fact that there are varying levels of specificity within each system. The level of specificity for commodity descriptions can range from two- to ten-digit codes. Agencies also vary in the level of detail to which they report the data they collect.

Measures of Trade: Weight, Value and Volume

North American commodities are accounted for in terms of gross weight (kilogram, metric ton, U.S. short-ton), value (U.S. Dollars) and volume (rail container or commercial truck/trailer). Each term provides a different measure of consideration. For purposes of planning for facilities, infrastructure and processing procedures, measures of weight and volume are often best. For purposes of establishing economic development strategies, the value and type of commodity become more valuable metrics.

The Nogales CyberPort Project focuses primarily on facility, infrastructure and processing needs and therefore examines trade mostly in terms of tonnage and the number of commercial trucks and rail cars. Types of commodities are also examined.

The metric by which trade is measured should be specific to the purposes for which it is measured. It is important to keep in mind that value does not directly correspond to volume or weight. Depending on the type of commodity, high value goods are likely to be low volume and low value goods can represent high volumes. Again, these relationships may not necessarily always be the case and are dependent on the individual commodity.

It is important to consider that the necessary aggregation of commodities to identify total trade flows fails to capture the value vs. volume relationship at the individual commodity level.

U.S.-Mexico Trade through Nogales by Value

Table 8 examines the value of both northbound and southbound trade through the Nogales port-of-entry. In 2002, the Nogales port-of-entry accounted for 5.4 percent of all U.S.-Mexico surface trade by value. This represents a 30 percent loss in relative market share of U.S.-Mexico surface trade by value since 1995.

Table 8: Total U.S.-Mexico Surface Trade by Value, 1994-2002 (in current U.S. Dollars)

Year	Nogales BPOE	Percent Growth/Decline	All US-Mexico Border Ports	Percent Growth/Decline	Nogales Relative Share of US-Mexico Total
1994	N/A	N/A	88,161,772,018	N/A	N/A
1995	7,301,461,642	N/A	94,824,296,399	7.6%	7.7%
1996	7,353,144,363	0.7%	113,440,789,296	19.6%	6.5%
1997	8,830,939,184	20.1%	136,324,510,964	20.2%	6.5%
1998	10,237,296,021	15.9%	151,884,698,381	11.4%	6.7%
1999	10,532,407,243	2.9%	171,152,325,535	12.7%	6.2%
2000	13,630,809,409	29.4%	210,595,380,416	23.0%	6.5%
2001	12,508,628,243	-8.2%	200,796,702,776	-4.7%	6.2%
2002	10,794,216,340	-13.7%	199,538,614,515	0.6%	5.4%

Source for Table 8: U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data.

Table 9: Average Price per Ton for Northbound Surface Freight through Major Ports, 2001

Major U.S.-Mexico Border Port	Average Price per Ton
El Paso	$7,156
Otay Mesa	$4,494
Brownsville	$4,281
McAllen	$4,031
Laredo	$3,884
Calexico	$3,769
Nogales	$1,950

Table 9 examines the average value of northbound freight among the seven major ports-of-entry. The average price per ton is derived by dividing the total value of surface trade by the total number of tons processed by each port for 2001.

It is clear that the mix of commodity types transported through the major ports-of-entry vary considerably. The port of El Paso accommodates a significant percentage of high-value goods among the total trade for that port. Nogales, however, processes the greatest percentage of low-value goods of all major U.S.-Mexico ports, resulting in the lowest price per ton for northbound freight of $1,950. This reflects the significant amount of fresh produce that is processed through Nogales.

Source for Table 9: U.S. Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Data.

Regional Trade Between Mexico and the United States

Northbound

Aggregate commodity flow through the U.S.-Mexico border was first analyzed by region. As described previously, the United States was divided into three primary tradesheds or regions—West, Central and East. In the same fashion, Mexico was divided into five primary trade regions (four of them considered in this analysis). Total northbound and southbound trade flow in tons is pictured in Figures 13 and 15, respectively. The arrowheads on the diagrams represent the direction of the flow of goods between the two countries.

Table 10: Total Northbound U.S.-Mexico Trade (in Tons), 2000

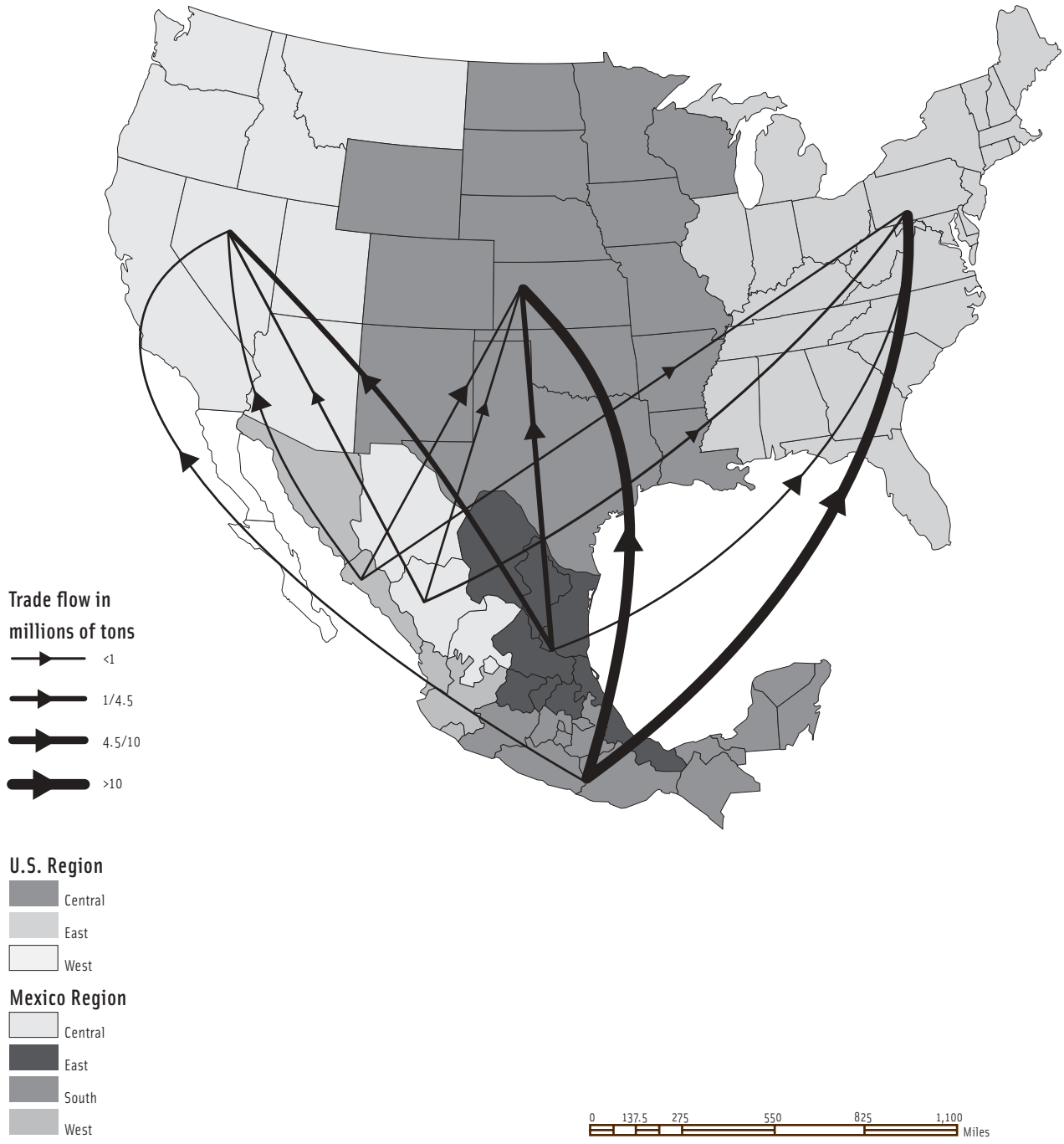
	U.S. Destination				
Mexican Origin	**West U.S.**	**Central U.S.**	**East U.S.**	**Unknown U.S.**	**Total**
Baja MX	161,919	204,429	123,528	102	489,978
West MX	1,276,324	1,288,919	751,750	1,232	3,318,225
Cenrtal MX	681,925	905,657	552,352	1,008	2,140,942
East MX	3,082,066	4,159,521	3,364,349	3,360	10,609,296
South MX	3,466,699	4,976,030	4,920,751	3,970	13,367,450
Unknown MX	0	0	0	0	0
Total	**8,668,934**	**11,534,557**	**9,712,729**	**9,672**	**29,925,891**

As Table 10 and Figure 14 illustrate, the greatest volume of trade moving northbound originates in the South Region of Mexico (45%) followed by the East (36%), West (11%), and Central (7%) Regions. The greatest volume of northbound trade is destined for the Central Region of the U.S. (39%) followed by the East (32%) and West (29%) Regions.

Ports-of-entry are not considered in Figures 13 and 15. The maps simply illustrate the total volume of trade originating in one region that is destined for another. The thickness of the lines correlates to the volume (in tons) of freight moving between regions. The terminuses of the lines do not represent the specific locations of individual origin or destination points, only that the respective flows are destined for the entire region that the line leads to.

Source for Table 10: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

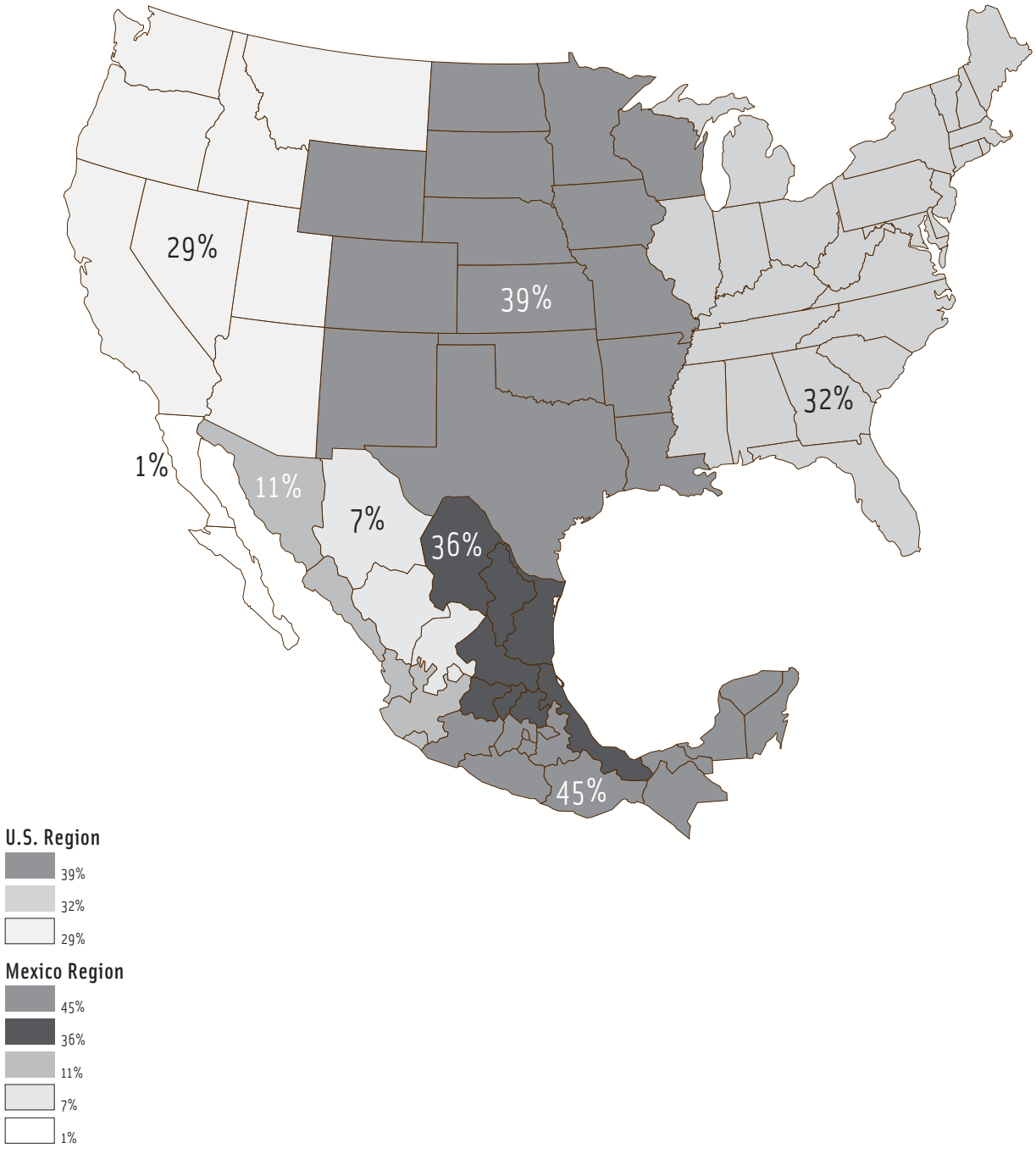
Figure 13: Total Northbound U.S.-Mexico Trade, 2000



Source for Figure 13: The University of Arizona Office of Economic Development and the UA Center for Applied Spatial Analysis, data from Reebie Associates TRANSEARCH Database, Stamford, CT, 2002.

Spatial data source: ESRI
Projection Albers
Units Meters
Datum NAD83

Figure 14: Percentage of Northbound U.S.-Mexico Trade by Region of Origin (Mexico) and Destination (U.S.), 2000



Note: National totals may not sum to 100 percent due to trade classified as "unknown."
Source for Figure 14: University of Arizona Office of Economic Development and the Center for Applied Spatial Analysis, data from Reebie Associates TRANSEARCH Database, Stamford, CT, 2002.

Potential Northbound Market Capture

It is possible to estimate a range of potential market capture for the Arizona-Sonora border ports-of-entry by examining the relative share of trade that is naturally positioned to move through the region based on origin and destination. The low end of the range for Arizona-Sonora market capture can be defined as that share of trade moving exclusively between the West regions of the United States and Mexico. The high end of the northbound range extends to include the share of trade from South Mexico to the West U.S. as well as West Mexico to the entire U.S. Conversely, the high end of the southbound range extends to include trade from the entire U.S. to West Mexico as well as from the West U.S. to South Mexico.

According to Table 10, only 11.1 percent of Mexican exports to the U.S. originate in the West Mexico (excluding Baja). Of that 11.1 percent, only 38.5 percent is destined for the West Region of the U.S. This equates to 4.3 percent of total U.S.-Mexico northbound surface trade. This figure of 4.3 percent establishes the low end for northbound market capture.

The high end of the range extends to include trade from South Mexico to the West U.S. (11.6 percent of total Mexico-U.S. exports) and West Mexico to the entire U.S. (the 11.1 percent previously noted). The combination of these two regional shares equates to 22.7 percent of total U.S.-Mexico trade and establishes the high end of the range. Thus, the range for market capture of northbound U.S.-Mexico surface trade is between 4.3 percent and 22.7 percent.

Southbound

As Table 11 and Figure 16 illustrate, the greatest volume of trade moving southbound originates in the Central Region of the U.S. (56%) followed by the West (18%) and East (17%) Regions. The greatest volume of southbound trade is destined for the East Region of Mexico (31%) followed by the South (26%), West (13%), Central (12%) and Baja (10%) Regions. Due to differences in trade data in the southbound direction regarding shipment origin and destination, a significant percentage of trade cannot be accounted for (9.5 percent of trade originating in the U.S. and 7.5 percent of trade destined for Mexico is classified as "unknown").

Table 11: Total Southbound U.S.-Mexico Trade (in Tons), 2000

	Mexico Destination						
U.S Origin	**Baja MX**	**Western MX**	**Central MX**	**Eastern MX**	**Southern MX**	**Unknown MX**	**Total**
Western U.S.	5,401,429	2,918,741	132,320	525,669	1,700,126	297,110	10,975,396
Central U.S.	201,385	3,504,435	6,338,416	13,464,619	7,899,217	2,456,459	33,864,532
Eastern U.S.	153,014	681,943	579,303	3,201,799	4,562,628	931,880	10,110,567
Unknown U.S.	266,383	711,462	462,679	1,600,794	1,860,910	884,230	5,786,457
Total	**6,022,211**	**7,816,581**	**7,512,718**	**18,792,881**	**16,022,882**	**4,569,679**	**60,736,951**

Source for Table 11: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

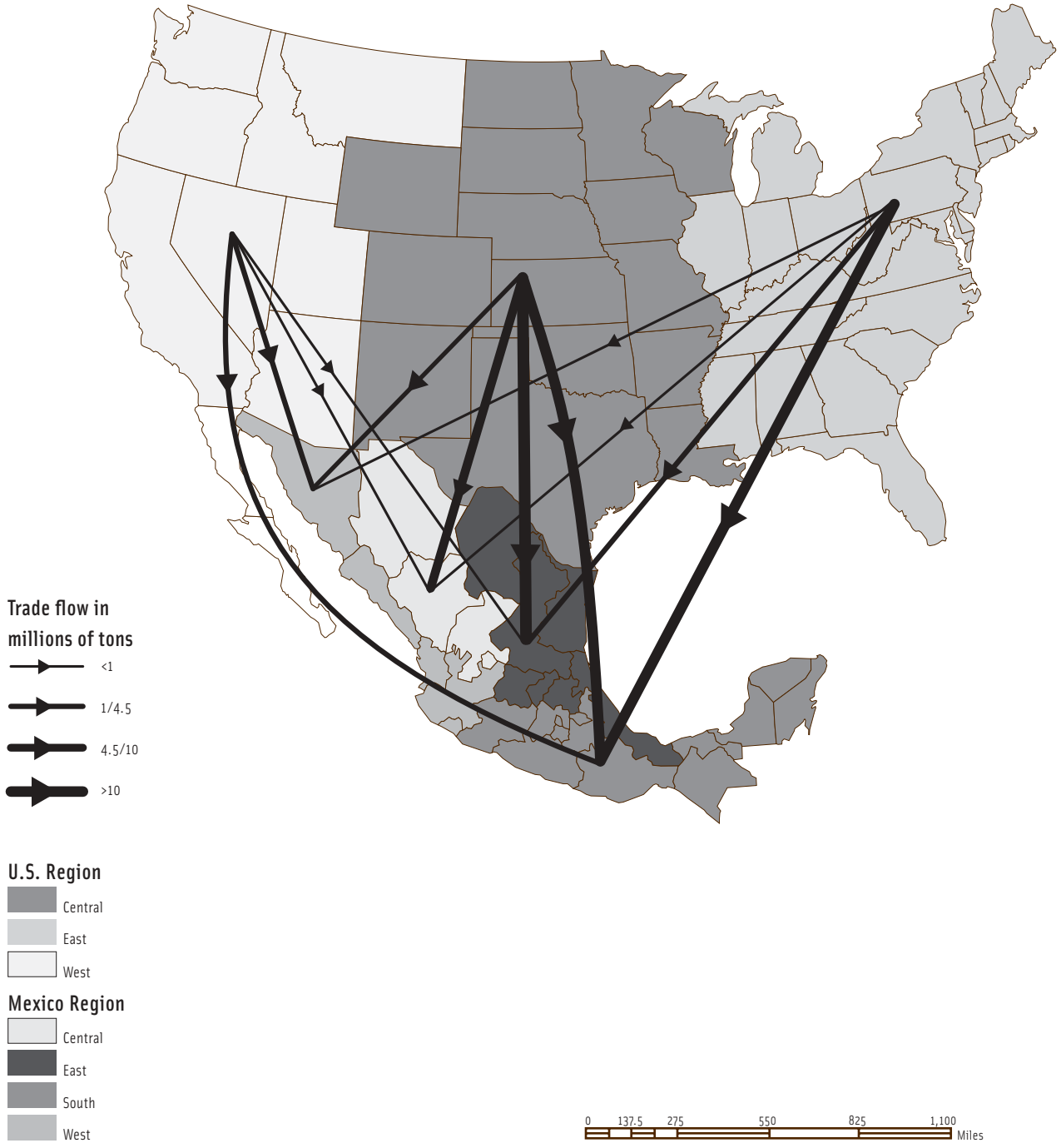
Potential Southbound Market Capture

According to Table 11, only 18.1 percent of U.S. exports to Mexico originate in the West U.S. Of that 18.1 percent, only 26.6 percent is destined for the West Region of Mexico. This equates to 4.8 percent of total southbound U.S.-Mexico surface trade. This figure of 4.8 percent establishes the low end for southbound market capture.

The high end of the range extends to include trade from the entire U.S. destined for West Mexico (12.9 percent of total U.S.-Mexico exports) as well as from the West U.S. to South Mexico (15.5 percent of the 18.1 percent previously noted, which equates to 2.8 percent of total U.S.-Mexico exports). The combination of these two regional shares equates to 15.7 percent of southbound U.S.-Mexico trade and establishes the high end of the range. Thus, the range for market capture of southbound U.S.-Mexico surface trade is between 4.8 percent and 15.7 percent.

The low-end of the range of U.S.-Mexico market share for Arizona-Sonora ports is relatively low—4.3 percent of northbound trade and 4.8 percent of southbound trade. This reflects the relatively low position that the western regions occupy in terms of production and consumption relative to other regions in both countries. However, the low-end of the market share range is based solely on trade between the two western regions.

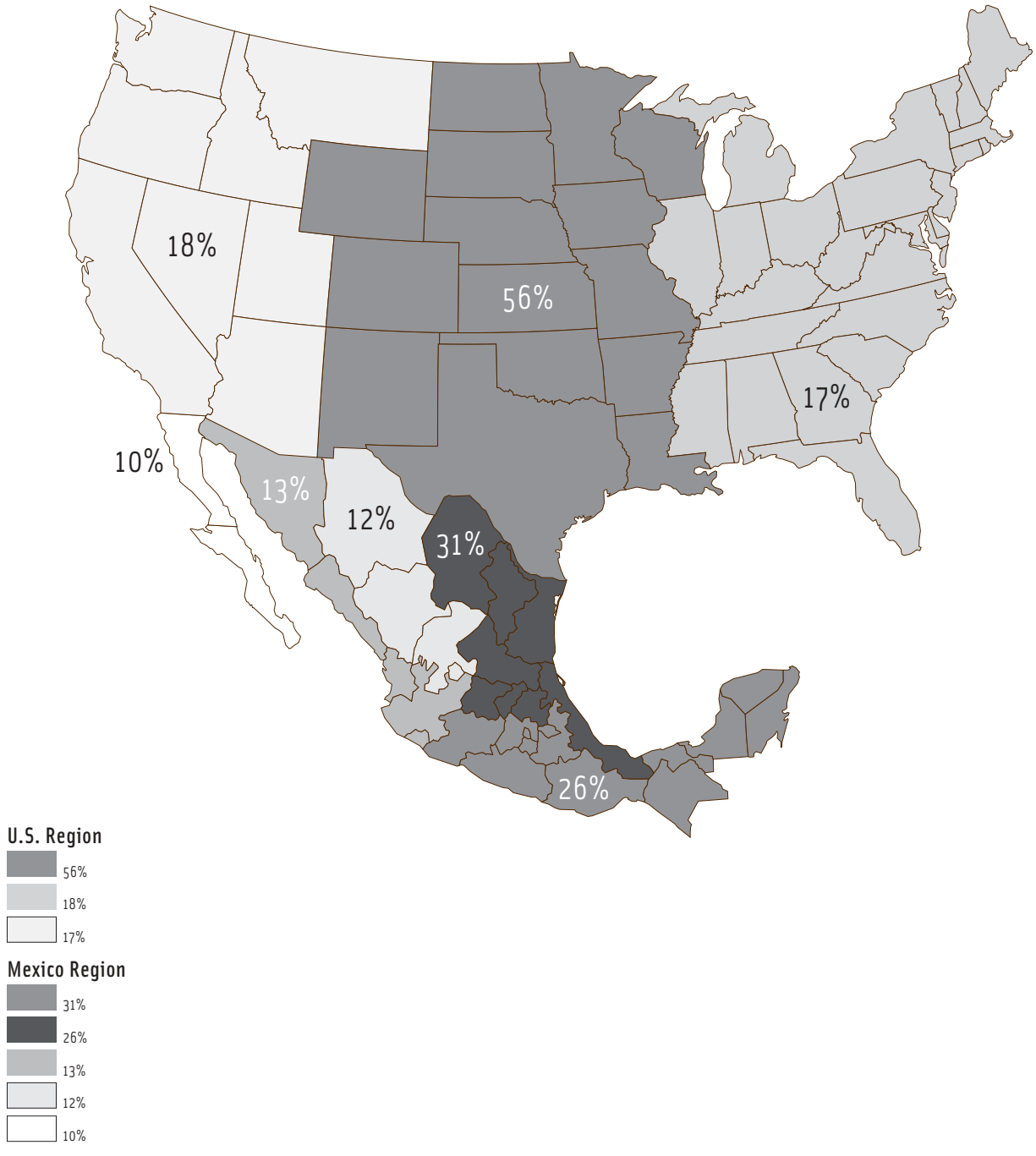
Figure 15: Total Southbound U.S.-Mexico Trade, 2000



Source for Figure 15: The University of Arizona Office of Economic Development and the UA Center for Applied Spatial Analysis, data from Reebie Associates TRANSEARCH Database, Stamford, CT, 2002.

Spatial data source: ESRI
Projection Albers
Units Meters
Datum NAD83

Figure 16: Percentage of Southbound U.S.-Mexico Trade by Region of Origin (U.S.) and Destination (Mexico), 2000



Note: National totals do not sum up to 100 percent due to trade origins and/or destinations classified as "unknown."
Source for Figure 16: The University of Arizona Office of Economic Development and the UA Center for Applied Spatial Analysis, data from Reebie Associates TRANSEARCH Database, Stamford, CT, 2002.

Table 12: Potential Market Capture of U.S.-Mexico Surface Trade for Arizona-Sonora Border Ports-of-Entry

As Table 12 illustrates, the high end of the market-share range expands significantly. This reflects the consideration of Arizona-Sonora ports as primary gateways for all U.S. exports destined for the western region of Mexico and all Mexican exports originating in the western and southern regions destined for the western region of the United States.

	Low	High	Actual
Northbound Trade	4.3%	22.7%	13.1%
Southbound Trade	4.8%	15.7%	5.5%

Table 12 also identifies where Arizona-Sonora border ports-of-entry are positioned relative to the established range of market capture for the region. As indicated, the Arizona-Sonora gateway captures approximately 13.1 percent of northbound trade. This value, while firmly situated in the middle portion of the range, still offers room for improvement. The relative amount of southbound trade processed through the region, however, is near the bottom-end of the range. At 5.5 percent, the relative amount of southbound U.S-Mexico trade moving through Arizona-Sonora border ports-of-entry can improve considerably.

It is important to note that the high-end of the market capture range represents an ideal scenario in which the region captures 100 percent of trade based on origin, destination, topography and transportation infrastructure. The high-end of the region's market share is not envisioned to be fully attainable given the real and complex nature of trade-flow movement.

Source for Table 12: Data for year 2000 – TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Target Regions: West U.S. and West Mexico

To better understand the movement of trade from origin to destination, data were examined by region and major port-of-entry. The goal was to identify trade that is moving through ports-of-entry and does not correspond to the natural corridors established by topography and highway infrastructure. The analysis focused on regions and corridors that most directly impact the Nogales port-of-entry. Consequently, the West Region of the United States and the West and South Regions of Mexico were targeted.

The trade flow from each of the designated regions was disaggregated to identify the specific port-of-entry that trade passed through on its way from origin to destination. All ports along the southwest border were included in the analysis but only the larger volume ports are presented in this report. The seven primary ports-of-entry are Otay Mesa, Calexico, Nogales, El Paso, Laredo, McAllen and Brownsville. (Note: The port of McAllen is identified as Hidalgo in all legends on trade-flow maps.)

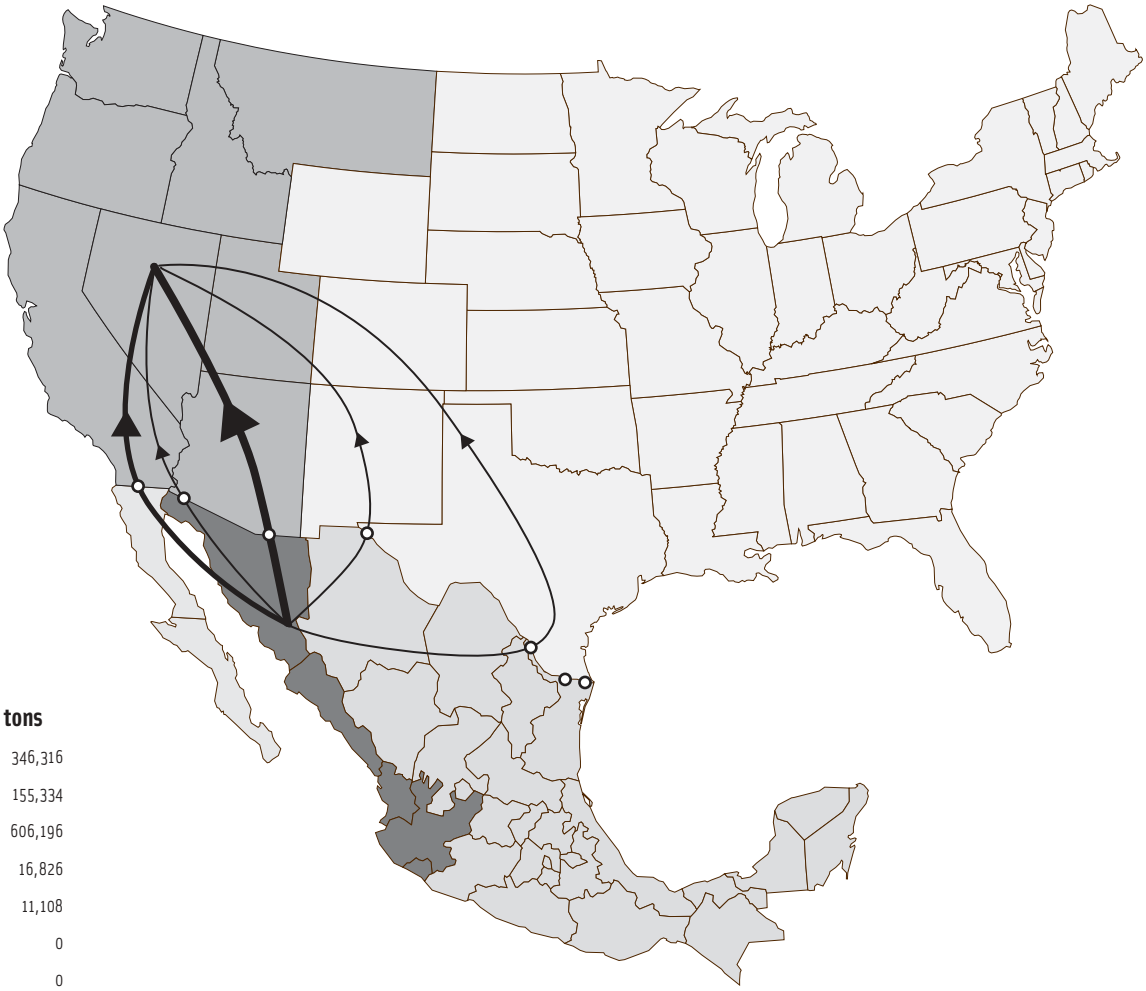
Northbound

Figure 17 illustrates northbound trade between West Mexico and the West U.S. via the major border ports-of-entry. It is expected that the majority of trade between these regions travel through the port of Nogales.

The port of Nogales only accommodates 48 percent of West-to-West northbound trade. The California ports of Otay Mesa and Calexico process a significant amount of trade within the region, 27 percent and 12 percent, respectively. Together these two ports account for 39 percent of the northbound trade within Arizona's most immediate and natural tradeshed.

The West-to-West tradeshed is where Nogales is best positioned to capture regional market share. The data, however, indicate that the Nogales port fails to capture a strong majority of northbound trade within this region. A significant amount of trade appears to be traveling a longer distance on Mexican highways, bypassing the Nogales port-of-entry and heading west along Mexican Highway 2 to California ports-of-entry.

Figure 17: Northbound Trade from West Mexico to West U.S., 2000



Trade flow in tons

Otay Mesa, CA	346,316
Calexico, CA	155,334
Nogales, AZ	606,196
El Paso, TX	16,826
Laredo, TX	11,108
Hidalgo, TX	0
Brownsville, TX	0
Total	1,135,780

Ports of Entry

Western U.S.

Other U.S. Regions

Western Mexico

Other Mexico Regions

Source: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

When all ports are examined, approximately 39 percent of northbound trade within the West-to-West tradeshed travels through California ports, while approximately 59 percent travels through Arizona ports (Figure 18).

Figure 18: Percentage of Northbound Trade from West Mexico to the West U.S. by Port-of-Entry, 2000

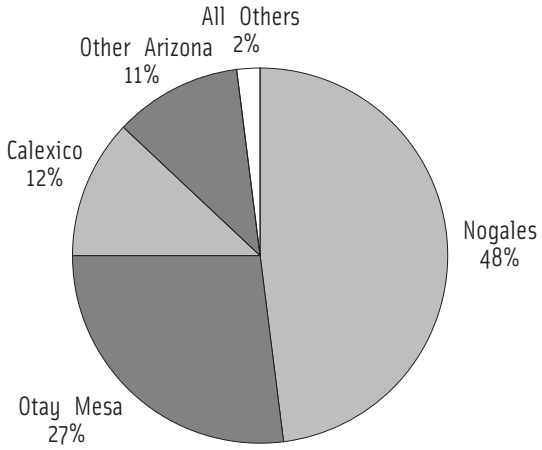
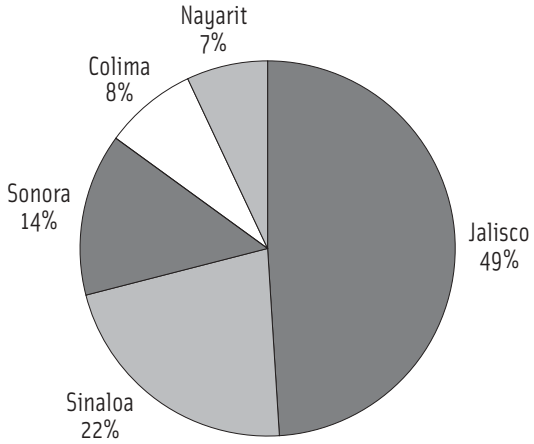


Figure 19: Percentage of Northbound Trade from West Mexico to the West U.S. by State of Origin, 2000



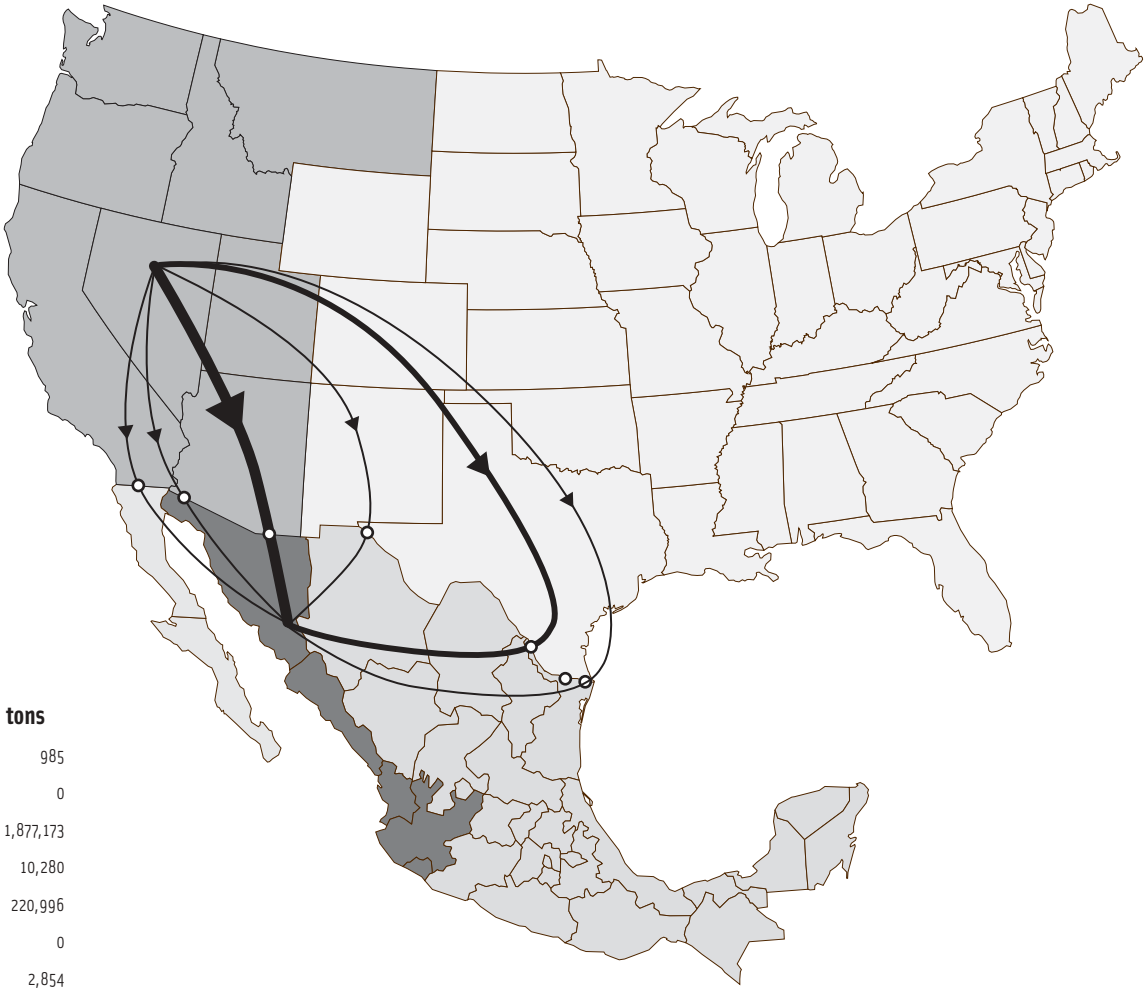
As illustrated in Figure 19, 49 percent of trade moving northbound within the West-to-West tradeshed originates in the state of Jalisco, followed by Sinaloa (22 percent) and Sonora (14 percent). Arizona and California are the primary destination states for northbound trade within this region. It is important to note the magnitude of trade originating in Jalisco, home to the Guadalajara metropolitan area. This demonstrates the valuable role that Guadalajara plays in producing exports to Arizona and the rest of the West U.S.

Southbound

Figure 20 illustrates the southbound regional trade among the seven major ports from the West U.S. to West Mexico. According to the modeled routing by Reebie Associates and the TRANSEARCH database, approximately 64 percent of all southbound West-to-West trade travels through Nogales. This represents the majority of share among the seven major ports; Figure 21 illustrates the trade scenario among all ports. From this data, it appears that Nogales is capturing a reasonable share of southbound trade within its direct tradeshed.

Source for Figure 18: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.
Source for Figure 19: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Figure 20: Southbound Trade from West U.S. to Western Mexico, 2000



Trade flow in tons

Otay Mesa, CA	985
Calexico, CA	0
Nogales, AZ	1,877,173
El Paso, TX	10,280
Laredo, TX	220,996
Hidalgo, TX	0
Brownsville, TX	2,854
Total	2,112,288

Ports of Entry

Western U.S.

Other U.S. Regions

Western Mexico

Other Mexico Regions

Source for Figure 20: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Figure 21: Percentage of Southbound Trade from West U.S. to West Mexico by Port-of-Entry, 2000

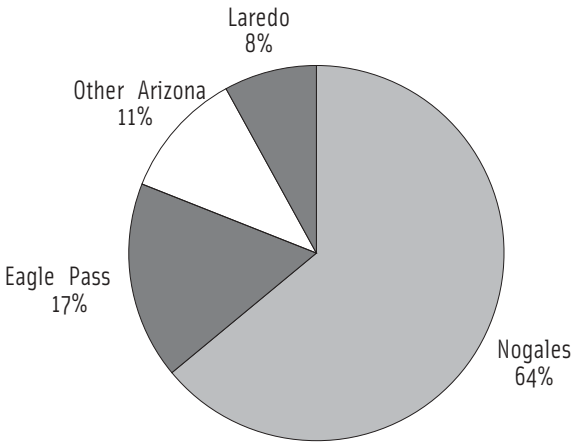


Figure 22: Percentage of Southbound Trade from the West U.S. to West Mexico by State of Origin, 2000

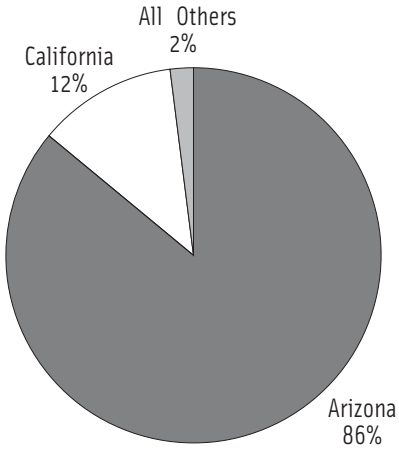


Figure 21 illustrates that when all ports are considered, Arizona ports-of-entry account for approximately 75 percent of southbound surface trade within the West-to-West tradeshed.

Figure 22 illustrates that Arizona is the primary state of origin for the majority of West-to-West southbound trade with shipment of 88 percent of southbound goods originating in the state. It should again be considered that locations for origin and destination may often times be reported as the distribution center immediately prior to international shipment, not the actual production site of the product. The lack of accuracy and specificity regarding available trade data can bias models of estimation. Recorded places of origin and destination are in most cases the home address of record for the shipper and importer.

Source for Figure 21: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.
Source for Figure 22: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Target Regions: West U.S. and South Mexico

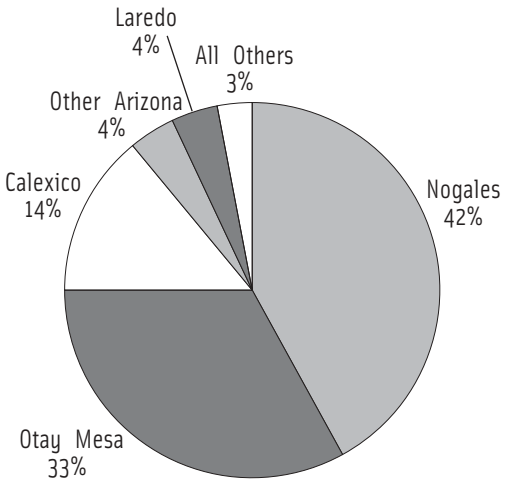
Trade between the South Region of Mexico and the West U.S. was also examined. Due to the access provided by Mexico's rail and interstate system, South Mexico becomes a naturally accessible market to the West U.S. Mexico's Interstate 15 traverses the west mainland terminating in the Mexico City area. Southbound routing decisions can be made to all points further south and east from this terminus. South Mexico is a market region where trade can be accommodated by the Nogales port-of-entry.

Northbound

Among the seven major ports, the port of Nogales accommodated 42 percent of northbound trade between these regions. The California ports of Otay Mesa and Calexico process a significant amount of trade within the region, 33 percent and 14 percent, respectively. Together, these two ports account for 47 percent of the northbound trade between the two regions (Figure 23). A roughly equal amount of northbound trade within the South Mexico-West U.S. tradeshed travels through California as through Arizona ports.

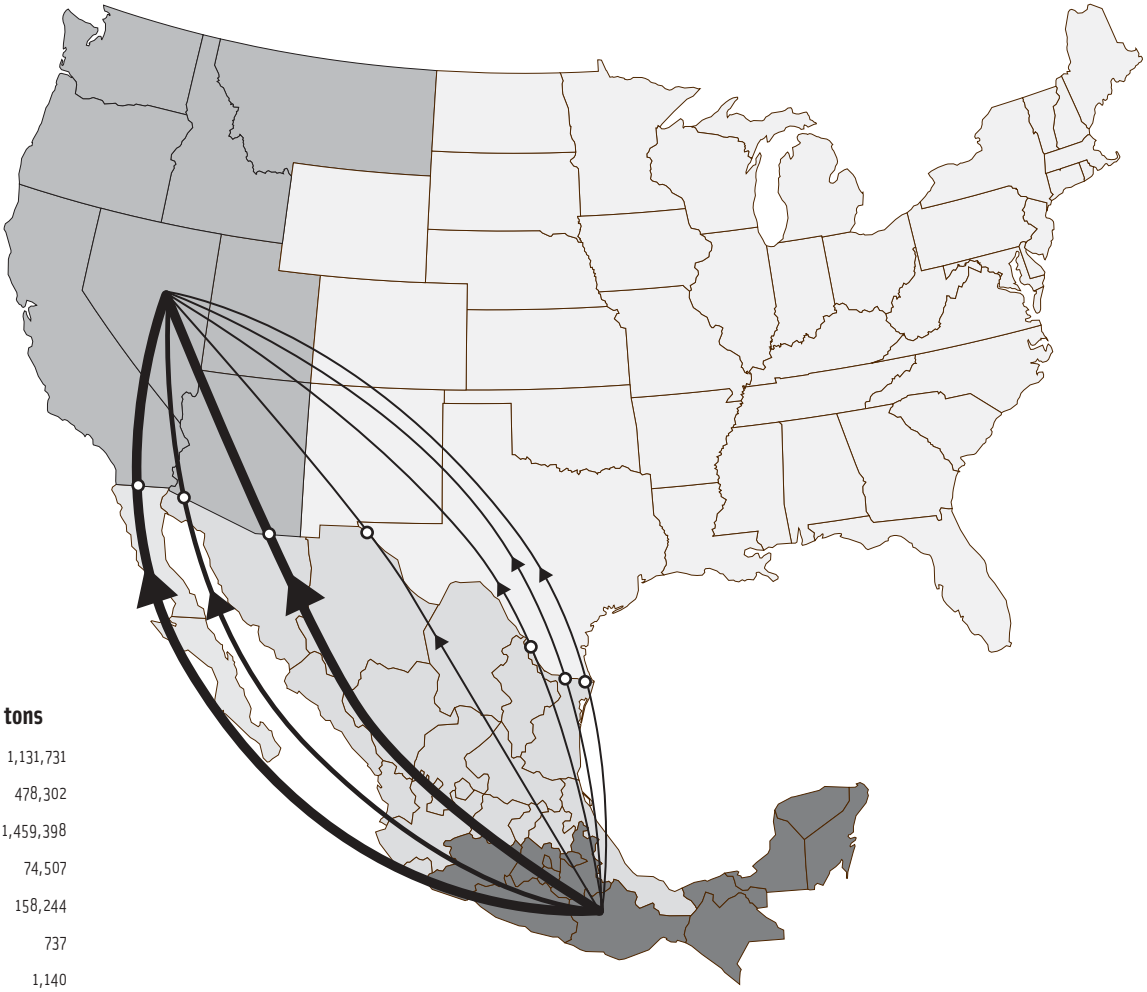
The South Mexico-West U.S. tradeshed is one where Nogales is well positioned to increase capture of regional market share. The data, however, indicate that the Nogales port fails to capture a majority of northbound trade within this region. For northbound trade between these regions, the California ports of Otay Mesa and Calexico increase their market share over that demonstrated in the West-to-West tradeshed. The routing patterns bypassing Nogales to travel farther along Mexican highways appear to exist within this tradeshed as it does between the West-to-West tradeshed, only slightly more pronounced.

Figure 23: Percentage of Trade by Weight from South Mexico to West U.S. by Port-of-Entry, 2000



Source for Figure 23: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Figure 24: Northbound Trade from South Mexico to the West U.S., 2000



Trade flow in tons

Otay Mesa, CA	1,131,731
Calexico, CA	478,302
Nogales, AZ	1,459,398
El Paso, TX	74,507
Laredo, TX	158,244
Hidalgo, TX	737
Brownsville, TX	1,140
Total	3,304,058

Ports of Entry

Western U.S.

Other U.S. Regions

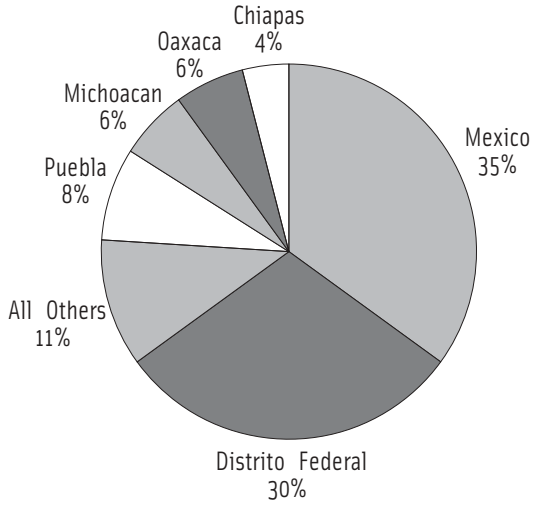
Southern Mexico

Other Mexico Regions

Source: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Figure 25: Northbound Trade by Weight from South Mexico to the West U.S. by State of Origin, 2000

As illustrated in Figure 25, the primary point of origin for northbound goods is the Mexico City metropolitan area (consisting of the states of Distrito Federal, Mexico and Puebla). The methods and requirements for the reporting of data may skew this phenomenon. Many factories that ship products from throughout Mexico may list on trade documents the address of the company headquarters or office of record located in the Mexico City area, although the actual shipment may not originate there. It is not possible to estimate the extent to which this occurs; caution is again recommended when interpreting the data.



The adjacent states of Distrito Federal, Mexico and Puebla account for approximately 73 percent of the goods originating in South Mexico destined for the West U.S. This confirms the dependence on and high use of Mexican Highway 15 for the movement of trade from South and West Mexico.

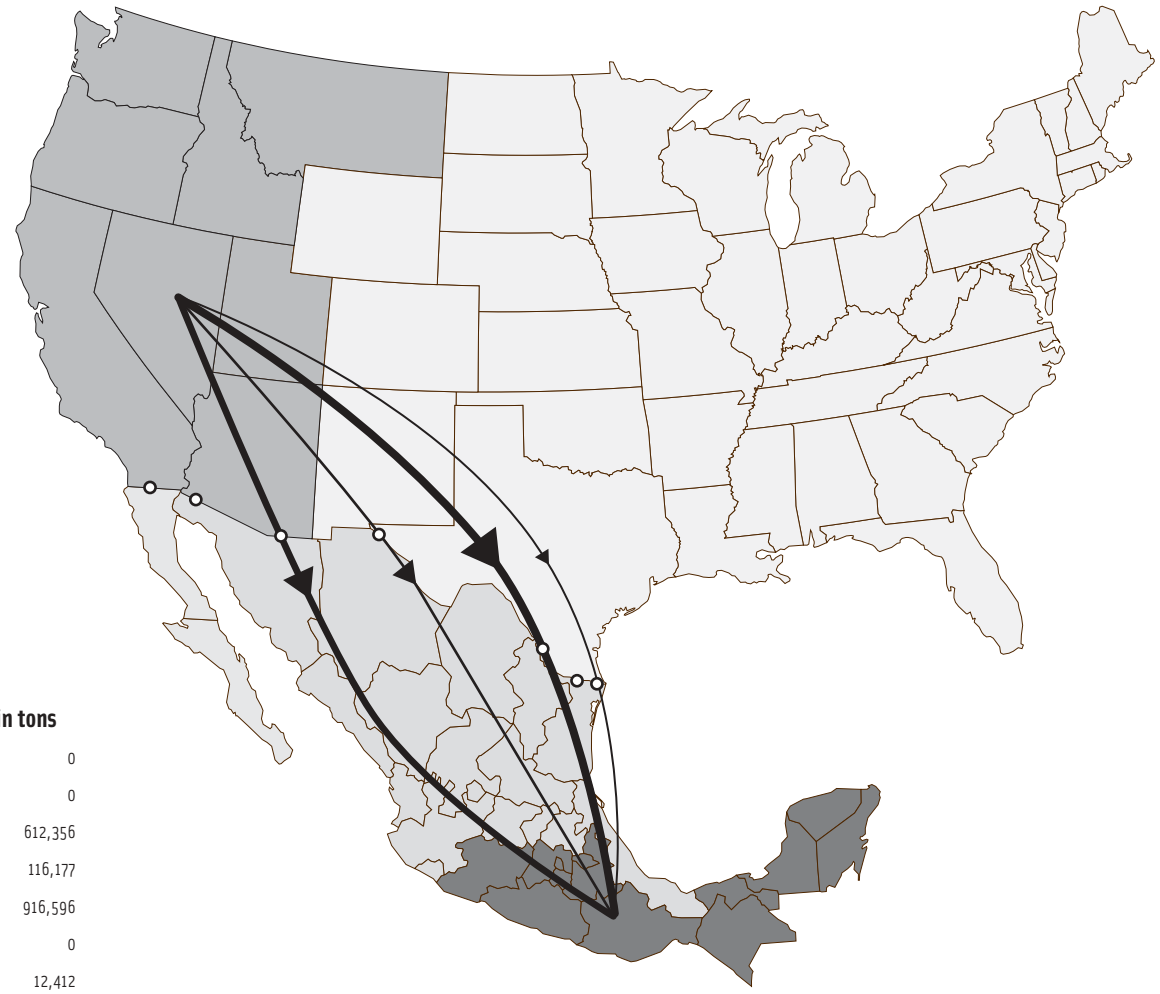
Southbound

Looking at southbound trade between the same two regions, a different picture emerges than for northbound trade. According to the TRANSEARCH data, trade from the West U.S. to South Mexico that does not travel through Nogales is primarily accommodated by the Texas ports-of-entry of Laredo and El Paso. Figure 27 illustrates that among the seven major ports, the majority of southbound trade between these regions is accommodated by Laredo (54 percent) followed by Nogales (36 percent) and El Paso (7 percent).

Figure 28 exhibits the states of origin for southbound trade between these two regions. The underperformance of Arizona in accommodating its natural market share of trade is most apparent between these two regions. The port of Nogales accommodates only 36 percent of southbound trade between the West U.S. and South Mexico (Figure 27) with the remaining majority (almost two-thirds) being moved through Texas border ports.

Source for Figure 25: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Figure 26: Southbound Trade from the West U.S. to South Mexico, 2000



Trade flow in tons

Otay Mesa, CA	0
Calexico, CA	0
Nogales, AZ	612,356
El Paso, TX	116,177
Laredo, TX	916,596
Hidalgo, TX	0
Brownsville, TX	12,412
Total	1,657,542

Source for Figure 26: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Figure 27: Percentage of Trade by Weight from the West U.S. to South Mexico, by Port-of-Entry, 2000

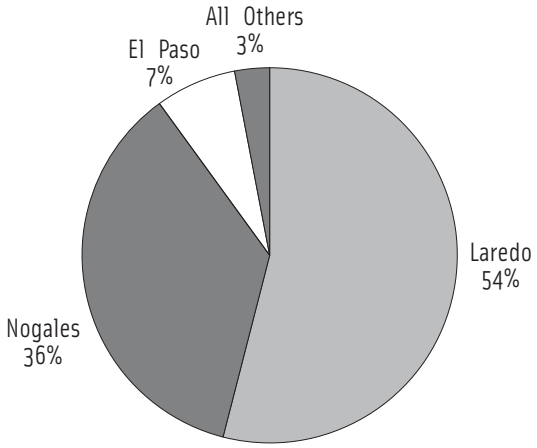
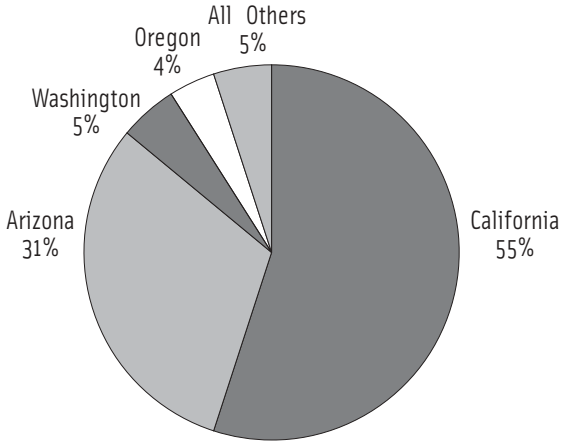


Figure 28: Southbound Trade by Weight from West U.S. to South Mexico by State of Origin, 2000



Source for Figure 27: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.
Source for Figure 28: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Arizona's Tradeshed: West U.S. – West and South Mexico

This section examines the expanded tradeshed for Arizona-Sonora ports-of-entry, which includes the West region of the U.S. and the West and South regions of Mexico. Specific commodities moving between these regions were examined in addition to regional breakdowns, states of origin, states of destination and major ports-of-entry.

States of Origin

Figure 29 illustrates the states of origin for southbound trade within Arizona's tradeshed. Approximately 93 percent of trade originates in the states of Arizona and California, with the majority (65 percent) originating in Arizona. It should again be recognized that the data may not accurately identify the actual origin point of trade shipments–it also identifies as origin the distribution point of record before international shipment (in many cases a border state).

Figure 29: Southbound States of Origin from West U.S. to West and South Mexico, 2000

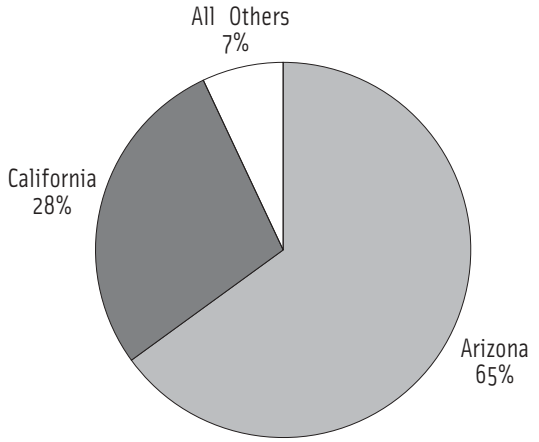
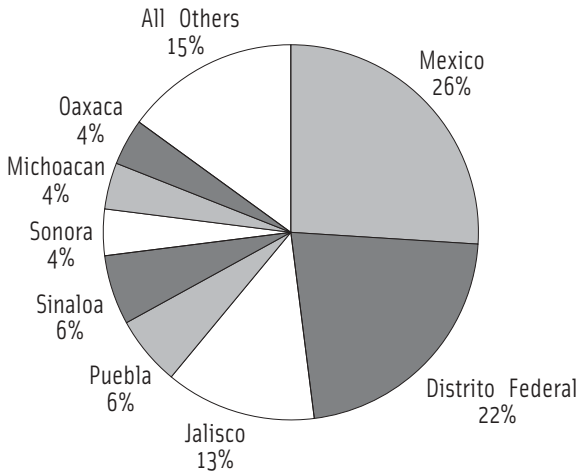


Figure 30: Northbound States of Origin from West and South Mexico to West U.S., 2000



Areas of origin are similarly concentrated in a few regions for northbound flows within Arizona's tradeshed, namely the Mexico City and Guadalajara metropolitan areas. Consisting of the states of Mexico, Distrito Federal, Puebla, Michoacan and Jalisco, this dual metropolitan region serves as the origin for approximately 71 percent of northbound surface trade within Arizona's tradeshed (Figure 30).

According to the TRANSEARCH database, Arizona's adjacent state of Sonora serves as the point of origin for only 4 percent of northbound trade within this region. Routing estimations within the database in this case appear to be off as Sonora contains a significant amount of maquiladora activity.

While the state of Sonora serves as the destination for approximately half of southbound trade within this region, the states of Jalisco, Mexico and Distrito Federal account for the majority of the remaining trade. Figure 31 examines the states of origin for southbound trade to the Guadalajara and Mexico City regions from within Arizona's tradeshed.

Source for Figure 29: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.
Source for Figure 30: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Figure 31: Southbound States of Origin From West U.S. to Jalisco, D.F., and Mexico, 2000

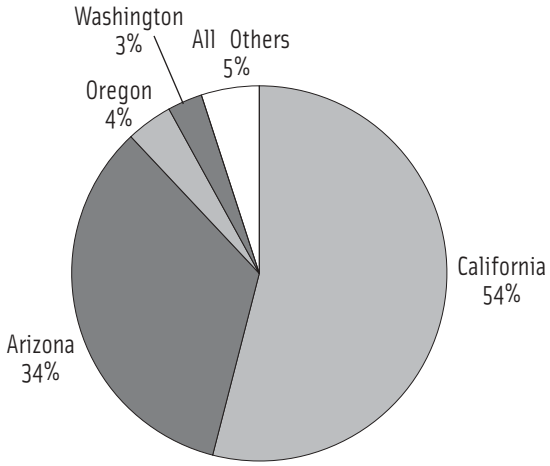
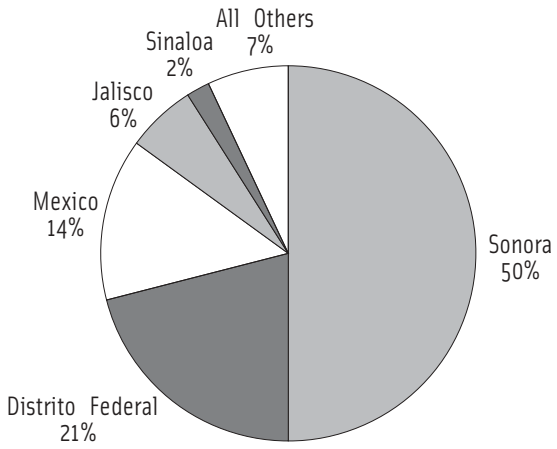


Figure 32: Southbound States of Destination From West U.S. to West and South Mexico, 2000



States of Destination

This section examines the destination of trade moving within Arizona's tradeshed. Figure 32 illustrates the states of destination for southbound trade. The state of Sonora serves as the destination for approximately 50 percent of southbound trade. The states of Jalisco, Mexico and Distrito Federal collectively account for 41 percent. This allocation identifies the state of Sonora as well as the Guadalajara and Mexico City regions as primary markets for U.S. exports within Arizona's tradeshed.

Figure 33 identifies the allocation of trade to western states of destination for northbound flows within the tradeshed. California accounts for the destination of over half of all northbound trade with 54 percent, while Arizona accounts for a significant, yet somewhat smaller share of 41 percent. It is not possible to know what percentage of this trade is for regional sale and consumption versus further distribution throughout the United States and abroad.

Source for Figure 31: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.
Source for Figure 32: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Figure 33: Northbound States of Destination From West and South Mexico to West U.S., 2000

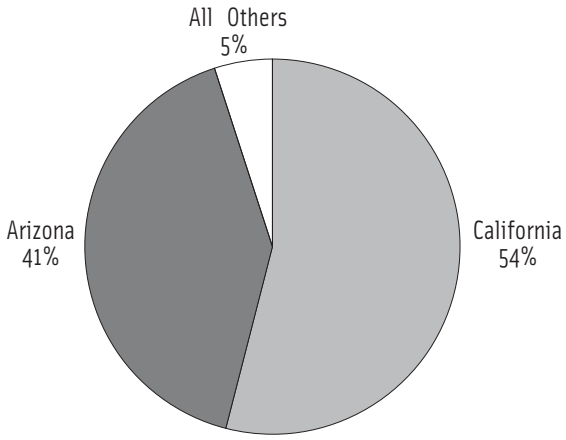
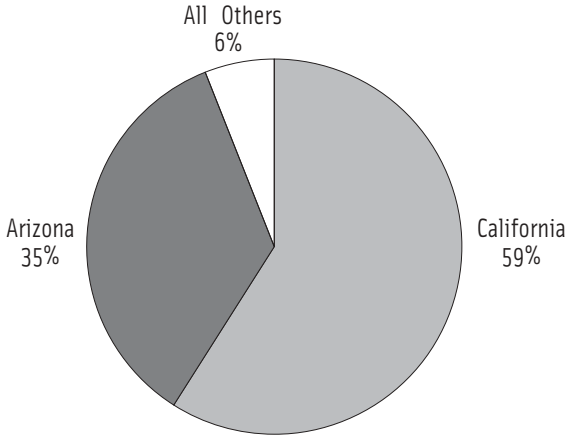


Figure 34: Northbound States of Destination From Jalisco, D.F. and Mexico to West U.S., 2000



As the states of Jalisco, Mexico and Distrito Federal account for nearly two-thirds of the origin of northbound trade within this region, it is important to again examine trade flows directly from this targeted area. Figure 34 illustrates the states of destination for northbound flows within the targeted tradeshed. California again accounts for the majority of destined trade from this region with 59 percent. However, Arizona also serves as the destination for a significant share of this trade, 35 percent. The ratio of share between these two destination states varies slightly when all of West and South Mexico is considered versus the targeted Guadalajara and Mexico City region. Arizona appears to lose share as a destination state from 41 percent when the entire tradeshed is considered to 35 percent when looking at trade received from the target region.

Major Ports-of-Entry

This section examines the primary border ports-of-entry used for surface trade within Arizona's tradeshed. Figure 35 illustrates the major ports used for processing southbound trade between the regions. Within Arizona's tradeshed, Nogales is among the most ideally positioned ports with regard to distance, topography and transportation infrastructure. The border ports of California are also competitively positioned to accommodate trade within this tradeshed.

However, as illustrated in Figure 35, the port of Nogales fails to capture the strong majority of trade moving southbound. According to the routing models within the Reebie/TRANSEARCH database, 54 percent of trade originating in the West U.S. and destined for West and South Mexico moves through the port of Nogales. Surprisingly, the majority of the remainder of southbound trade within this tradeshed moves through the border ports of Texas.

Source for Figure 33: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.
Source for Figure 34: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Figure 35: Ports-of-Entry for Southbound Trade from West U.S. to West and South Mexico, 2000

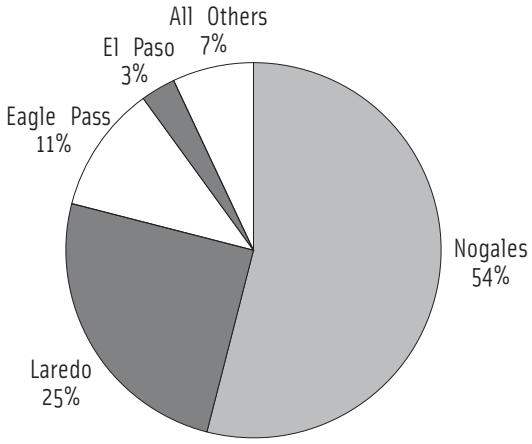
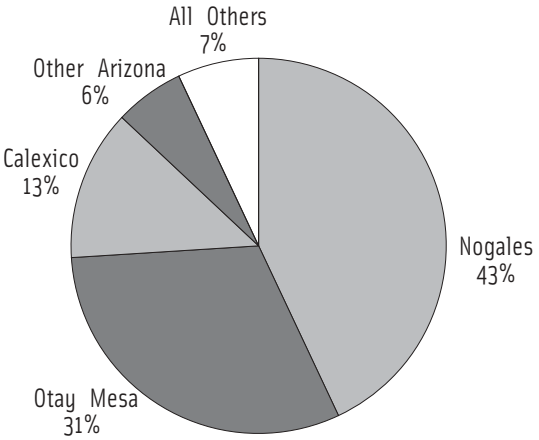


Figure 36: Ports-of-Entry for Northbound Trade from West and South Mexico to West U.S., 2000



As illustrated in Figure 29, Arizona and California serve as the states of origin for 93 percent of southbound trade (65 percent and 28 percent, respectively). Nogales, however, accommodates only 54 percent of southbound trade within the tradeshed. A significant portion of this trade appears to be traveling farther along U.S. infrastructure to enter into Mexico through the Texas border ports.

Interviews with agency officials and the trade community have communicated that wait times for southbound trade through U.S. ports are significantly less than for northbound trade due to differences in procedures for inspection and processing by Mexico ports-of-entry and their respective agencies. Consistent southbound bottlenecks through the Nogales port have not been reported and thus can be ruled out as a direct cause for the evident routing of southbound trade through other ports-of-entry. The reasons for this phenomenon are not fully known and caution must again be taken regarding the accuracy of the data set and its routing models.

Figure 36 illustrates the major ports-of-entry used for northbound surface trade within Arizona's tradeshed. The routing patterns of northbound trade appear to be very different than those for southbound trade. Regarding northbound trade flows, Nogales still fails to accommodate a strong majority of trade for which it is well positioned, 43 percent. Combined with other Arizona ports, the state accommodates nearly half of northbound trade within its tradeshed.

A significant share of northbound trade (over 44 percent) appears to be traveling farther along Mexican transportation infrastructure and entering the West U.S. through the border ports of California.

As exhibited in Figure 33, Arizona is the destination state for 41 percent of northbound trade between these regions. The state's border ports accommodate 49 percent of total trade—8 percent more than was specifically destined for Arizona. The state, while accommodating slightly more than its share of northbound trade, does not appear to be operating as a primary route to California and all states located north of Arizona within the West U.S. region. This highlights the value and need for the development of the CANAMEX Corridor.

Source for Figure 35: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.
Source for Figure 36: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Top Commodities

This section examines the types of commodities moving within Arizona's tradeshed. When examined in terms of weight, the top five commodities for trade between regions typically represent over half of all trade. Table 13 identifies the top five commodities from the entire U.S. destined for the West Mexico region.

It is important to consider the mode by which specific commodity types most typically travel. For example, commodities such as coal, petroleum-refining products and steel mill products are typically moved more cost-effectively by rail. However, time and temperature sensitive commodities such as farm products, plastic products and electrical equipment are typically better suited to transport by commercial truck.

Coal represents a significant amount of trade by weight moving between these two regions (46 percent) followed by farm products (10 percent). The top five commodities collectively account for 64 percent of all trade between these two regions by weight.

Table 13: Major Commodities by Weight from Entire United States to West Mexico

STCC Code	Rank	Commodity	Metric Tons	Percent of all Commodities	Cumulative Percent
011	1	Coal	3,236	46%	46%
100	2	Farm Products	719,061	10%	55%
291	3	Petroleum Refining Products	223,934	3%	59%
307	4	Misc. Plastic Products	235,592	3%	62%
331	5	Steel Mill Products	175,858	2%	64%

Table 14 identifies the difference in the types of commodities destined for South Mexico. In this instance, coal represents a significantly decreased share of total trade to the South (17 percent) relative to the West (46 percent), roughly one-third less in terms of total tonnage. Petroleum-refining products, however, occupy a greater share of total commodities to the South (18 percent) than to the West (3 percent). The absence of a dominant commodity (such as coal in the West) results in less consolidation of total trade to this region between the top five commodities (52 percent).

Table 14: Major Commodities by Weight from Entire United States to South Mexico

STCC Code	Rank	Commodity	Metric Tons	Percent of all Commodities	Cumulative Percent
291	1	Petroleum Refining Products	2,553,986	18%	18%
011	2	Coal	2,358,180	17%	35%
261	3	Pulp or Pulp Mill Products	991,872	7%	42%
331	4	Steel Mill Products	763,686	6%	47%
281	5	Industrial Chemicals	732,491	6%	62%

Source for Table 13: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.
Source for Table 14: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Tables 15 and 16 examine the difference in commodity types for trade between California and Arizona that is destined for West and South Mexico. Table 15 identifies the commodities exported by California to the regions of Mexico within the established tradeshed. The top five commodities represent a smaller collective share in California (45 percent) than in Arizona (68 percent). This demonstrates greater diversity among the mix of exported commodities from California.

Petroleum refining products represent the number one export from California to Mexico within the tradeshed. When considered by weight, the number one commodity between most regions is a bulk commodity. However, it is important to note that California's number-two commodity is electrical equipment, representing 9 percent of total exports by weight. This high volume of exports in electrical equipment signifies California's strong role in supplying Mexico's maquiladoras and consumer markets with electronic components.

Table 15: Major Commodities by Weight from California to West and South Mexico

STCC Code	Rank	Commodity	Metric Tons	Percent of all Commodities	Cumulative Percent
291	1	Petroleum Refining Products	167,424	13%	13%
360	2	Electrical Equipment	121,675	9%	22%
011	3	Coal	120,747	9%	31%
012	4	Fresh Fruits or Tree Nuts	94,965	7%	38%
263	5	Fiber, Paper or Pulpboard	89,303	7%	45%

Table 16 illustrates Arizona's top commodities for export to Mexico within its tradeshed. Farm products dominate the list with 34 percent of all exports by weight, followed by coal with 17 percent. Together, these two commodities account for more than half of all Arizona exports to West and South Mexico by weight.

While the amount of tonnage represented in the top five commodities for Arizona (2.1 Million) is much greater than for California (0.6 Million), the respective volumes represent a greater share of Arizona's trade than for California. It must be noted that Baja California is not included in the West Mexico region as defined and is not considered in analyzing Arizona's tradeshed.

Table 16: Major Commodities by Weight from Arizona to West and South Mexico

STCC Code	Rank	Commodity	Metric Tons	Percent of all Commodities	Cumulative Percent
100	1	Farm Products	1,038,912	34%	34%
011	2	Coal	511,585	17%	51%
263	3	Fiber, Paper or Pulpboard	253,062	8%	59%
307	4	Misc. Plastic Products	168,447	5%	64%
291	5	Petroleum Refining Products	138,222	4%	68%

Source for Table 15: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.
Source for Table 16: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Table 17 examines the types of exports from the Guadalajara region (Jalisco) destined for the West United States. It is important to note that high-value manufactured exports such as Electrical Equipment and Motor Vehicles/Equipment represent a significant share (11 percent) of all commodities from Jalisco to the West U.S.

Table 17: Major Commodities by Weight from Jalisco to West U.S.

STCC Code	Rank	Commodity	Metric Tons	Percent of all Commodities	Cumulative Percent
013	1	Crude Petrol or Natural Gas	164,779	26%	26%
324	2	Portland Cement	71,216	11%	38%
360	3	Electrical Equipment	34,917	6%	44%
371	4	Motor Vehicles or Equipment	28,485	5%	48%
208	5	Beverages or Flavor Extracts	26,380	4%	52%

The top commodities exported from Jalisco vary from those coming from Sonora and Sinaloa, as exhibited in Table 18. Exports from Sonora and Sinaloa to the entire United States are more concentrated in bulk products such as beverages and fresh fruits and vegetables. These commodities are typically high-volume/low-value relative to the higher-value manufactured goods such as electrical equipment and motor vehicles exported from Jalisco to the West U.S. Exports from Sonora and Sinaloa also lack the diversity exhibited from other regions. This is exhibited in two-thirds of all exports from the two states to the entire U.S. consisting of five commodity types.

Table 18: Major Commodities by Weight from Sonora and Sinaloa to Entire U.S.

STCC Code	Rank	Commodity	Metric Tons	Percent of all Commodities	Cumulative Percent
013	1	Crude Petrol/Natural Gas/Gasoline	254,097	24%	24%
208	2	Beverages	139,470	13%	37%
012	3	Fresh Fruits or Tree Nuts	138,603	13%	51%
324	4	Portland Cement	113,776	11%	61%
399	5	Misc. Manufactured Products	49,335	5%	66%

Source for Table 17: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.
Source for Table 18: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

U.S. West Coast vs. Rocky Mountain States

Analysis of the U.S. West Coast states relative to the Rocky Mountain states is helpful in understanding the current distribution of population growth and trade through the CANAMEX corridor tradeshed. The I-5 trade corridor directly accesses the west coast states of California, Oregon, Washington and Alaska. The CANAMEX corridor, when fully developed, will provide access to the greater Rocky Mountain region of the west including the states of Arizona, New Mexico, Nevada, Utah, Colorado, Idaho, Wyoming and Montana.

Table 19 exhibits the population growth rates for these states from 1990 to 2000. California represents the largest state in the U.S. in terms of population with over 33.8 million people. Acknowledging the dominance of California's population among the western states is important in examining both aggregate growth and rate of growth throughout the region.

Table 19: Population of U.S. West Coast and Rocky Mountain States, 1990 and 2000

West Coast States	1990	2000	Net Gain	Percent Gain
Alaska	550,043	626,932	76,889	14.0
California	29,760,021	33,871,648	4,111,627	13.8
Oregon	2,842,321	3,421,399	579,078	20.4
Washington	4,866,692	5,894,121	1,027,429	21.1
Total	**38,021,067**	**43,816,100**	**5,795,023**	**15.2**

Rocky Mountain States	1990	2000	Net Gain	Percent Gain
Arizona	3,665,228	5,130,632	1,465,404	40.0
Colorado	3,294,394	4,301,261	1,006,867	30.6
Idaho	1,006,749	1,293,953	287,204	28.5
Montana	799,065	902,195	103,130	12.9
Nevada	1,201,833	1,998,257	796,424	66.3
New Mexico	1,515,069	1,819,046	303,977	20.1
Utah	1,722,850	2,233,169	510,319	29.6
Wyoming	453,588	493,782	40,194	08.9
Total	**13,658,776**	**18,172,295**	**4,513,519**	**33.0**

In terms of production and consumption, the West Coast States hold the greatest share of power in the west with 43.8 million people compared to 18.2 million people in the Rocky Mountain States. The West Coast States comprise nearly two and a half times as many people as the Rocky Mountain States. However, the rate of growth experienced by the Rocky Mountain States during the period 1990 to 2000 was the greatest among any region in the U.S. (33.0 percent). The five fastest growing states in the U.S. are all in this region. The rate of growth for this region is more than twice that of the West Coast States (15.2 percent).

Source for Table 19: U.S. Department of Commerce, U.S. Census Bureau, Census 2000.

The key difference to note is that while the Rocky Mountain States are growing faster, the West Coast States are growing more. The quantity, not the rate, of population growth is the most important factor driving trade volumes. While the Rocky Mountain States are growing much faster, they are growing by only slightly less in terms of aggregate population growth (4.5 million new residents from 1990 to 2000 versus 5.8 million new residents for the West Coast States).

Table 20 identifies the destination of northbound trade from within Arizona's tradeshed among the West Coast States. It is apparent that California receives the majority of trade of those states along the I-5 corridor (94 percent).

Table 20: Destination of Trade From West and South Mexico to West Coast States

State	Metric Tons	Percent
Alaska	6,798	<1%
California	2,584	94%
Oregon	121,909	4%
Washington	41,574	2%
Total	**2,755,273**	**100%**

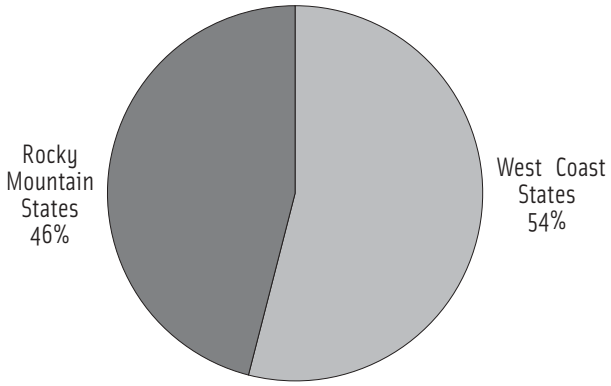
Table 21: Destination of Trade From West and South Mexico to Rocky Mountain States

State	Metric Tons	Percent
Arizona	1,982,112	84%
Colorado	16,834	1%
Idaho	5,571	<1%
Montana	23,648	1%
Nevada	9,345	1%
New Mexico	315,750	13%
Utah	8,635	<1%
Wyoming	280	<1%
Total	**2,362,174**	**100%**

Table 21 examines the distribution among the Rocky Mountain States of northbound trade within Arizona's tradeshed. Arizona receives the majority of trade (84 percent) followed by New Mexico (13 percent). Again, it must be noted that the state of destination is determined by the home of the importer of record on shipping documents and is not necessarily the final destination of the goods.

Figure 37: Regional Destination of Northbound Trade from South and West Mexico, 2000

Figure 37 illustrates northbound trade from Arizona's tradeshed between the Rocky Mountain and West Coast States. Slightly more than half of northbound trade within this region is destined for the West Coast States (54 percent).



Source for Table 20: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.
Source for Table 21: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.
Source for Figure 37: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Top Commodities Through Nogales, Arizona

The Nogales port-of-entry is unique in the nature of goods passing through the port. No other U.S.-Mexico border port has such a significant share of its trade consisting of agricultural products. The agriculture categories of "fresh vegetables" and "fresh fruits or tree nuts" account for approximately one-third of northbound trade by volume. Tables 22 and 23 show the top ten commodities processed through Nogales account for more than 80 percent of northbound and southbound trade.

Table 22: Top 10 Northbound Commodities through Nogales, AZ, 2000

Commodity Description	Tons	Percent of Total	Cumulative Percent
Fresh vegetables	937,167	23.9	23.9
Clay, concrete, glass, or stone products	718,601	18.4	42.3
Fresh fruits or tree nuts	381,894	9.8	52.1
Chemicals or allied products	282,093	7.2	59.3
Transportation equipment	259,826	6.6	65.9
Primary metal products	157,302	4.0	69.9
Electrical equipment	154,276	3.9	73.9
General industrial machinery	127,303	3.3	77.1
Food and kindred products	94,317	2.4	79.5
Misc. Manufactured products	77,688	2.0	81.5

Southbound trade through Nogales consists primarily of bulk products such as field crops (e.g., grains), metallic ores and petroleum or coal products. These three commodity types account for over half of southbound trade through Nogales by volume. Bulk goods are typically transported more cost-efficiently via rail.

Table 23: Top 10 Southbound Commodities through Nogales, AZ, 2000

Commodity Description	Tons	Percent of Total	Cumulative Percent
Field crops	731,232	21.8	21.8
Metallic ores	640,818	19.1	40.9
Petroleum or coal products	328,187	9.8	50.7
Pulp, paper or allied products	249,780	7.4	58.1
Transportation equipment	231,896	6.9	65.0
Electrical equipment	178,913	5.3	70.3
Rubber or miscellaneous products	159,993	4.4	74.7
Lumber or wood products, not furniture	148,051	2.9	77.6
Primary metal products	97,459	2.9	80.5
Fabricated metal products	55,735	1.7	82.2

Source for Table 22: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.
Source for Table 23: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Port-of-Entry Profiles

Tables 24 and 25 present port-of-entry profiles in terms of the mix and type of leading commodities. Table 24 exhibits port profiles for northbound trade. Of the seven major ports, Nogales is the least diversified for both northbound and southbound trade with the greatest share of its trade within its top five commodities (66 percent and 63 percent, respectively).

The commodity types of Motor Vehicles or Equipment, General Industrial Machinery, and Electrical Equipment are all present within the top five commodities for each port, with the exception of Nogales. These commodities can be identified as belonging to "value-added industries" where jobs are created through the making of a product from a number of inputs. However, the strong presence of agricultural trade through Nogales may be considered as a bonus. Non-agricultural trade needs to be examined when evaluating manufacturing-related trade.

The California ports of Otay Mesa and Calexico also have a significant share of northbound trade in fresh fruits and vegetables (23 and 24 percent, respectively). When examining non-agricultural commodities only, the top three commodities for Otay Mesa and Calexico are the value-added commodities, whereas the top three for Nogales are cement, industrial chemicals and motor vehicles.

When considered in terms of total tonnage, Nogales is very competitive regarding the processing of motor vehicles with a rank of 3rd behind Laredo and El Paso. The Ford Motor Company manufacturing facility located in Hermosillo, Sonora has maintained its operations for a number of years and maintains the port's competitiveness with regard to this commodity.

However, Nogales ranks 7th out of 7 major ports in processing electrical equipment. Four of the six other major ports process more than double the tonnage of electrical equipment than does Nogales. When examining general industrial machinery, Nogales ranks 6th out of the 7 ports. Both of these commodities are important in contributing to maquiladora manufacturing operations. The poor competitive position of the Nogales port in processing these commodities indicates that Arizona needs to develop focused efforts to increase export-related activity in these two commodity areas.

Table 24: Top Five Northbound Commodities by Major Port, 2000

STCC Code	Rank	Commodity	Metric Tons	Percent of all Commodities	Cumulative Percent
Nogales					
13	1	Fresh Vegetables	937,167	24	24
324	2	Portland Cement	718,601	18	42
12	3	Fresh Fruits or Tree Nuts	381,894	10	52
281	4	Industrial Chemicals	282,093	7	59
371	5	Motor Vehicles or Equipment	259,826	7	66
Brownsville					
371	1	Motor Vehicles or Equipment	212,078	14	14
360	2	Electrical Equipment	210,009	14	28
356	3	General Industrial Machinery	138,357	9	37
208	4	Beverages or Flavor Extracts	112,604	8	45
340	5	Fabricated Metal Products	84,526	6	51
Calexico					
13	1	Fresh Vegetables	204,150	16	16
360	2	Electrical Equipment	166,334	13	29
371	3	Motor Vehicles or Equipment	103,617	8	37
356	4	General Industrial Machinery	76,054	6	43
12	5	Fresh Fruits or Tree Nuts	71,600	6	49
Laredo					
371	1	Motor Vehicles or Equipment	2,011,200	16	16
360	2	Electrical Equipment	1,481,764	12	28
208	3	Beverages or Flavor Extracts	1,108,112	9	37
356	4	General Industrial Machinery	1,021,058	8	45
331	5	Steel Mill Products	669,102	5	50
El Paso					
208	1	Beverages or Flavor Extracts	354,136	11	11
371	2	Motor Vehicles or Equipment	337,706	10	21
360	3	Electrical Equipment	316,807	10	31
356	4	General Industrial Machinery	204,897	6	37
13	5	Fresh Vegetables	158,953	5	42
McAllen					
360	1	Electrical Equipment	342,973	18	18
356	2	General Industrial Machinery	211,405	11	29
371	3	Motor Vehicles or Equipment	127,341	7	36
340	4	Fabricated Metal Products	103,833	6	42
233	5	Clothing	84,160	4	46
Otay Mesa					
13	1	Fresh Vegetables	484,831	17	17
360	2	Electrical Equipment	388,549	14	31
371	3	Motor Vehicles or Equipment	188,125	7	38
356	4	General Industrial Machinery	173,522	6	44
12	5	Fresh Fruits or Tree Nuts	169,847	6	50

Source for Table 24: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Table 25: Top Five Southbound Commodities by Major Port, 2000

STCC Code	Rank	Commodity	Metric Tons	Percent of all Commodities	Cumulative Percent
Nogales					
11	1	Field Crops	731,232	22	22
100	2	Farm Products	640,818	19	41
291	3	Petroleum Refining	328,187	10	51
263	4	Paperboard Mills	249,780	7	58
360	5	Electrical Equipment	178,913	5	63
Brownsville					
11	1	Field Crops	770,465	22	22
291	2	Petroleum Refining	489,783	14	36
331	3	Steel Mill Products	184,437	5	41
371	4	Motor Vehicles or Equipment	141,826	4	45
307	5	Misc. Plastics Products	118,353	3	48
Calexico					
249	1	Misc. Wood Products	420,120	25	25
263	2	Paperboard Mills	166,299	10	35
291	3	Petroleum Refining	119,239	8	43
327	4	Concrete, Gypsum, and Plaster Products	115,565	7	50
360	5	Electrical Equipment	111,238	6	56
Laredo					
11	1	Field Crops	8,665,893	30	30
291	2	Petroleum Refining	2,984,379	10	40
261	3	Pulp Mills	1,338,000	5	45
331	4	Steel Mill Products	1,437,194	5	50
281	5	Industrial Inorganic Chemicals, NEC	1,251,103	4	54
El Paso					
11	1	Field Crops	798,966	30	30
281	2	Industrial Inorganic Chemicals, NEC	150,886	6	36
399	3	Misc. Manufactures	152,358	6	42
261	4	Pulp Mills	150,009	5	47
291	5	Petroleum Refining	123,979	5	52
McAllen					
291	1	Petroleum Refining	499,911	16	16
11	2	Field Crops	253,371	8	24
281	3	Industrial Inorganic Chemicals, NEC	182,453	6	30
331	4	Steel Mill Products	162,644	5	35
263	5	Paperboard Mills	141,582	4	39
Otay Mesa					
249	1	Misc. Wood Products	987,263	25	25
263	2	Paperboard Mills	390,657	10	35
327	3	Concrete, Gypsum, and Plaster Products	269,199	7	42
360	4	Electrical Equipment	260,992	7	49
291	5	Petroleum Refining	232,810	6	55

Source for Table 25: TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

Hazardous Materials

Data

The analysis of cross-border hazardous material movement is based on the 2001 *Calexico: Hazardous Material Commodity Flow Study* prepared by the U.S. Environmental Protection Agency (EPA). The study examines the movement of eleven "chapters" of the Harmonized Tariff Schedule (HTS) commodity code classification system used by the U.S. Customs Service. Each chapter is identified as a 2-digit commodity code classification and is defined as "hazardous" according to the 2001 EPA study.

Within each general 2-digit chapter is a series of commodity classifications that increase in product specificity to the 10-digit level. The 2001 EPA Calexico study reported information for 44 different 10-digit commodities regarding U.S. imports. Data was gathered with cooperation from the U.S. Customs Service for both the 2001 study and this analysis. Unique to this analysis is data for U.S. exports by HTS code in cooperation with the U.S. Census Bureau. Previous studies have needed to translate gross weight of exports through the Standard International Trade Classification (SITC) system according to value-to-weight ratios of U.S. imports within the HTS system. Such a translation between two systems that are not identical can be problematic.

In this analysis, the Arizona Customs Management Center worked directly with the U.S. Census Bureau to identify the gross weight of U.S. exports within the HTS system to the greatest extent possible. This presents the most accurate and complete understanding of trade movement by weight available. The resulting analysis presents information on 132 imported commodities at the 10-digit level and over 300 exported commodities at the 10-digit level, all within the eleven 2-digit HTS chapters identified as hazardous.

Gross weight information for northbound hazardous commodities (U.S. imports) is provided for 100 percent of the commodities identified (Appendix). However, due to an information gap between the reported information on paper-based export documents and its electronic entry by the U.S. Census Bureau, gross weight is not available for approximately 10 percent of the identified southbound commodities (U.S. exports). Value to weight ratios could not be developed due to the differing specific commodities at the 10-digit level for northbound and southbound movement. Therefore, the total values indicated for southbound movement of hazardous materials do not include approximately 10 percent of the identified commodities and can be considered conservative.

Definitions and Process Description

The U.S. EPA defines a hazardous substance (or hazardous material) as "any material that poses a threat to human health and/or the environment." According to the U.S. EPA, materials that are considered hazardous exhibit one or more of the following characteristics:

- Ignitability: Can create fires under certain conditions. Examples include liquids that catch fire, such as solvents and fuels, and friction-sensitive substances.
- Corrosivity: Is acidic and capable of corroding metal (such as tanks, containers, drums, and barrels).
- Reactivity: Can create explosions or toxic fumes, gases, and vapors when exposed or mixed with water.
- Toxicity: Harmful or fatal when ingested, breathed, or absorbed by the skin.

Hazardous materials are different than hazardous waste. Hazardous waste is defined as "by-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed." Hazardous wastes possess at least one of the four characteristics previously identified or that appear on special EPA lists.

Hazardous wastes are treated differently than hazardous materials regarding importing, exporting, transportation and storage. By Mexican law, U.S. manufacturing plants located in Mexico (maquiladoras) can import their raw materials duty-free. However, they must return any hazardous waste or by-product they generate from those materials back to the U.S. for disposal. Other non-maquiladora plants may also choose to ship their wastes into the U.S. for disposal in licensed facilities.

There is no formal or universal list that qualifies general materials as "hazardous" and as such, they receive no special treatment regarding their shipment. However, hazardous waste is specifically tracked and has its own manifest, reporting and notification process.

For hazardous waste shipped from the U.S. to Mexico, the U.S. generator must submit a Notification of Intent (NOI) to the U.S. EPA. The EPA then returns an Acknowledgement of Consent (AOC). The generator then completes the hazardous waste manifest and sends it to its state agency, U.S. Customs, and the receiver. The EPA receives these manifests from state agencies on a monthly basis. The receiver then submits a Guia Ecologia application to the Mexican data and statistics agency, Instituto Nacional de Estadística Geografía e Informática (INEGI). INEGI then sends its updated database to the U.S. on a quarterly basis.

For hazardous waste shipped from Mexico to the U.S., the Mexican generator submits a Guia Ecologia to INEGI, which INEGI must then approve. The generator also notifies the U.S. receiver of its intent and application. The receiver then notifies its state agency or EPA of its intent to receive the hazardous waste. The U.S. importer pre-files a manifest with U.S. Customs before the waste is received at the border. U.S. Customs sends the pre-filed manifests to EPA on a monthly basis. Many state agencies require the U.S. importer to submit copies of the completed manifests.

The U.S. EPA tracks the flow of hazardous waste through the Hazardous Waste Tracking System (HAZTRAKS). This system was developed between EPA Region IX (covering California and Arizona) and Region VI (covering New Mexico and Texas). HAZTRAKS works in conjunction with Mexico's Guia Ecologia database maintained by INEGI. Having operated for a number of years, it was reported by the Arizona Department of Environmental Quality that there is currently no funding for the HAZTRAKS program. Its operation has temporarily been suspended.

Trends

Northbound

Tables 26 and 27 present information on the amount of northbound hazardous material movement (in metric tons) through the Nogales border port-of-entry. The volume of commodities within the eleven hazardous materials HTS chapters increased 34.4 percent between 2000 and 2001. This increase is almost exclusively related to an increase in the amount of sulfuric acid processed through the border.

As identified in Table 27, sulfuric acid accounts for approximately 99.3 percent of hazardous material flows in the northbound direction. All of the 430,381 tons of sulfuric acid processed in 2001 was processed by rail. The only other hazardous materials transported northbound by rail were paints and varnishes (313 tons) and perfumes/deodorizers (9 tons). Year 2002 data for sulfuric acid indicates 369,838 metric tons crossing northbound through Nogales, all by rail.

It is important to note that the rail line for the port-of-entry runs through the heart of the urban centers of Nogales, Arizona and Nogales, Sonora. The rail line is surrounded by residential, retail, office and industrial land use and is densely populated with people. These factors contribute to increased risk in the case of an accident.

Table 26: Northbound Hazardous Materials through the Nogales BPOE (in Tons), 2000-2001

HTS Code	HTS Description	2000	2001
27	Mineral Fuels, mineral oils and products	176	166
28	Inorganic chemicals; compounds of precious metals, rare earth metals, radioactive elements	321,285	430,671
29	Organic chemicals	139	82
31	Fertilizers	163	232
32	Tanning or dying extracts, tannins & derivatives; dyes, pigments, other coloring matter; paints & varnishes, other mastics; inks	41	366
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparation	15	927
34	Soap, organic surface-active agents, washing prep., lubricating prep., artificial waxes, polishing or scouring preparations, candles and similar articles, modeling pastes, dental waxes & dental preparations with a basis of plaster	89	41
35	Albuminoidal substances; modified starches; glues; enzymes	59	97
37	Photographic or cinematographic goods	419	554
38	Miscellaneous chemical products	109	269
93	Arms and ammunition; parts and accessories thereof	10	10
Total		**322,505**	**433,415**

Table 27: Primary Northbound Hazardous Materials through the Nogales BPOE (in Tons), 2000-2001

Material	2000	2001	Percent Change
Sulfuric acid; oleum	321,055	430,381	34.1
All other hazardous materials	1,450	3,034	109.2
Total	**322,505**	**433,415**	**34.4**

Southbound

Tables 28 and 29 present information on the amount of southbound hazardous material movement (in metric tons) through the Nogales border port-of-entry. Total southbound hazardous materials by weight declined approximately 28.8 percent from 360,837 tons in 2000 to 256,788 tons in 2001.

Source for Table 26: U.S. Customs Service, Arizona Customs Management Center
Source for Table 27: U.S. Customs Service, Arizona Customs Management Center

Table 28: Southbound Hazardous Materials through the Nogales BPOE (in Tons), 2000-2001

HTS Code	HTS Description	2000	2001
27	Mineral Fuels, mineral oils and products	316,220	215,340
28	Inorganic chemicals; compounds of precious metals, rare earth metals, radioactive elements	8,197	8,660
29	Organic chemicals	3,389	2,907
31	Fertilizers	19,646	20,085
32	Tanning or dying extracts, tannins & derivatives; dyes, pigments, other coloring matter; paints & varnishes, other mastics; inks	1,782	1,485
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparation	263	683
34	Soap, organic surface-active agents, washing prep., lubricating prep., artificial waxes, polishing or scouring preparations, candles and similar articles, modeling pastes, dental waxes & dental preparations with a basis of plaster	3,601	1,196
35	Albuminoidal substances; modified starches; glues; enzymes	2,887	1,699
37	Photographic or cinematographic goods	100	322
38	Miscellaneous chemical products	4,752	4,411
93	Arms and ammunition; parts and accessories thereof	N/Av.	N/Av.
Total		**360,837**	**256,788**

Table 29: Primary Southbound Hazardous Materials through the Nogales BPOE (in Tons), 2000-2001

Material	2000	2001	% Change
Coke & semi-coke of coal for use as fuel	56,949	104,892	84.2
Unleaded gasoline	252,337	95,789	-62.0
Fertilizers	19,646	20,085	2.2
All other hazardous materials	31,905	36,022	12.9
Total	**360,837**	**256,788**	**-28.8**

In 2001, there were more than 125,479 tons of hazardous materials transported southbound by rail (49 percent of total southbound hazardous materials movement). This volume is comprised of 44 different commodities. Among the commodities representing a significant share of hazardous material rail transport are coke and semi-coke of coal for use as fuel (104,892 tons), fertilizers (13,354 tons) and phosphoric acid (3,292 tons).

Source for Table 28: U.S. Customs Service, Arizona Customs Management Center; U.S. Census Bureau.
Source for Table 29: U.S. Customs Service, Arizona Customs Management Center; U.S. Census Bureau

Southbound hazardous materials exhibit less consolidation in one major commodity as is exhibited in northbound flows. However, the strong majority of hazardous materials (86 percent) are represented in only three commodities: coke and semi-coke of coal for use as fuel (40.9 percent); unleaded gasoline (37.3 percent); and fertilizers (7.8 percent).

Evaluation of hazardous material flows should not exclusively consider the aggregate volume of flow in tons by any single material or commodity. Each material must be evaluated according to its own characteristics within a comprehensive vulnerability and risk assessment equation. Factors such as toxicity, rate of transfer and difficulty of containment can render 1 ton of a given material more dangerous than 100,000 tons of another.

Maquiladora Industry

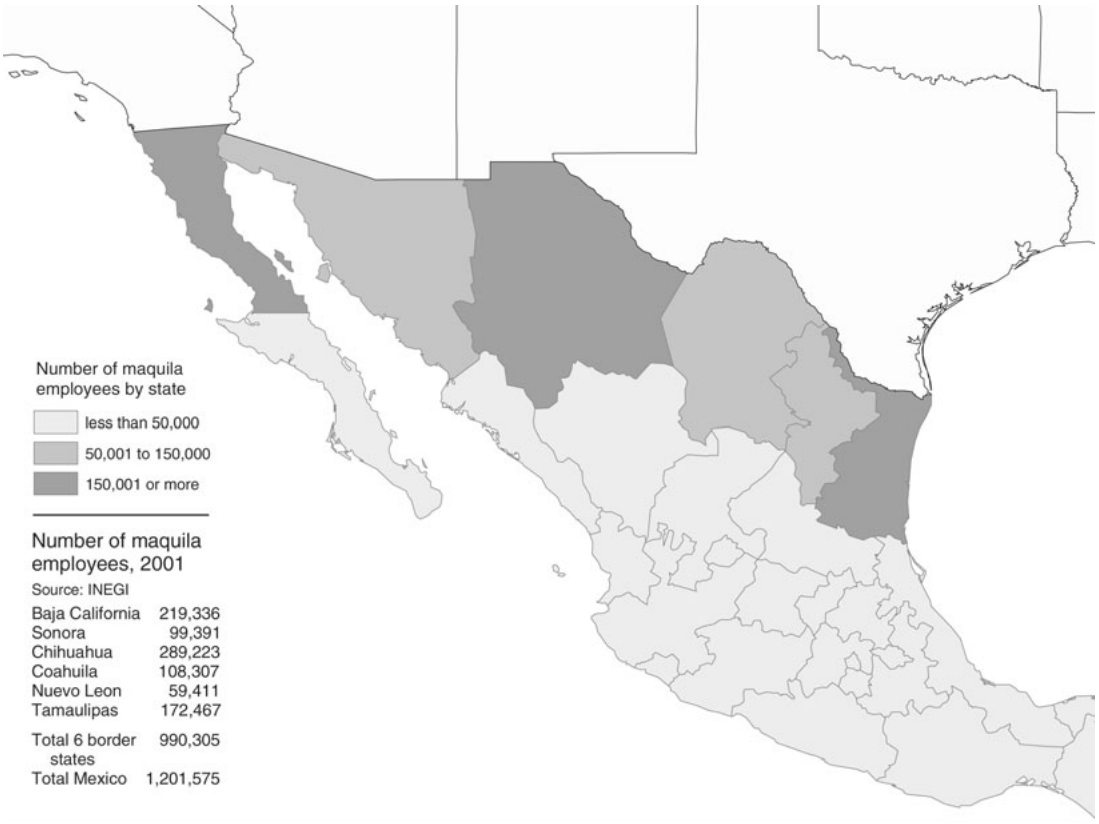
An analysis of maquiladora manufacturing activity in Mexico is helpful in understanding the potential for cross-border trade in terms of both southbound supply-side shipments and northbound finished exports. Figure 38 illustrates the relative distribution of maquiladora employment in Mexico.

Approximately 83 percent of Mexico's maquiladora employment was concentrated in the six northern border states in 2002. This relative concentration of maquila employment in the northern border states represents a decrease from 90 percent in 1994. This trend does not necessarily reflect a direct relocation of maquila activity from the northern border to other portions of Mexico, but signifies stability in the central and southern regions of Mexico. The relative geographic shift in maquila employment occurred between 1994 and 1998. The spatial distribution of employment outside of the northern border states and has remained stable since 1998.

Since 2000, four of the five regions in Mexico have lost between 19 to 22 percent of maquila employment. Only the eastern region has suffered a less dramatic loss, 9 percent since 2000.

Maquila employment in Sonora accounts for only 10.0 percent of total maquila employment within the six northern border states. Table 30 identifies maquila employment by state since 1994. States are grouped at the regional level according to the delineations used in the previous trade flow mapping. When examined at the regional level, the western region comprised 10.0 percent of total employment in 1994. This relative share increased to 11.6 percent in 1998 and has declined since then to 10.0 percent in 2002.

Figure 38: Distribution of Maquiladora Employment in Mexico's Six Northern Border States



Source: Instituto Nacional de Estadística Geografía e Informática (INEGI), July 2002.

Table 30: Maquiladora Industry Employment

Region / Mexican State	1994	1995	1996	1997	1998	1999	2000	2001	2002
Baja California TOTAL	120,050	134,835	161,798	201,371	218,396	244,088	280,648	263,188	222,297
Baja California	119,243	133,683	159,718	198,569	215,735	241,449	278,215	261,505	221,311
Baja California Sur	807	1,153	2,080	2,802	2,661	2,639	2,434	1,683	986
Western TOTAL	58,315	65,654	74,373	97,056	117,960	126,944	136,748	128,975	107,038
Jalisco	9,436	11,179	14,007	18,524	28,247	31,032	29,784	29,127	29,556
Sinaloa	.U	.U	.U	776	870	762	507	457	661
Sonora	48,879	54,475	60,366	77,755	88,842	95,150	106,457	99,391	76,821
Central TOTAL	183,829	198,552	244,887	282,590	305,606	336,643	375,537	336,238	304,060
Aguascalientes	.U	.U	12,411	17,377	19,856	24,506	26,130	23,098	18,092
Chihuahua	174,420	184,914	211,692	240,376	262,128	282,047	319,014	289,223	261,709
Durango	9,409	13,638	20,785	24,838	23,622	24,805	24,512	18,253	19,256
Zacatecas	.U	.U	.U	.U	.U	5,285	5,881	5,664	5,003
Eastern TOTAL	181,828	199,704	226,394	262,617	295,571	344,217	388,257	365,443	353,761
Coahuila de Zaragoza	50,736	55,643	63,190	76,828	92,624	105,829	114,050	108,307	112,048
Guanajuato	.U	.U	8,470	10,391	10,566	12,303	13,416	14,622	14,378
Nuevo León	23,559	27,116	32,201	39,338	45,753	54,831	68,282	59,411	52,077
San Luis Potosí	.U	.U	.U	.U	.U	7,775	11,403	10,636	9,381
Tamaulipas	107,534	116,945	122,534	136,061	146,628	163,479	181,106	172,467	165,877
Southern TOTAL	9,939	13,099	28,495	36,902	50,206	70,311	87,364	83,007	69,112
Distrito Federal	.C	.C	.C	1,872	1,757	2,488	2,304	2,113	1,854
México	.C	.C	.C	9,225	9,728	11,985	13,828	12,112	8,109
México y Distrito Federal	4,120	6,819	8,347	.C	.C	.C	.C	.C	.C
Puebla	.U	.U	12,120	14,907	22,821	30,852	38,400	36,988	30,707
Yucatán	5,819	6,280	8,029	10,897	15,899	24,986	32,832	31,795	28,442
Otras Entidades Federativas TOTAL	29,083	36,420	17,760	22,992	26,269	21,037	22,679	24,723	25,411
Total Six Border States	524,371	572,776	649,700	768,925	851,711	942,786	1,067,123	990,305	889,843
Percent Emp. Border States of Total	90%	88%	86%	85%	84%	82%	83%	82%	83%
Total Nacional	583,044	648,263	753,708	903,528	1,014,006	1,143,240	1,291,232	1,201,575	1,072,533

Note: Yearly figures are averages of monthly figures.
Source for Table 30: Instituto Nacional de Estadística Geografía e Informática (INEGI), Estadística de la Industrial Maquiladora de Exportación.
U = Data unavailable.
C = Data for México and Distrito Federal reported separately after 1997.

Over 60 percent of maquila employment is located in the central and eastern regions and is geographically positioned for cross-border trade with Texas and New Mexico. Approximately 20 percent of maquila employment is located in Baja California and is geographically positioned for cross-border trade with California. Arizona is geographically positioned for cross-border trade with roughly 10 percent of Mexico's maquila employment, located in Sonora.

Table 31 exhibits the distribution of maquila employment by industry type. Over two-thirds of Mexico's maquila employment is involved with the manufacture of electronic components, textiles and motor vehicles.

Table 31: Maquiladora Employee Distribution by Industry Type, 2001

Activity	Number of Plants	Employees	Percent of Employees
Electrical, electronic materials and accessories	548	287,579	24
Textiles, apparel	958	260,863	22
Automotive equipment and accessories	264	243,653	20
Other mfg. Sectors	518	143,794	12
Electrical, electronic machinery and equipment	166	94,394	8
Wooden, metallic furniture and parts	375	58,826	5
Services	233	41,106	3
Chemical products	143	23,257	2
Equipment and tools	60	18,381	2
Toys and sporting goods	54	11,091	1
Food processing	78	10,909	1
Shoes and leather goods	53	7,721	1
Total	**3450**	**1,201,575**	**100**

Source Table 31: Instituto Nacional de Estadística Geografía e Informática (INEGI).

Summary and Conclusions

Trade Transport

Strengths

In terms of processing tons of trade, the Nogales port-of-entry is a workhorse. With the exception of Laredo, no other U.S.-Mexico border port processes more tons of northbound trade than Nogales. While nearly half of all northbound trucks through other major border ports are empty, roughly three-fourths of northbound trucks through Nogales are full. For those trucks through Nogales that are full, they carry more tons of trade per truck than the U.S.-Mexico border average, 73 percent more.

Trade by rail is also strong. Again, with the exception of Laredo, no other U.S.-Mexico port processes more tons of northbound trade by rail than Nogales. The length of trains through Nogales has nearly doubled over the last five years and the port is experiencing a greater percentage of full rail containers than at any point over the last six years. The port performs at this level with a single main-line rail track and two commercial truck lanes. In terms of moving tons of trade relative to existing infrastructure and other ports of entry, the productivity of the Nogales port appears to be high.

Weaknesses

When considered in terms of trade value and northbound commercial truck counts, the Nogales port-of-entry and the Arizona-Sonora region lose their prominence. In terms of value, Nogales falls behind Laredo, El Paso, Otay Mesa and McAllen with a total of $10.8 billion in total surface trade in 2002. This represents 5.4 percent of all U.S.-Mexico surface trade. Accounting for a loss of more than one quarter of the port's market share, this figure has declined since 1995 when Nogales accounted for 7.7 percent of all U.S.-Mexico surface trade by value. Trade through Nogales also consists of the lowest average price per ton of goods among the major ports.

In terms of northbound commercial truck counts, the Nogales port-of-entry has experienced a constant decline since 1998. Such a decline over this time period was not mirrored by any other major U.S.-Mexico border port and has thus resulted in a loss in share of total northbound truck volume through Nogales. The loss of share from 6.9 percent in 1994 to 6.6 percent in 1998 to 5.5 percent in 2002 is consistent and presents considerable cause for concern.

Regional Market Share

The potential for increasing Arizona's market share depends greatly on the capacity of West Mexico and the West U.S. to serve as production and consumption strongholds. It also depends greatly on the performance of the sister states of Arizona and Sonora together.

Arizona is challenged in that just over 11 percent of Mexico's exports to the U.S. originate in its western region. Conversely, only 18 percent of U.S. exports to Mexico originate in its western region. This results in the strong majority of U.S.-Mexico trade occurring between states that Arizona is not geographically positioned to accommodate.

Arizona ports-of-entry appear to be operating comfortably within the range for northbound market share, accommodating approximately 13.1 percent of U.S.-Mexico trade by volume. However, the state can improve greatly on its southbound market share, at only 5.5 percent of U.S. exports to Mexico by volume. This demonstrates a need to focus on developing export-related industries and maquiladora supply-chain enterprises in Arizona and throughout the west. The state also needs to develop strategies for attracting a larger share of the existing trade within its tradeshed that is traveling through other border ports. Arizona will most likely experience an increase in southbound market share through increasing its production capacity for exports and engaging in strategic marketing in targeted areas in Mexico.

Target Regions

West U.S. and West Mexico

Northbound trade within Arizona's direct tradeshed appears to be traveling a longer distance on Mexico's highways to enter through California ports-of-entry. According to the routing models conducted by Reebie Associates, Arizona's border ports only accommodate 59 percent of northbound West-to-West trade. Significant leakage appears to be occurring to California. The port of Nogales does not capture even a majority of this trade, 49 percent by volume.

The Mexican state of Jalisco, home to the metropolitan area of Guadalajara, is identified as the origin for roughly half of all northbound West-to-West trade. This demonstrates the importance of Guadalajara and the state of Jalisco in developing trade relationships throughout the West. Nogales and the Arizona ports-of-entry appear to capture a greater percentage of southbound trade within the West-to-West tradeshed, 75 percent.

West U.S. and South Mexico

Arizona's underperformance in capturing regional market share is most evident in this tradeshed. The port of Nogales accommodates less than half of northbound trade by volume (42 percent) and an even smaller share of southbound trade (36 percent). California's prominence increases as it is identified as being the origin for over half of all southbound trade by volume. The states of Mexico and Distrito Federal, representing the Mexico City metropolitan area, are the primary places of origin for northbound trade—identified as the source for two-thirds of northbound trade to the West U.S.

Arizona's Tradeshed: West U.S.—West and South Mexico

Trade from Mexico's West and South region were combined to present the potential market capture within Arizona's extended tradeshed. According to the TRANSEARCH database, Nogales is underperforming within this tradeshed, accommodating only 43 percent of northbound trade and 54 percent of southbound trade.

The amount of trade processed through Arizona is greatly dependent on where it is coming from and where it is going to. Only 41 percent of northbound trade within Arizona's tradeshed is destined for the state, although the Arizona border ports collectively account for 49 percent of all northbound flows. Arizona, while accommodating slightly more than its destined share of trade, does not appear to be operating as a primary shipping route to California and other states north of Arizona.

Target areas for strategic economic development within this tradeshed are California and Arizona in the United States and Mexico City, Guadalajara and the state of Sonora in Mexico. Roughly 90 percent of all U.S.-Mexico trade activity within this tradeshed originates in or is destined for these areas.

Commodity Types

Examining the top-five commodities in California and Arizona, Arizona exhibits the least amount of diversity with two-thirds of its trade by weight comprised of five commodities. The Nogales port-of-entry also accommodates a greater share of high-volume, low-value goods than all other major border ports. This is demonstrated by the port's prominence as the 2nd ranked port in terms of U.S. imports by weight; yet if falls to a 4th-place ranking in terms of value. Nogales imports a significantly lower average price per ton of goods ($1,950) than all other major border ports.

Approximately one-third of U.S. imports by weight through Nogales are comprised of fresh vegetables, fruits and tree nuts. Nogales also processes a competitive share of motor vehicles. However, the port ranks last among the seven major ports for importing total tonnage of electrical equipment and sixth for general industrial machinery. These value-added commodity types are directly related to maquiladora manufacturing and demand focused attention on behalf of the state and region to expand the production of these commodities.

Hazardous Materials

In 2002, 369,838 tons of sulfuric acid were processed northbound through the Nogales port-of-entry, all by rail. Sulfuric acid accounts for over 99 percent of all northbound hazardous materials by weight.

Nearly 257,000 tons of hazardous materials were transported southbound in 2001. Of this, approximately 125,000 tons was by rail—primarily coal (105, 000 tons), fertilizers (13,000 tons) and phosphoric acid (3,000 tons). A significant amount of unleaded gasoline is transported southbound by truck (approx. 95,000 tons). This equates to nearly 690,000 tons of hazardous materials transported both southbound and northbound through the Nogales port-of-entry in 2001.

Maquiladora Trade and Employment

The strong majority of Mexico's maquiladora employment is located along its six northern border states (83 percent). However, the state of Sonora only accounts for 10 percent of maquiladora employment in the six northern border states. The region of West Mexico also only accounts for approximately 10 percent of Mexico's total maquiladora employment. This is important for Arizona as its cross-border trade is so directly tied to the state of Sonora and its manufacturing operations. Maquiladora employment in Mexico has witnessed a 17 percent decline since 2000. Sonora experienced a greater percentage of maquiladora employment loss than most other states.

Implications for the Nogales Port

Strategic trade relationships need to be developed in Mexico City and Guadalajara as well as Sonora and Sinaloa in order to increase the share of trade through Arizona ports-of-entry. However, the increase in trade traffic presents a challenge for a port that during the peak winter-months operates at or over capacity much of the time. It is recommended that the Nogales port-of-entry and the State of Arizona implement CyberPort strategies that will relieve existing congestion through the redistribution of border crossing processes and add capacity to the existing port facility and transportation infrastructure.

Further Study

Periodic Updates

The commodity flow analysis as presented here provides only partial understanding of trade flows as they occur through the U.S.-Mexico border and through Nogales in particular. Additional study in the future is recommended. It will be necessary to periodically revisit the various analyses conducted herein with regard to time-series evaluation. Also, more complete and accurate trade data is scheduled to come on-line in the coming years. As new data becomes available, it will also be necessary to establish new benchmarks to gauge the relative position of Nogales in terms of U.S.-Mexico trade.

Regional Economic Impact of U.S.-Mexico Trade on the Arizona-Sonora Region

It is also extremely valuable to understand more fully the total economic impact that U.S.- Mexico trade has on Arizona, both at the local and regional level. This study is essential to conducting a cost/benefit analysis for investment in port and transportation infrastructure as well as in considering processing changes. Importance should be placed on identifying the various ways that communities, states and regions benefit from the movement of trade. The study should quantify how the state of Arizona and/or the Arizona-Sonora Region benefit from trade in quantifiable terms such as:

- direct investment
- tax revenue
- jobs created by transportation and distribution services (direct and indirect)
- jobs created by value-added export-related industry (direct and indirect)
- jobs created by local, state, and federal agency personnel

It is necessary for quantifiable benefits to be identified in order to inform subsequent cost/benefit analyses.

U.S.-Mexico Trade Shipment Cost and Routing Study

It is imperative that the Nogales CyberPort be informed by a clear understanding of the complex nature of cost and routing decisions regarding both northbound and southbound U.S.-Mexico trade, specifically through Arizona ports-of-entry. This investigation should be region-specific and should focus on the specific commodity types of agricultural and maquiladora manufacturing products. Centers of production, distribution, and market destination should be thoroughly examined within the regions of trade capture for Arizona-Sonora border ports-of-entry.

Appendix

Northbound Hazardous Materials Through the Nogales Port-of-Entry (in kilograms)

HTS Code	HTS Description	2000	2001	Mode
27	**Mineral fuels, mineral oils and products**			
2703.00.0000	Peat (including peat litter)	1,365	0	T
2707.20.0000	Toluene Oils	0	2,793	T
2710.00.0535	Fuel oil, other, saybolt univ.	67	0	T
2710.00.0550	Other residual fuel oils < 25D API	42,563	24,462	T
2710.00.1050	Heavy fuel oils > 25D API	0	2	T
2710.00.1514	Unleaded gas, motor fuel reform.	0	10,507	T
2710.00.1518	Unleaded gas, motor fuel other	28,693	0	T
2710.00.2000	Kerosene (except fuel or motor)	0	18	T
2710.00.2500	Naphtha (except fuel or motor)	77	0	T
2710.00.3040	Automotive gear oils	0	2,183	T
2710.00.3080	Other lubricating oils	91,825	72,191	T
2710.00.3500	Greases cont. n/o 10% of salts	1	0	T
2710.00.4000	Other greases with / without additives	8,132	48,458	T
2710.00.6000	Other mixtures of hydrocarbons	883	0	T
2710.19.3080	Other lubricating oils	0	5,727	T
2711.29.0060	Other petroleum gases-gaseous stat	2,340	0	T
2713.90.0000	Other resid. of petroleum / bitmus oils	0	16	T
	Total	**175,946**	**166,357**	
28	**Inorganic chemicals; compounds of precious metals, rare earth metals, radioactive elements**			
2803.00.0010	Carbon black	30,359	0	T
2803.00.0050	Other forms of carbon	97,000	19,430	T
2804.61.0000	Silicon CBW not < 99.99% silicon	0	1,128	T
2804.69.5000	Other silicon	0	2,530	T
2805.19.0000	Other alkali metals	1,992	173	T
2805.22.2000	Barium	875	0	T
2805.40.0000	Mercury	1,387	0	T
2806.10.0000	Hydrogen chloride	122	0	T
2807.00.0000	Sulfuric acid; oleum	321,054,940	430,381,235	T
2809.20.0030	Phosphoric acid, other	358	1,336	T
2815.12.0000	Sodium hydroxide in aqueous sol	1,601	964	T
2818.20.0000	Other aluminum oxide	587	0	T

Northbound Hazardous Materials Through the Nogales Port-of-Entry (in kilograms) (continued)

HTS Code	HTS Description	2000	2001	Mode
2819.90.0000	Other chromium oxides & hydroxide	0	5,225	T
2826.11.1000	Fluorides of ammonium	0	739	T
2827.49.5000	Other chloride (oxides & hydroxides)	0	55,636	T
2832.20.0000	Other sulfites	0	2,351	T
2833.26.0000	Zinc sulfates	86,518	200,000	T
2837.11.0000	Cyanides, cyanide oxides of Na	9,448	0	T
2841.20.0000	Chromates of zinc or of lead	0	9	T
	Total	**321,285,187**	**430,670,756**	
29	**Organic chemicals**			
2902.44.0000	Mixed xylene isomers, cyclic HC	2,953	3,258	T
2903.22.0000	Trichloroethylene	930	521	T
2903.23.0000	Tetrachloroethylene (perchloro)	538	70	T
2903.45.0000	Other derivatives perhalgntd, w/fl & chl	368	0	T
2903.69.7000	Aro hydrocarbon; deriv other	0	10	T
2905.11.2000	Other methanol (methyl alcohol)	48,213	23,014	T
2905.12.0010	Propan-1-ol (propyl alcohol)	9	0	T
2905.12.0050	Propan-2-ol (isopropyl alcohol)	21,458	35,122	T
2905.19.0050	Saturated monohydric alco., other	2,552	7,756	T
2905.31.0000	Ethylene glycol (ethanediol)	3,988	3,002	T
2905.39.9000	Other acyclic alcohols and derivatives	1,077	0	T
2906.21.0000	Benzyl alcohol	0	8	T
2909.49.6000	Ether-alcohols, other	0	1	T
2914.11.5000	Acetone, other than from cumene	3,952	88	T
2914.12.0000	Butanone	701	0	T
2915.21.0000	Acetic acid	141	17	T
2915.39.4700	Acetates of polyhdrc. alcs. / ether	0	5,676	T
2921.29.0010	Tetraethylene pentamine	0	2,796	T
2922.41.0090	Amino-acid: lysine & ester; slt, other	51,820	0	T
2924.10.1020	Acyclic: dimethylformamide	0	18	T
2929.10.8090	Isocayanates other, other	0	498	T
2933.79.2000	Lactams: n-methyl-2-pyrrolidone	217	0	T
2938.90.0000	Glycosides, natural / reprod., other	0	20	T
	Total	**138,917**	**81,875**	

Northbound Hazardous Materials Through the Nogales Port-of-Entry (in kilograms) (continued)

HTS Code	HTS Description	2000	2001	Mode
31	**Fertilizers**			
3102.10.0000	Urea, aqueous solution or not	7,205	0	T
3102.21.0000	Fertilizers, ammonium sulfate	0	6,410	T
3102.29.0000	Fertilizers, nitro, other min/ch	20,000	0	T
3104.90.0000	Other min/chemical fertilizers	135,485	226,015	T
3105.40.0050	Other min/chemical nitro/phos/pot	60	0	T
	Total	**162,750**	**232,425**	
32	**Tanning or dying extracts, tannins & derivatives; dyes, pigments, other coloring matter; paints & varnishes, other mastics; inks**			
3201.90.5000	Tanning extracts of veg., other	18	0	T
3203.00.1000	Color material, annato, archil, cochi	5,320	3,109	T
3204.19.5000	Synthetic colors, in chem apdx	2	0	T
3204.90.0000	Synthetic color, other organic	0	1,049	T
3205.00.4050	Color lakes, other colors, nt ch ap	0	28	T
3206.20.0050	Other color mat., other chromium pigment	0	8	T
3206.49.5000	Other coloring matter and prep.	0	368	T
3207.10.0000	Prepared pigments / color & preps	55	0	T
3207.40.1000	Glass frit / other glass, ground/pulverized	2	0	T
3208.10.0000	Paints / varnish, polyesters	0	5,100	T
3208.90.0000	Paints / varnish, non-aqueous, other	1,990	11,660	T
3209.90.0000	Paints / varnish, aqueous, other	5,998	26,811	T
3209.90.0000	Paints / varnish, aqueous, other	0	312,976	R
3210.00.0000	Paints / varnish, for leather	0	45	T
3214.10.0020	Mastics; other	0	631	T
3214.90.1000	Rubber glaziers' putty, graftin	250	0	T
3214.90.5000	Other glaziers' putty, graftin	218	0	T
3215.11.0060	Printing ink, other black	682	0	T
3215.19.0060	Printing ink, other non black	1,221	54	T
3215.90.5000	Writing inks and other inks	25,196	4,604	T
	Total	**40,952**	**366,443**	

Northbound Hazardous Materials Through the Nogales Port-of-Entry (in kilograms) (continued)

HTS Code	HTS Description	2000	2001	Mode
33	**Essential oils and resinoids; perfumery, cosmetic or toilet preparation**			
3301.90.5000	Essential oils, other, other	106	0	T
3305.10.0000	Shampoos preparations for use	432	400	T
3307.49.0000	Other preps, perfumes / deoderizers rooms	499	901,142	T
3307.49.0000	Other preps, perfumes / deoderizers rooms	0	9,198	R
3307.90.0000	Depilatories / perfumes / cos / toi, nspf	13,755	15,699	T
	Total	**14,792**	**926,439**	
34	**Soap. organic surface-active agents, washing prep., lubricating prep., artificial waxes, polishing or scouring preparations, candles and similar articles, modeling pastes, dental waxes & dental preparations with a basis of plaster**			
3401.11.5000	Soap, organic, toilet use, other	144	0	T
3401.20.0000	Soap in other forms, organic	8,915	3,705	T
3402.13.5000	Organic active agents, non-ionic, fatty subs	1	0	T
3402.90.1000	Synthetic detergents organic	5,450	0	T
3402.90.5050	Surface active, wash, clean prep nspf.	971	5	T
3403.11.4000	Lubricating text preps, other	205	197	T
3403.99.0000	Lubricating preparations, other	26	0	T
3404.90.5000	Waxes, artificial / prepared, other	203	18	T
3405.20.0000	Polish / creams, wooden woodwork	178	98	T
3405.30.0000	Polishes, coachwork, not metal	1	0	T
3405.90.0000	Polishes and creams, other	43,164	27,872	T
3406.00.0000	Candles, tapers and the like	29,828	8,860	T
	Total	**89,086**	**40,755**	

Northbound Hazardous Materials Through the Nogales Port-of-Entry (in kilograms) (continued)

HTS Code	HTS Description	2000	2001	Mode
35	**Albuminoidal substances; modified starches; glues; enzymes**			
3505.20.0000	Dextrins and mod starch, glues	14	126	T
3506.10.1000	Glue, animal, including casein	0	1	T
3506.10.5000	Glues, other products for glue	24,578	57,018	T
3506.91.0000	Adhesives, rubber or plastic	21,891	27,829	T
3506.99.0000	Glues and other prep adhes, other	12,162	11,648	T
3507.90.7000	Enzymes; prepared enzymes, other	490	0	T
	Total	**59,135**	**96,622**	
37	**Photographic or cinematographic goods**			
3701.20.0060	Photo F/plate, fl., unexp., nt color	0	1,460	T
3701.99.3000	Photo F/plate, fl., unx, color, dry plate	0	261	T
3707.90.3290	Chemical preps for photo uses, other	419,384	551,970	T
	Total	419,384	553,691	
38	**Miscellaneous chemical products**			
3802.10.0000	Carbon, activated, anml. bl.	15,250	0	T
3806.90.0000	Other rosin and resin acids nspf	0	211	T
3808.20.5000	Other fungicides	74	0	T
3809.91.0000	Finishing agents, textile indus.	110	0	T
3810.10.0000	Pickling preps, metal surfaces	18,538	471	T
3810.90.5000	Pickling preparations, metal, ot	7,268	13,363	T
3814.00.5090	Solvents/thinners, other organic	294	26,446	T
3815.90.5000	Reaction initiators, organic	419	0	T
3818.00.0010	Chem elem, electric, gal. Arsn. waf.	398	0	T
3818.00.0090	Other chem elem, f/electronics	3,764	3,624	T
3819.00.0010	Hydraulic brake fluids	0	4,731	T
3819.00.0090	Other prep liquid f/hydraulic transmission	0	1,073	T
3820.00.0000	Antifreezing preparations	3,150	386	T
3821.00.0000	Culture media for development of micro	0	6,223	T
3823.70.6000	Industrial fatty alcohol, other	0	2	T
3824.50.0010	Nonrefractory mortars, wet	40	0	T
3824.50.0050	Nonrefractory mortars ,dry	10,350	2,978	T

Northbound Hazardous Materials Through the Nogales Port-of-Entry (in kilograms) (continued)

HTS Code	HTS Description	2000	2001	Mode
3824.90.9050	Other chemical mixtures nspf	49,348	206,903	T
3824.90.9150	Other chemical mixtures nspf	0	2,577	T
	Total	**109,003**	**268,988**	
93	**Arms and ammunition; parts and accessories thereof**			
9304.00.6000	Other arms nspf not 9307	9,859	1,555	T
9305.90.4000	Parts & access.: 9303 art. n/shotgun / rifle	0	1,419	T
9305.90.6000	Other parts & access. of 9303-4 nspf	0	5,775	T
9306.29.0000	Shotgun cartridge parts; airgun pellet n/ca	0	520	T
9306.30.4030	Other cartridges	250	1,185	T
	Total	**10,109**	**10,454**	

Source: U.S. Customs Service, Arizona Customs Management Center.

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Logistics Study

EPSTEIN

Prepared by A. Epstein & Sons International, Inc.
for the Nogales CyberPort Project

Contents

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Introduction

This report has been prepared for the University of Arizona Office of Economic Development. This report examines the process through which trade travels from point of origin in Mexico, through the Mariposa port-of-entry in Nogales, Arizona, and is distributed to a final destination. The study assesses two distinct types of trade, agriculture (fresh fruits and vegetables) and maquiladora manufacturing, and the unique needs and requirements of these two sectors.

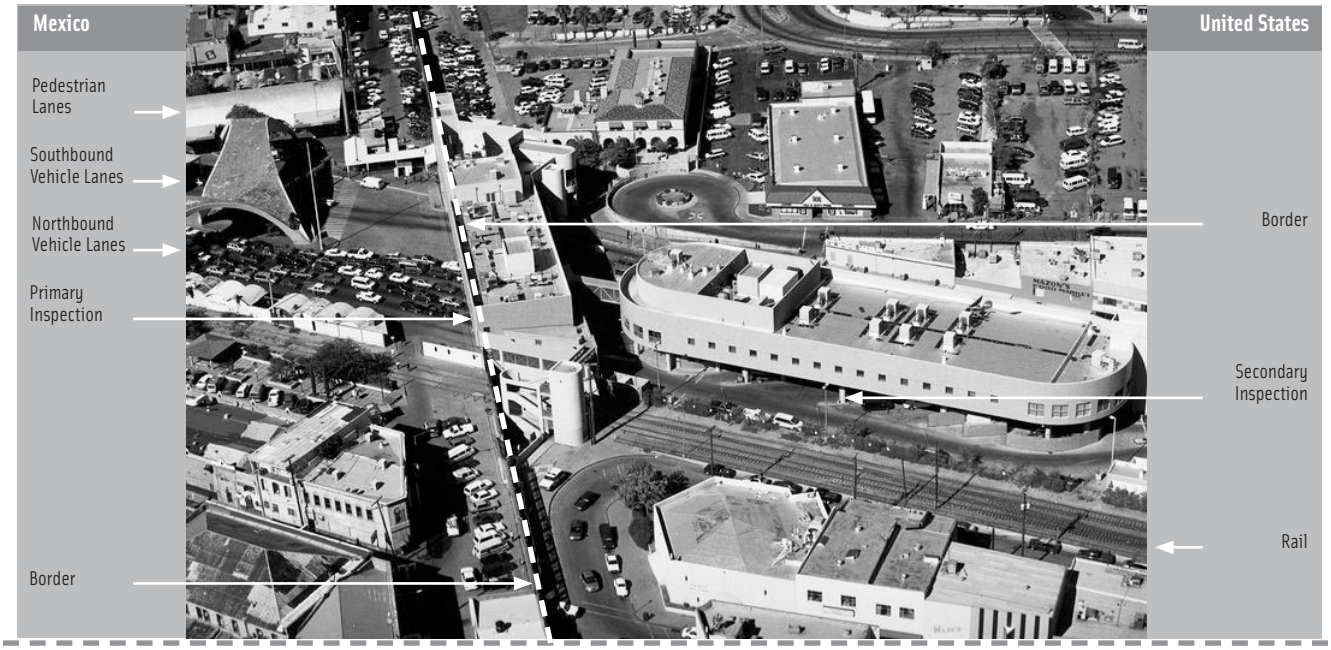
The agencies and individuals that participate in the daily port activities appear to work well together—the processes within the port are efficient and port personnel have implemented a number of innovative processes and procedures. The Mariposa facility, however, is not large enough to provide consistent reliable border crossing times during the peak winter season. The number of arrival lanes is especially limiting, since it is a severe bottleneck affecting all traffic and prohibits the use of express lanes for pre-cleared commercial and passenger vehicles.

Continued improvements in the automation of entry processes are also necessary. Integration of the systems used by Customs and the U.S. Department of Agriculture is high on the list and several times it was noted that the North American Trade Automation Prototype (NATAP) test program conducted in Nogales was on the right track.

Description of the Nogales Ports-of-Entry

On a typical day, roughly 13,000 vehicles and 13,000 pedestrians enter the U.S. through Nogales. In 2001 there were 4,590,933 passenger vehicle crossings and 4,874,738 pedestrian crossings. This activity is divided between three border-crossing locations that comprise the Nogales port-of-entry (POE). The eastern most crossing is Morley Gate, a pedestrian crossing located at the end of Morley Avenue in the center of Nogales. One block west is the Grand Avenue facility which includes rail, vehicle and pedestrian crossings (see Exhibit 1).

Exhibit 1: The Grand Avenue Border Crossing



Grand Avenue is at the northern terminus of the Nogales, Sonora commercial district and Federal Highway 15, which originates south of Guadalajara and is the main transportation corridor along the west coast of Mexico. The vehicle crossing consists of eight gates for northbound vehicles and three lanes for southbound vehicles. Lane eight for northbound vehicles is used primarily by buses and recreational vehicles. The rail line runs along the east edge of Grand Avenue. The Ferromex and Union Pacific railroads connect at the border. The Grand Avenue pedestrian gates are located in the DeConcini Building to the west of the southbound vehicle lanes. The Grand Avenue crossing is open 24 hours, seven days a week.

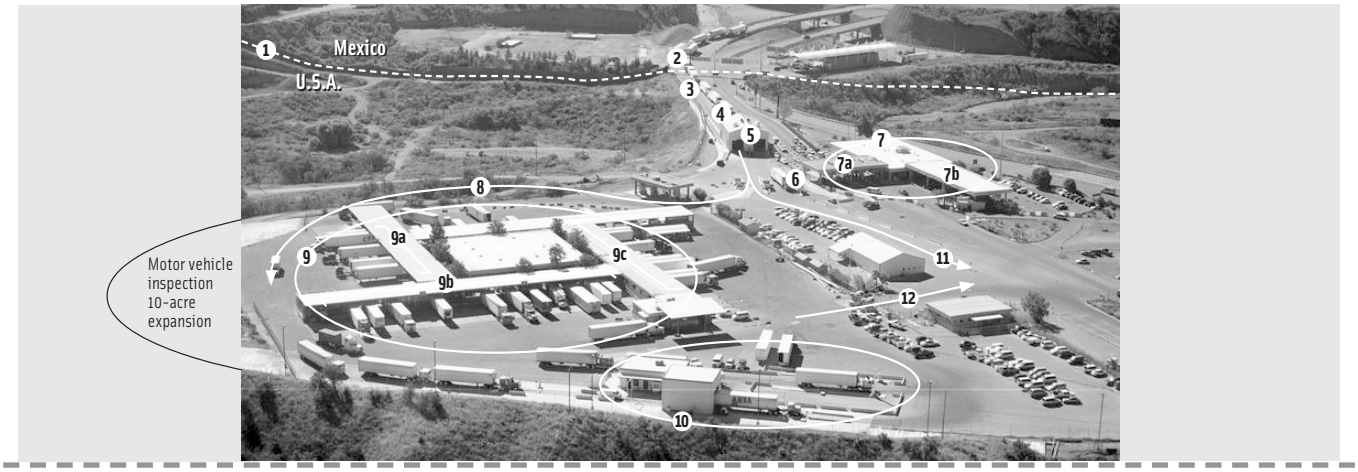
The third crossing facility is located on Mariposa Road about one and one-third miles west of the Grand Avenue facility and provides entry for passenger vehicles and commercial cargo (see Exhibit 2). From the south, the crossing is served by the Corridor Fiscal (toll road), an eight- mile (12.5 kilometer) bypass around Nogales, Sonora connecting Mariposa Road with Mexican Highway 15. The roadway is a four lane highway between Mexican Customs on the south end and the U.S.-Mexican border on the north end with no access in between. The maquiladora traffic that originates in Nogales, Sonora must drive south to Mexican Customs and the entrance to the Corridor Fiscal. An intermediate entrance to the Corridor Fiscal along with a second Customs facility would be beneficial to these enterprises.

On the U.S. side, access from the north is provided by SR 189 (Mariposa Road) which connects with Interstate-19 approximately three miles north of the border. The U.S. Customs Mariposa crossing is open from 8 a.m. to 6 p.m. for commercial vehicles and from 6 a.m. to 10 p.m. for passenger vehicles, Monday through Saturday.

Summary Statistics for the Nogales Ports-of-Entry

Combined incoming pedestrian traffic in 2001 at the Morley and Grand Avenue locations averaged 13,355 a day, a ten percent increase from 1996. For northbound passengers in personal vehicles, the Grand Avenue and Mariposa locations averaged 27,059 a day, also a ten percent increase from 1996. In 2001, there was an average of 12,579 incoming personal vehicles a day, a 38 percent increase from 1996. There is also an average of 750 passengers on 20 buses a day. Personal vehicle and passenger crossings declined significantly after September 11, 2001.

Exhibit 2: The Mariposa Border Crossing



1. Border **2.** Document distribution **3.** USDOT inspection **4.** Weigh-in-motion **5.** Drug and weapons screening **6.** Primary/superbooths **7.** Personal vehicle entries **7a.** Primary entry **7b.** Secondary entry **8.** Flow into secondary inspection **9.** Secondary Inspections **9a.** USDA **9b.** Intensive inspections **9c.** Brokers **10.** X-ray, VACIS **11.** Primary exit **12.** Secondary exit

Table 1: Northbound Border Crossings for Nogales BPOE, 2001

	Morley Gate	Grand Avenue	Mariposa
Trucks	0	0	249,237
Buses	0	7,238	7,238
Bus Passengers	0	126,530	126,530
Personal Vehicles	0	4,590,933	4,590,933
Passengers in Personal Vehicles	0	9,876,703	9,876,703
Pedestrians	4,874,738	4,874,738	0
Trains	0	635	0
Rail Cars	0	58,667	0
Rail Passengers	0	2,648	0

Trains cross in both the northbound and southbound directions two or three times, between 8:00 a.m. and 4:00 p.m. each day, and may include over 100 cars extending over one mile in length. The number of northbound cars has increased from 25,352 in 1996 to 58,667 in 2001, a 131 percent increase. Operations have favorably improved from an average of 48 cars per train to 92 cars and the percentage of full cars has increased from 53 percent to 61 percent. Most of the increase in rail traffic has occurred since Ferromex was formed through privatization in 1998. Ferromex has modernized operations and has been aggressively marketing its services. The increases have come despite some significant losses in bulk ore volumes (imported ore from Chile that was being offloaded in Mexico and shipped to the United States). About twenty percent of the northbound cars are destined for Phoenix with the remainder equally split between western and eastern destinations.

Currently, private parties are exploring the idea of transporting fresh produce by rail from Culiacan to Rio Rico using the RoadRailer concept. This concept requires the use of specially designed high-strength truck trailers and detachable rail bogies. The trailers are otherwise nearly identical to other truck trailers for highway use, but are connected to the rail bogies for movement by rail. The trailers, when interconnected on rail, can be moved as a separate unit train or behind conventional railcars. Very little additional infrastructure is required to support this type of operation.

Sources for Table 1: Northbound Border Crossings for Nogales BPOE: U.S. DOT, BTS based on data from U.S. Customs Service, Mission Support Services, Office of Field Operations, Operations Management database.

Process Flow at the Grand Avenue Facility

The process flow of vehicles northbound through the Grand Avenue facility includes primary and secondary inspections carried out by the U.S. Customs Service (USCS), the Immigration and Naturalization Service (INS), U.S. Department of Agriculture (USDA) and U.S. Fish and Wildlife Service inspectors. Primary inspections, which take place at the entrance gates of the facility, entail a Customs or INS inspector visually inspecting and observing the vehicle and passengers, entering the license plate number into the Treasury Enforcement Communication System (TECS) for a possible match against criminal suspects and questioning the driver and/or passengers about origin, destination and purpose for entering the U.S. In the majority of cases, vehicles move straight through the facility after processing by the primary gate inspector.

A secondary inspection area, where more intensive inspections can be made, is located just beyond the primary gate. When a vehicle is referred to the secondary area, the primary gate inspector places a color-coded placard on the vehicle's windshield indicating why the vehicle is being sent to secondary. Secondary inspection, or secondary referral, entails a detailed inspection of the vehicle including such things as an inspection of the hood, trunk, fuel tank, tires, interior, under-dashboard, undercarriage of the vehicle and a canine inspection. Inspection tools include probes, mirrors and hand-held "busters" to determine density within car panels and tires.

A single vehicle is unlikely to be subjected to all of these different types of inspections or to be questioned by all of the listed inspectors. This process also requires that inspectors of any particular agency are also familiar with the types of inspections and items that other agencies are looking for during their inspections.

In 2002, a Vehicle and Cargo Inspection System (VACIS) was installed about 50 feet north of the border to more thoroughly examine rail cars for contraband. Trains are now able to pass the VACIS system at five to seven miles-per-hour and continue to Rio Rico before stopping for follow-up inspections by U.S. Customs and the Border Patrol. Since the system has been installed, fewer cars are set out for inspection as problematic cars are more readily identified.

Exhibit 3: A Northbound Train Passing Through Nogales, Sonora

Commercial Trade Overview

There are two main types of commercial freight that cross the border at Mariposa, maquiladora product and fresh produce. Maquiladora products will generally originate from any of the approximately 350 maquiladora plants located in the western Mexico states of Sonora, Sinaloa and Jalisco. Shipments that originate at a maquiladora plant in the Nogales area are usually transported by a local drayage firm that operates within the commercial zone to a warehouse or trailer yard in Nogales, Arizona. The warehouse may be operated by one of the Customs brokers who will break down the load by carrier for shipment throughout the U.S.

If the entire trailer load is for a single destination, then the drayage firm may use a trailer provided by the U.S. carrier and there will be a change of tractors on the U.S. side of the border. Shipments that originate beyond the immediate Nogales area will usually be transported by a Mexican truck line to Nogales, Arizona on the Mexican carrier's equipment and be reloaded to one or more U.S. carriers at a warehouse in Nogales, Arizona. An increasingly common practice, however, is the formation of alliances between Mexican and U.S. carriers who interchange trailers, so full-trailerload shipments travel on the same trailer from origin to destination. Two examples of this are: Phoenix-based Swift Transportation provides pickup and delivery in the U.S. and interchanges trailers with Trans-Mex for pickup and delivery throughout Mexico; and, Nogales-based Huerta Trucking provides a similar service in conjunction with an interrelated Mexican-owned company in Nogales, Sonora.

Once in the U.S., a variety of shipping methods may be used for delivery to customers, distribution centers, facilities of the U.S. parent company, Canadian destinations or to a seaport for export. Small shipments may go to UPS, FedEx Express or an LTL carrier such as FedEx Freight at their Nogales terminals for delivery throughout the U.S. Some larger shippers send full truckloads of parcels to more distant hubs operated by UPS or FedEx to minimize freight charges by zone skipping. Full truckload shipments of maquiladora products, produce and other imports from Mexico are carried by a large number of U.S.-based truck lines to customers and distribution centers. Products that go to distribution centers typically become part of a broader line of items that are used to fill customer orders. Arizona and California are the largest recipient states of these shipments.

The maquiladoras have frequent and repetitive shipments and well-controlled shipping environments. They and their employees would be good candidates for express-lane service across the border, if there was adequate port infrastructure to accommodate it.

Most trucks carrying fresh fruits and vegetables originate at packing houses or cooling facilities that are located close to the fields of production. These may be in Sonora, the primary growing area for grapes and citrus products, in Sinaloa, the largest producing area, or as far south as Chiapas. About 95 percent of the shipments have not been sold at the time they leave the packing houses. These loads are consigned to a distributor in Nogales, Arizona where they will be warehoused on behalf of the grower until sold, usually within a few days. Title to the produce remains with the grower/shipper until the produce is shipped by the local distributor. Some distributors are owned by growers. The other five percent of product is loaded at the packing house for a specific customer and ships direct to the final destination.

Distributors receive advanced notice of the shipments and attempt to manage a minimum delay between receipt of product and shipment to the buyer, but as a general practice, the distributor will match the quality most appropriate for the customer after having possession of the product in their warehouse in Arizona. Nearly all produce is sold to U.S. or Canadian grocery retailers, wholesalers or food service distributors who may buy through distributors or through a broker, who in turn obtains product from the distributors. The concentration of distributors and brokers in Nogales/Rio Rico creates a produce market where buyers have a wide selection of products available and can obtain mixed load shipments, as needed.

More fresh fruit and vegetable shipments enter into the U.S. at the Mariposa commercial cargo facility than at any other location on the southern border with Mexico. This volume is highly seasonal and results in more than 20,000 loaded trailers northbound per month during the winter and fewer than 10,000 in the summer months. The inspection requirements are also more labor intensive than for other shipment types and require considerable coordination among several federal and state government agencies, including USCS, USDOT, USDA, the Food and Drug Administration (FDA), ADOT Motor Vehicle Division, Arizona Department of Agriculture, Arizona Department of Health Services and the Arizona Department of Public Safety (DPS).

Trucks travel long distances within Mexico and encounter drug inspections by federal and state agencies and agricultural inspections at the border between Sinaloa and Sonora and at the boundary of fruit-fly-free zones within Sonora. Each inspection results in delay and, for produce, a break in the cold chain with potential product degradation.

Process Flows at the Mariposa Port-of-Entry

The process flow for the Mariposa POE begins in Mexico where mandatory quality inspection of some commercial fresh produce shipments is conducted. It also includes Mexican Customs, located eight miles south of the border at the entrance to the Corridor Fiscal.

Arriving passenger vehicles start with Mexican Customs, pay the toll at the entry to the Corridor Fiscal, then drive to the border and the U.S. Customs entry point. During peak periods, the Corridor Fiscal can become very congested with trucks, but the western lane is usually dedicated to passenger vehicles. After crossing the bridge at the north end, the one highway lane across the bridge that is used by passenger vehicles fans out to four lanes through the primary gate area. Those vehicles that pass the primary inspection proceed straight ahead to SR 189 (Mariposa Road). Others turn left into the secondary inspection area. Passenger vehicles are processed through the secondary inspection at the Mariposa passenger facility in the same way that they are processed at the Grand Avenue facility. INS and U.S. Customs share responsibility for staffing the gates throughout the workday. The passenger vehicle processing facility at Mariposa Road is located directly west and adjacent to the commercial cargo facility (see Exhibit 2).

Except for the agricultural-related inspections, the entry process for Maquiladora shipments and other imports from Mexico is similar to produce shipments as described on the preceding pages. Exhibit 2, shown previously, illustrates the Mariposa facility layout and the traffic flow through the facility. Exhibit 4, on the following pages, contains a northbound shipment flow chart.

Exhibit 4: Northbound Shipment Flow Chart

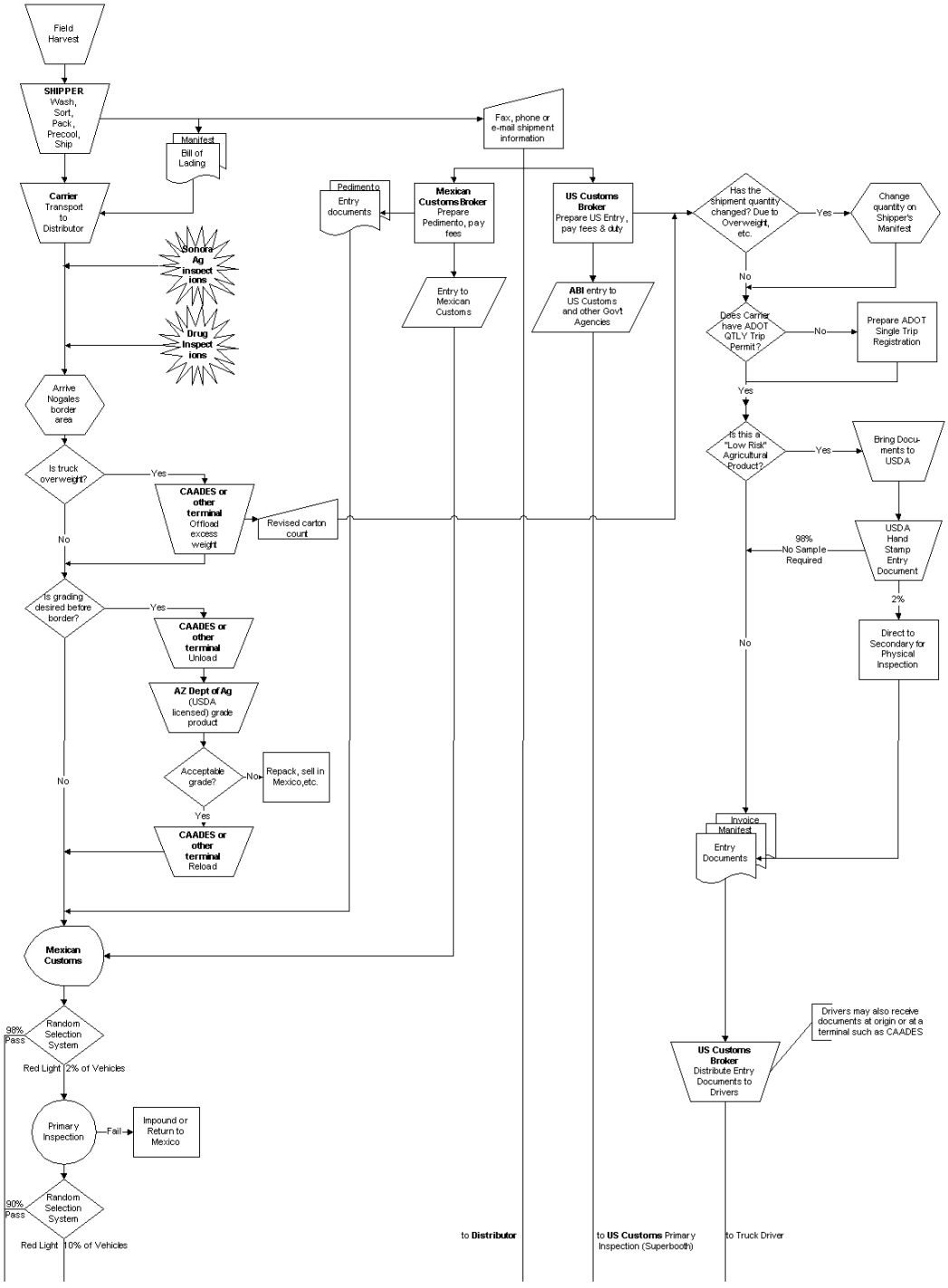


Exhibit 4: Northbound Shipment Flow Chart (continued)

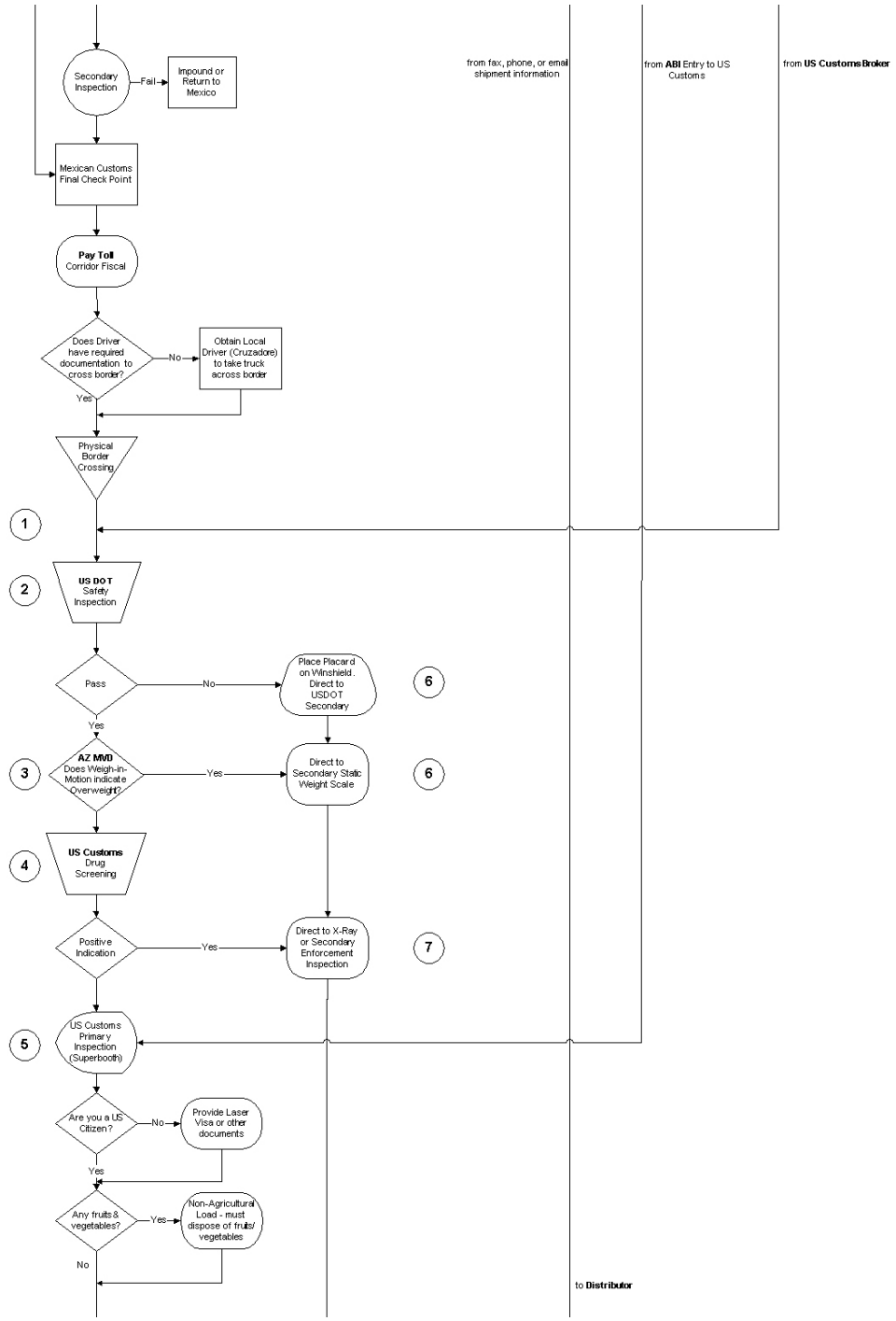


Exhibit 4: Northbound Shipment Flow Chart (continued)

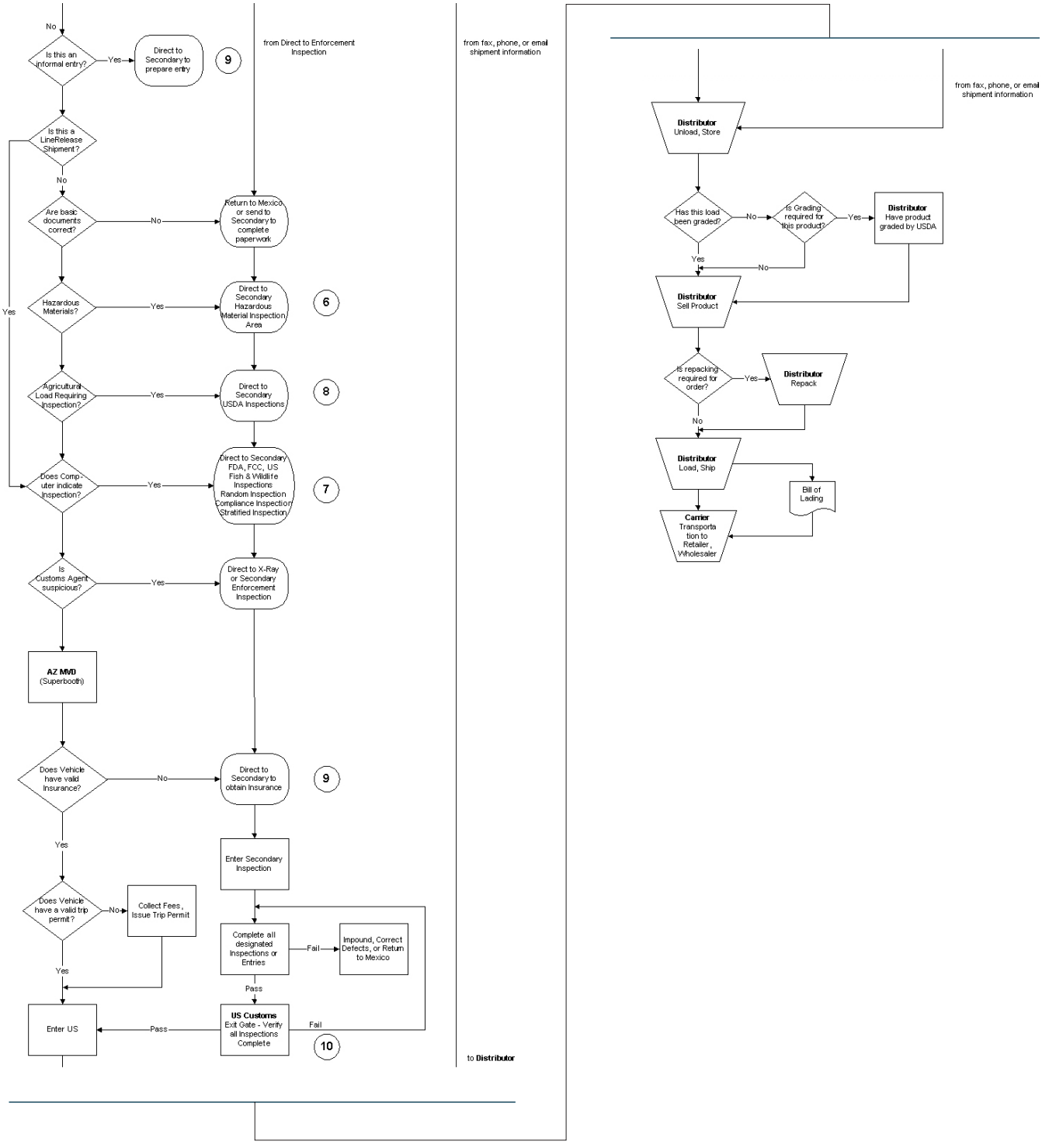


Figure 5: Confederacion de Asociaciones Agricolas del Estado de Sinaloa (CAADES)

When the trucks arrive in the Nogales, Sonora area from distant origin locations, they may stop for a variety of border crossing services. The services are offered at fee-based facilities such as CAADES, Impak, Trans-Mex and others.

Perhaps the most important function performed at some of these facilities is product grading for specified fruit and vegetable products. The Mariposa POE is too small for the volume of produce that needs to be graded, so the grading must be done elsewhere.

Tomatoes, watermelon, grapes, cantaloupes and many other products must meet certain USDA Marketing Order quality standards before being allowed into the United States. Other times shippers voluntarily want to have products graded just prior to arrival at distributor warehouses in order to receive the highest possible price. Most shippers (about 70 percent, according to the Arizona Department of Agriculture), prefer to have the grading done prior to U.S. entry. Then, if the products do not meet the required standards, they will not have to pay the export fees charged by the Mexican Government and will have more options available for disposition. These include selling the product in Mexico, shipping it in bond to Canada, or repacking the product and having it re-graded. Grapes require constant refrigeration, which none of the Mexican facilities have, so the grading of all grapes is done at distributor warehouses in Arizona.

The Arizona Department of Agriculture sends USDA-licensed inspectors to these facilities (seven different locations in the 2002 season) to conduct the grading. Arizona is the only state that sends inspectors to Mexico for this purpose. The Arizona inspectors start at 8:00 a.m. and work until all loads have been inspected. During peak periods this may be late in the evening. To inspect a load, all pallets are unloaded and staged on the dock. The inspector marks a specified number of cartons for inspection from any part of the load. Employees of the facility then put the marked cartons on tables and the inspectors check each against standards for the product. A paper certificate is issued for each load with a pass or fail grade. A copy of the certificate is given to the driver to present at the U.S. Customs primary inspection (superbooth). Inspectors reported that they have no means of electronic communication with their offices in the U.S. Service is either unavailable or prohibited by Mexican law.

Another benefit of these facilities is they provide a meeting place for customs brokers and drivers. For example, the trucks leave the packing houses soon after loading and while in transit to the border, information about each load is faxed or e-mailed to the Mexican and U.S. Customs brokers at the border who prepare and file documents required by the respective Customs agencies. The brokers may rent office space at these facilities or have runners meet the trucks in the U.S. and issue the customs documents to the drivers. Alternatively, some shippers have the customs documents prepared and given to the driver at origin.

Another common shipping practice that applies to produce and other shipments is to carry more weight while in Mexico than is allowed on U.S. highways to minimize shipping costs. Mexico has the same weight limits, but has little or no enforcement activity. These facilities provide docks and fork lift drivers where excess cargo can be unloaded from one truck and transferred to another. The facilities also have truck scales so that legal axle weights can be verified prior to the weigh scales at the Mariposa POE. Another available service includes palletizing floor-loaded shipments. When the final load is ready, the customs brokers adjust the entries to reflect changes in quantity. Drivers often do minor repairs to their trucks, such as replacing burned-out light bulbs in anticipation of the safety inspections at the border, while waiting for various services and product grading.

Exhibit 6: Product Grading Area in the CAADES Facility

When grading and the other services are complete, the driver proceeds the short distance to Mexican Customs. At Mexican Customs, they present the appropriate documents (Pedimento), pay export user-fees (if not already paid through the Mexican customs broker) and then drive a short distance to the Corridor Fiscal toll booth before proceeding to the border.

To expedite the movement of maquiladora trucks and passenger vehicles along the Corridor Fiscal, Mexican officials manage the flow of produce trucks by staging them, as necessary, on the shoulder of the highway. This leaves a lane open for passenger vehicles and a lane for maquiladora trucks up to the bridge immediately south of the border. During peak periods, the drivers of produce trucks have protested this treatment. On the bridge, the left lane is used by passenger vehicles and the right lane is shared by all trucks. Since there is only one passenger vehicle lane across the bridge, a Dedicated Commuter Lane would have limited value as all vehicles must wait in the same line until the last 100+ feet–the same is true for the truck traffic. The two lane bridge, just before the border, is the most significant bottleneck at the Nogales border crossing.

Exhibit 4: Produce Trucks Staged on the Shoulder of the Corridor Fiscal

The Mariposa Commercial Cargo Facility has two entry lanes for trucks. In each lane, the first inspection is by USDOT. As the trucks wait in line, prior to the pre-primary drug screening, the inspectors look for any unsafe condition on the truck or trailer such as structural defects or faulty brakes. If any are identified, the inspector places a placard on the windshield and the truck will be directed into the compound for further examination at the new 10-acre state/federal annex.

Just past the USDOT inspection, the trucks approach stop lights that control the movement across the two weigh-in-motion scales and entry into the drug screening facility. Inside the drug screening facility, U.S. Customs inspectors examine every commercial vehicle by looking for any abnormalities in the truck or load. The shelter includes catwalks that permit inspectors to look at the top, sides and bottom of the vehicles and the inspectors will look inside the trailer as well. Suspicious loads and a certain percentage of random loads will be directed into the compound for a more thorough physical inspection or X-ray/VACIS. A canine blitz is conducted at random times here and at the other entry locations to further increase the chance of intercepting drugs. With just two lanes, the inspections in drug screening must be carried out quickly in order to permit entry of all trucks. The average daily flow of more than 800 trucks requires that trucks move forward at an average rate of less than 90 seconds per lane in the normal 10 hour workday. Peak winter volumes allow much less time.

Arizona Motor Vehicle Division (MVD) personnel, also stationed in the drug screening facility, check the weigh-in-motion readings for possible overweight conditions and select trucks for random safety inspections to be carried out at the inspection annex. About four percent of all trucks are selected for further safety inspection. Of these, 25-30 percent are declared "out-of-service," or about one percent of all trucks.

The next stop is primary screening at the superbooths. U.S. Customs brokers are actively involved in preparing documentation for this step in the entry process and many have satellite office facilities on the Customs docks inside the compound. Generally, formal entries are prepared and submitted to Customs through the computerized Automated Broker Interface (ABI) before the shipment arrives. Most shipments require no further action by the broker; however, the broker may provide assistance if the shipments are sent inside the compound for inspection. Entries that are not pre-filed through ABI (less than five percent), are prepared and filed after the truck enters the compound. From the ABI, Customs and most other agencies have an entry number and information about the owner,

the type of cargo, the quantity, the value, where it originated, the carrier and the trailer number. Informal entries for shipments valued at less than $2,000 are also prepared after the vehicle enters the compound.

There are three superbooths, each occupied by an agent from U.S. Customs and the Arizona MVD. The Customs agent checks the driver's personal identification, personal goods, truck license and trailer number. Documents presented by the driver include a manifest, commercial invoice and Form 3461 that contains the bar-coded entry number. The agent will scan the barcode on Form 3461 and bring up the broker entry submitted through the ABI on his or her computer terminal. ABI is a component of the Customs Service's Automated Commercial System (ACS). The ACS system provides an interface to other agencies, such as the FDA and the U.S. Fish & Wildlife Service and will automatically notify the agent if the load has been selected by these agencies for secondary inspection in the compound. The agent may also direct the driver to secondary inspection at his discretion.

USDA is not on the ACS system, so USDA personnel must review documents for all "low-risk" agricultural loads and hand stamp each set as released but not before the load arrives at the border. All "high-risk" commodities are inspected, so there is no need to review the documents for these commodities beforehand. The customs brokers present the documentation to USDA each morning at 8:00 am. (This requires extra documentation handling for 75 to 80 percent of all produce shipments, so one in fifty can be stamped for inspection.) After USDA has finished, broker personnel drive into Mexico to distribute the paperwork to arriving drivers. They may find the drivers at CAADES or the other grading locations or by waiting on the side of the road prior to the POE. This documentation will be presented to the Customs agent by the driver at the superbooth. This process has the undesirable side effect of alerting potential smugglers of the inspection requirement and provides an opportunity to remove contraband.

When finished with Customs, the truck pulls forward to the next window where the Arizona MVD agent checks to see that the vehicle and driver comply with the laws and regulations of Arizona such as permit requirements, insurance, commercial driver's license (either Mexico or the U.S.) and payment of fees. Typically the vehicle has either a quarterly permit (15-20 percent of all trucks) or the broker has paid for a single-trip permit. The documents the broker has given to the driver include a paid copy of the Single-Trip Registration/Use Fuel/Motor Carrier form. A single-trip registration/use fuel/motor carrier registration costs $33 for a five axle tractor trailer for a trip in Arizona of 50 miles or less, which is sufficient to cover the round trip distance to a local warehouse or yard.

After the primary inspection, all released loads continue straight ahead to SR 189 (Mariposa Road). All others make a right turn into the compound. Those entering the compound include informal entries, formal entries not pre-filed through ABI and all trucks selected for secondary inspection (agricultural, food safety, product inspection, vehicle safety, contraband inspection or random inspection). Empty vehicles normally proceed directly to the exit, but may also be selected for secondary inspection. Drivers with empty trailers are required to secure the trailer doors in the open position to expedite clearance through the port.

Informal entries are commercial products with a total value of less than $2,000. Informal entries must park their vehicles at the USCS docks and submit entry documents. After review of the documents by USCS, the vehicle/cargo may be inspected and then released to enter the U.S.

For formal entries not participating in the pre-clearance ABI program, the driver must park at a USCS dock and locate his broker to let him or her know the entry has arrived from Mexico. The broker then submits documents for USCS and, if necessary, USDA or FDA for review. The entry can then be held for further inspection or released for entry into the U.S. The west and south facing docks (approximately half of the compound dock space) are used for the two processes just described.

Since nearly half of all fresh fruits and vegetables imported from Mexico come through Nogales, the inspection process is especially noteworthy. USDA's mission, through the Animal and Plant Health Inspection Service (APHIS), is to protect U.S. agriculture against the importation of invasive species of plants, animal pests or diseases. USDA inspection frequency is based on risk. Two percent of Border Cargo Release shipments are sampled, i.e. shipments containing "low-risk" fruit and vegetable commodities that are unlikely to contain pests. Commodities considered "high-risk" have 100 percent of the loads inspected.

In any given growing season, 75 to 80 percent of the Nogales volume is classified as low-risk. This results in a USDA inspection on more than 20 percent of all agricultural loads. The inspections are conducted on the 22 east-facing docks in the compound with occasional overflow to the south-facing docks. During peak periods, USDA feels they could use all 99 docks at the Mariposa compound. The trucks are unloaded for the inspection or partially unloaded (because of the short dock depth, there is insufficient space for most large trailers to be fully unloaded). Two percent of the cartons in the load are randomly selected and examined. The interior of the cab and exterior of the vehicle may also be inspected for contraband or hitchhiking pests.

While the trucks are unloaded, Customs or other agencies may also inspect the load or vehicle. A single contractor is responsible for unloading and reloading vehicles for product inspection, providing increased control over non-government personnel on the docks.

It would be beneficial if a portion of the docks were refrigerated to maintain the cold chain (abuse in the cold chain is not often immediately noticeable, but results in shortened shelf life for the retailer or consumer). Of the produce shipped through Nogales, approximately 15 percent should be maintained at temperatures of 32 to 36 degrees, 10 percent at 36 to 45 degrees and 75 percent at 45 to 60 degrees.

As an alternative to inspections at the border, USDA will seal a trailer at the border (inside the compound) and conduct the inspection at a local distributor's warehouse. Only one distributor uses this service. The distributor is responsible for providing inspection tables, good lighting and safe working conditions. There is no charge for this service as long as the inspection can be done between 8 a.m. and 5 pm. In addition to fruits and vegetables, USDA inspects wood products, cut flowers, meat and animal products, agricultural equipment, soil samples, dried herbs and seeds.

The U.S. Food and Drug Administration (FDA) also inspects fresh fruits and vegetables as well as processed foods, drugs, biologics, cosmetics, medical devices and electronic products that emit radiation. The FDA's mission is to enforce the Federal Food Drug and Cosmetic Act and other laws which are designed to protect consumers' health and safety. FDA is automatically notified of all regulated shipments through its Operational and Administrative System for Import Support (OASIS), which has an interface to Customs' ACS. If a decision is made not to inspect or collect a sample, FDA sends a "May Proceed Notice" to Customs and the importer of record. If FDA decides to examine an entry, Customs and the importer of record will be sent a "Notice of Sampling" and an FDA representative will generally collect a sample for laboratory evaluation.

FDA samples requiring microbial testing are shipped to FDA labs in Denver or Los Angeles. Loads are to be held intact until the results are known usually two to seven days after the samples are received and tested at the lab. If the product is refused, the importer is required to either re-export or destroy the product under Customs or other approved supervision. The Fresh Produce Association has requested that FDA provide for laboratory testing close to the Nogales border to minimize product deterioration and delay.

All trucks directed into the compound for safety inspections or overweight go to the recently opened annex east of the inspection docks. Here, USDOT or Arizona DPS personnel conduct intensive Level 1 or Level 2 safety inspections. Trucks and trailers that pass the more stringent Level 1 inspection are issued a Commercial Vehicle Safety Alliance (CVSA) decal valid for three months and are

entered into the national database. Overweight vehicles are held at the compound to allow part of the load to be transferred or off-loaded until the vehicle is in compliance. Overweight trucks have virtually disappeared with the current inspection system and procedures. Trucks failing a DPS or USDOT safety inspection are detained in the compound until repairs are made, or the vehicle is towed to a repair facility. Two covered inspection pits and a static weight scale are scheduled to be added to the area in 2003.

A hazardous materials containment pit is included in the annex area. A significant number of northbound hazardous material shipments are waste materials being returned to the U.S. NAFTA rules require that all hazardous waste be returned to the country that originated the hazardous material. The largest volume of hazardous material processed through Nogales is sulfuric acid, which is shipped by rail car.

Other inspections in the compound include intensive physical inspections conducted on the north facing docks and non-intrusive x-ray and gamma-ray inspections. X-ray is primarily used for empty trailers and gamma-ray for loaded trailers because of its superior capability to image dense cargoes. These devices are on the northern edge of the compound.

When all inspections are complete, the driver's paperwork should be stamped as released by each agency requesting an inspection and the shipment can proceed to the exit on the west side of the compound where this is verified.

When a load of produce is released, it is usually delivered to a nearby distributor where it is warehoused on behalf of the grower until sold–usually within a few days. Note that in a distance of less than 20 miles, many produce loads may be unloaded and reloaded two or three times, due to the requirements for grading, inspection and distribution. A CyberPort objective should include combining more of these functions in a single stop. Safety and drug inspections could also be included. For perishable products, the cost is not only time and handling expense, but product degradation due to delay and breaks in the cold chain.

Customs and the other agencies at the Nogales border report good cooperation among agencies and short northbound crossing times for most commercial vehicles (their time measures begin with the entry in the U.S. compound). The performance measures of success should be measured by the total border crossing time that includes Mexican customs, the time on the highway leading to the US border and by minimum variability of time.

Southbound Process Flow

Southbound commercial shipments also travel through the Mariposa border crossing. For each southbound shipment, U.S. exporters or their agents (usually a forwarder or carrier) must file a Shipper's Export Declaration (SED) with U.S. Customs, if the shipment meets minimum valuation requirements. U.S. agricultural exports are inspected by Mexican officials (SAGARPA) at designated warehouses on the U.S. side prior to arrival at the border. Mexico also requires a Phytosanitary Certificate for nearly all agricultural products. If this document was not prepared at the shipping location, then the forwarder will request an inspection and certificate from either the USDA or the Arizona Department of Agriculture.

Grain is frequently shipped by rail to Mexico. To issue a certificate, the car is put on a siding in Rio Rico so the sample can be pulled and inspected before the car crosses the border at Grand Avenue. Usually this can be completed in 2-3 hours.

All southbound trucks and personal vehicles are subject to Mexican Customs regulations and inspection at the south end of the Corridor Fiscal. Trucks and personal vehicles bound for the interior of Mexico obtain Mexican trip permits at the 21-kilometer point in Mexico on Interstate Highway 15.

Mariposa Commercial Cargo Statistics

The seasonal nature of fresh produce imports cause the commercial cargo facility to process high volumes during the winter and much lower volumes in the summer. During 2001, the port processed more than 20,000 loaded trailers per month from January to May, with a peak of almost 25,000 trailers in March. This dropped to fewer than 10,000 trailers per month from July through October, with a low of slightly less than 7,000 trailers in September. This seasonal pattern is the most pronounced among all commercial cargo facilities along the Southwestern border. Northbound empty trailers passed through the port at a fairly consistent rate averaging just over 5,000 trailers per month. In 2001, Nogales received 5.8 percent of all northbound trucks on the U.S.-Mexican border and 7.9 percent of all loaded trucks. All other Arizona ports received an additional 2.0 percent of the total northbound trucks and 1.8 percent of the loaded trucks.

Fresh fruit and vegetable imports through Nogales finished the 2001-2002 season at greater than 3.34 billion pounds according to USDA marketing reports. Nogales' market share of Mexican fruits and vegetables imported into the U.S. have declined steadily from 51 percent in 1997-1998 to a little less than 44 percent in 2001-2002. Annual weights by border crossing are displayed in Exhibit 7 for major ports-of-entry. The loss in market share can be measured in two ways: 1) items such as tomatoes and cucumbers, where Nogales traditionally had the majority of import volume, represented a smaller share of total imports from Mexico in recent seasons and 2) Nogales has lost market share to other ports-of-entry on these key items.

Exhibit 7: U.S. Fresh Fruit and Vegetable Imports by Port

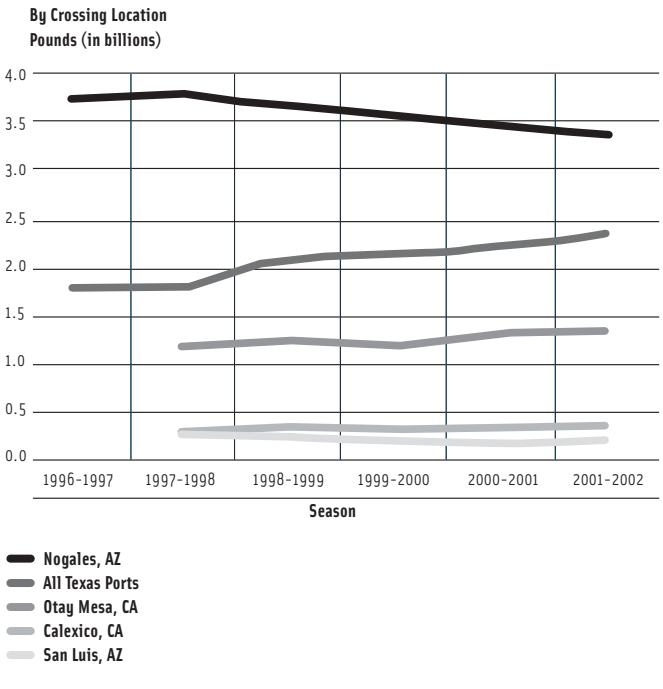


Exhibit 8: U.S. Fresh Fruit and Vegetable Imports by Commodity

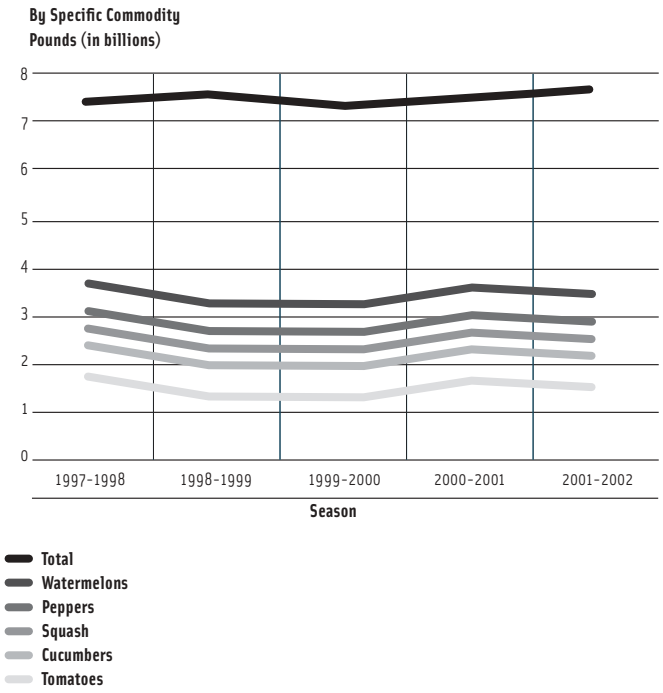


Exhibit 7: USDA AMS data. See Appendix
Exhibit 8: USDA AMS data. See Appendix

For example, the top five items imported through Nogales are tomatoes, cucumbers, squash, bell peppers and watermelon. These five items represented almost 49 percent of all fruit and vegetable imports from Mexico in the 1997-1998 season, but only 45 percent in 2001-2002. The combined weight of these items decreased almost five percent during the same period while the total weight for all fruits and vegetables increased by three percent (see Exhibit 8). At the same time, the percentage of these five items imported through Nogales declined from 75.2 percent to 67.7 percent while the Texas share increased from 5.8 percent to 11.0 percent and the Otay Mesa, California share increased from 17.8 percent to 20.5 percent. According to Art Muchow of the USDA office in Phoenix, about 96 percent of fruit and vegetable imports shipped through Texas, cross through Pharr, Texas, but the Pharr data is not reported separately.

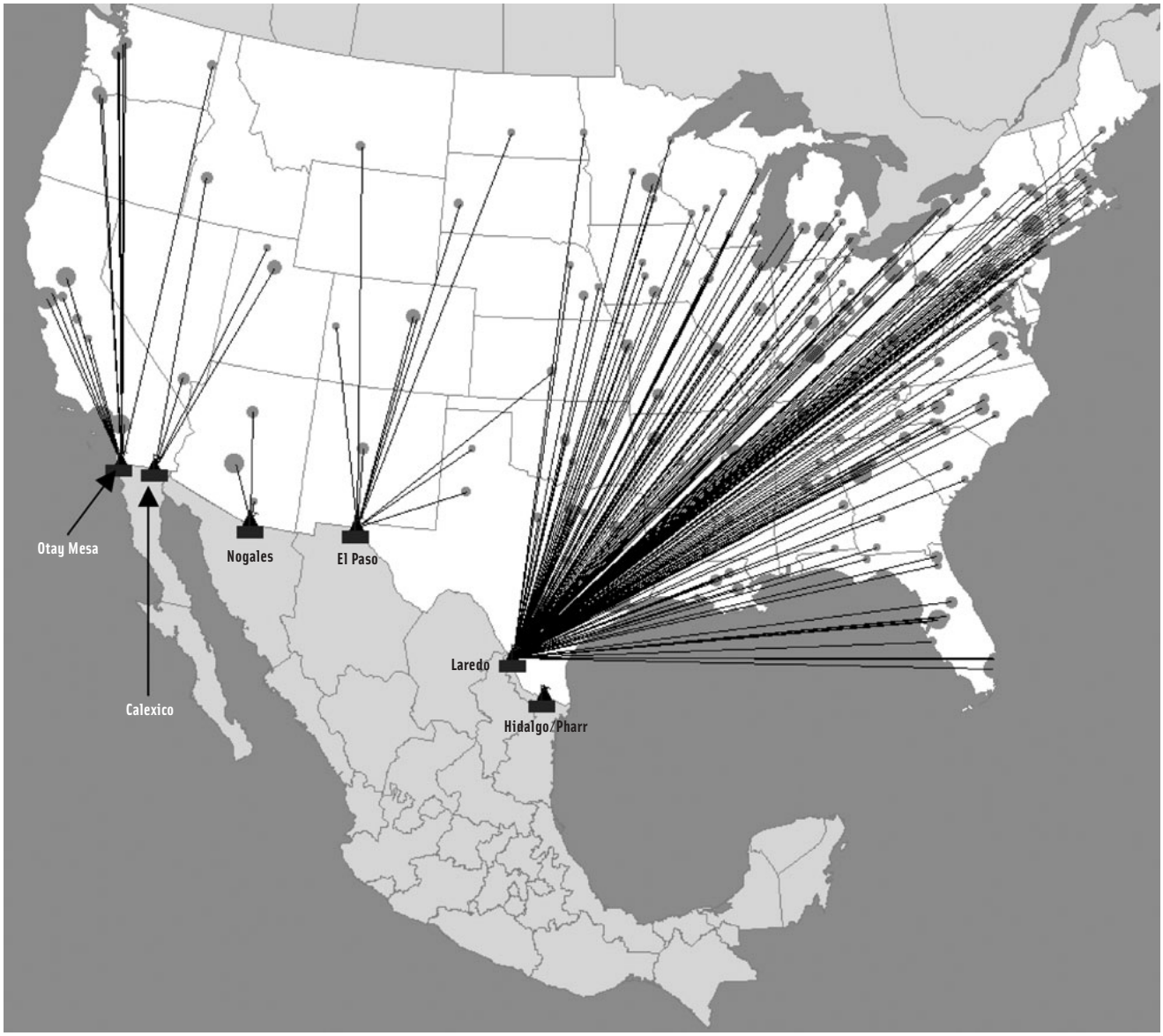
In contrast, the top item imported through Texas is limes, which is also one of the fastest growing imports from Mexico. Lime imports have increased 62 percent from the 1996-1997 season to 2001-2002. Most of this product originates in Veracruz and 96 percent is imported through Texas. A detailed summary of the types and volumes of produce imported through Nogales and other major ports-of-entry on the southwest border can be found in Appendix 2.

The reasons why Nogales is losing share of market are not clear, but new growing areas closer to California and Texas may be a contributing factor and long wait times at the border in Nogales undoubtedly contribute, as well. A Los Angeles importer of fresh berries reportedly uses San Luis, Arizona as its crossing point because there is less risk of delay. Berries are high in value and have less shelf life than other fruits and vegetables, so shipment delays are especially costly. Some of the Sinaloa growers are reportedly experimenting with shipments to Pharr instead of Nogales. One reason suggested is the ability to ship overweight trucks across the Texas border to distributor warehouses in Pharr as opposed to being checked for weight at the border in Nogales. This advantage should be temporary, if the USDOT follows through on its plan to install weight scales at all border crossings. Trucks destined for Nogales may also be overweight enroute to the border, but the excess product must be transferred to another truck before crossing the border. Another possible reason is buyers in the U.S. pay the freight charges from the distributor warehouse at the border to their warehouses, while growers pay the freight charges from the packing house to the distributor warehouse. For eastern and midwestern buyers, Pharr is closer and the freight is cheaper from Pharr compared to Nogales, so buyers are trying to buy more produce in Pharr.

Nogales as a Distribution Location

Primarily considering transportation infrastructure and all other factors being equal, each of the major border points and the surrounding commercial zone has a natural distribution territory defined by its proximity to major cities compared to the other border points. Exhibit 9 shows that Nogales is the optimum crossing point only for cities in Arizona. Calexico is closer to most other cities in the CANAMEX corridor; Otay Mesa is closest to the west coast states; El Paso is closest to the mountain states; and, Laredo is the optimum crossing point for the central and eastern U.S. To the south, Nogales has a geographic advantage for goods traveling to or from western Mexico. Consequently, to attract additional business to the region and through the port, Nogales must rely heavily on other competitive advantages such as an efficient border crossing for commerce, an efficient border crossing for employees who choose to live and work on opposite sides of the border, excellent support services, high quality of labor, high quality of life, etc.

Exhibit 9: Optimum Border Point for Select U.S. Cities



Recommendations

The recommendations listed below require additional investigation to determine feasibility and benefits. In some cases, a recommendation may be an alternative to another recommendation.

1 Expand the number of arrival lanes at the Mariposa POE beginning with the bridge on the north end of the Corridor Fiscal and continuing through the drug screening area and the superbooths. This will increase capacity and flexibility while giving inspectors the option to take a little more time during the screening process. It may also permit the addition of express lanes for pre-cleared commuters and commercial vehicles. Options for lane expansion should consider a second bridge deck, as well as adding lanes horizontally.

2 Move all inspection functions, or at least primary inspection, south of the border where more space may be available to construct an adequate number of inspection lanes to maintain a smooth flow of traffic across the border. This would have all the benefits of recommendation number one and by preventing suspect cargo from reaching the bridge, would provide physical security to the bridge as well.

3 Dedicate the Mariposa border crossing to commercial truck traffic to reduce congestion and increase the throughput capacity. Create a new border crossing for passenger vehicles.

4 Provide adequate staffing and extend the hours of operation at the Mariposa POE and all related entities, including warehousing, Mexican Customs, et al, to increase throughput capacity during peak periods. Form a user group to coordinate hours and encourage use during the new hours of operation. Consider also the return trip so truckers can cross back into Mexico after unloading.

5 Measure total border crossing time and set improvement objectives for time reduction. Attempt to provide flexibility to maintain consistent border crossing times regardless of daily/seasonal volume fluctuations.

6 Provide more docks and more dock space for USDA inspections.

7 Provide space and agency coordination so produce inspections and product grading can be completed in a single stop.

8 A portion of the Mariposa secondary inspection docks should be refrigerated to maintain the cold chain (abuse in the cold chain is not often immediately noticeable, but results in shortened shelf life for the retailer or consumer). Of the produce shipped through Nogales, approximately 15 percent should be maintained at temperatures of 32 to 36 degrees, 10 percent at 36 to 45 degrees and 75 percent at 45 to 60 degrees.

9 Provide an FDA laboratory at or near the port or have tests performed by the Arizona Department of Agriculture laboratories in Phoenix. The transit time for samples to reach FDA laboratories in Denver and Los Angeles delays shipments unnecessarily.

10 Add an intermediate access to the Corridor Fiscal to reduce travel distance and time between industrial parks in Nogales, Sonora and the Mariposa POE. This would benefit maquiladora commuters and trucking.

11 Provide a computer system interface between USDA and Customs' ACS, or its successor, to eliminate the current manual process whereby brokers must bring import documents for "low-risk" agricultural commodities to USDA to be stamped with a notice of whether or not sampling will be required when the shipment arrives at the Mariposa POE.

12 Implement the automation and communication processes that were tested in Nogales as part of the North American Trade Automation Prototype (NATAP).

13 Request permission from the Mexican government for electronic communication between the facilities in Mexico, where the Arizona Department of Agriculture conducts AMS grading services, and their offices across the border.

14 Provide assistance programs to help Mexican truck drivers obtain the necessary documents (passport, visa, or commercial driver's license) to drive their own trucks across the border (within the 20 mile border zone) and not be dependent on the limited supply of temporary drivers that wait at the border.

15 Provide education and quality of life improvements in the Nogales area to enhance recruitment and retention of maquiladora firms and employees.

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Appendix

Abbreviations

ABI
Automated Broker Interface

ACS
Automated Commercial System

ADOT
Arizona Department of Transportation

AES
Automated Export System

APHIS
Animal and Plant Health Inspection Service

POE
Port-of-Entry

CAADES
Confederacion de Asociaciones Agricolas del Estado de Sinaloa

CVSA
Commercial Vehicle Safety Alliance

DPS
Department of Public Safety (Arizona)

FDA
Food & Drug Administration

INS
Immigration and Naturalization Service

MVD
Motor Vehicle Division (Arizona)

NATAP
North American Trade Automation Prototype

TECS
Treasury Enforcement Communication System

UP
Union Pacific Railroad

USCS
United States Customs Service

USDA
United States Department of Agriculture

USDOT
United States Department of Transportation

VACIS
Vehicle and Cargo Inspection System

Fresh Fruit/Vegetable Shipments, Mexico

Table 1
Total Fresh Fruit and Vegetable Imports (excluding New Mexico)

Table 2
Nogales Fresh Fruit and Vegetable Imports

Table 3
Texas Fresh Fruit and Vegetable Imports

Table 4
Otay Mesa Fresh Fruit and Vegetable Imports

Table 5
Calexico Fresh Fruit and Vegetable Imports

Table 6
San Luis Fresh Fruit and Vegetable Imports

Data Source
USDA AMS – Phoenix and Oakland offices

Total Fruit and Vegetable Imports from Mexico – Weight in Pounds

Commodities	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Apple	0	0	0	0	30,884	0
Artichoke	0	4,180,000	3,273,155	4,680,941	2,083,554	2,877,498
Asparagus	10,948,069	66,680,478	87,140,444	92,524,128	87,163,489	86,054,378
Avocado	0	12,953,225	20,281,242	24,003,687	20,625,054	42,935,512
Bananas	169,401,994	228,581,706	154,208,213	135,058,543	105,302,948	103,172,589
Beans, green	42,991,689	41,220,060	46,962,926	56,640,179	56,451,360	61,697,004
Broccoli	47,389,321	91,348,918	92,454,378	101,319,556	123,040,861	125,095,313
Brussels spouts	0	16,790,000	13,814,388	15,686,869	15,221,844	16,010,164
Beets	770,000	7,510,160	7,359,433	7,595,861	6,946,737	5,737,050
Cabbage	15,940,018	38,770,244	35,802,110	35,224,561	70,426,036	57,564,404
Cantaloupes	321,625,035	358,772,373	452,710,736	389,153,492	250,383,841	159,758,924
Carrots	74,240,000	66,944,329	104,627,061	81,163,383	96,839,264	93,551,776
Cauliflower	530,000	4,586,410	2,546,617	3,683,632	4,194,145	5,067,916
Celery	4,309,210	96,604,586	95,387,858	60,976,748	76,830,213	93,454,540
Chinese cabbage	3,600,000	7,720,102	7,739,307	3,767,706	3,207,256	7,154,021
Cherries	0	0	0	0	32,881	0
Corn	59,641,971	67,236,156	88,819,130	88,977,837	81,992,179	80,129,655
Cucumbers	574,798,516	612,687,185	650,712,395	624,379,737	675,212,359	657,674,463
Eggplant	67,775,627	83,725,132	80,668,248	86,547,788	85,275,526	87,717,281
Endive	0	460,000	220,000	82,985	485,713	814,986
Escarole	0	180,000	0	79,619	229,547	124,996
Fruit other	6,070,000	12,829,435	27,541,007	18,892,638	20,719,903	42,892,503
Garlic	16,911,708	37,456,207	33,081,382	38,843,886	36,912,353	24,322,710
Greens	0	23,930,000	21,315,322	15,593,458	25,528,732	27,512,394
Grapes, table	138,175,326	199,287,471	172,450,841	200,957,317	166,565,751	214,311,154
Honeydew melons	170,954,072	183,271,031	245,171,428	208,625,492	164,406,307	160,618,883
Lemon	0	210,000	230,000	889,211	980,396	1,513,306
Lettuce	4,592,717	19,252,284	23,215,908	20,073,774	32,287,487	110,179,226
Lettuce other	0	7,380,000	6,820,000	3,138,576	14,567	0
Lettuce p	0	0	90,001	0	0	0
Lettuce romaine	0	9,350,000	5,860,000	2,449,241	0	0
Limes	375,122,429	445,070,169	442,465,195	533,381,564	551,973,591	609,123,478
Mangoes	342,440,000	364,791,381	364,110,986	422,133,846	344,521,828	361,310,012
Misc. Berries	0	140,000	1,790,141	4,004,952	6,749,669	9,072,645
Misc. Citrus	0	60,000	47,600	125,360	30,140	255,051
Misc. Herb	18,810,000	46,182,014	45,110,640	47,385,373	61,997,597	59,020,966
Misc. Oriental veg	2,230,000	10,503,982	8,400,663	54,685,915	44,098,865	52,727,451

Note: All totals exclude New Mexico. 1996-1997 excludes all but Nogales and Texas.

Total Fruit and Vegetable Imports from Mexico – Weight in Pounds (continued)

Commodities	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Misc. Tropical fruit	18,110,000	95,596,455	158,596,153	190,948,277	202,334,949	212,506,284
Mixed melons	4,039,646	11,193,014	10,518,117	12,552,202	7,365,278	5,844,461
Mushrooms	0	0	0	759	0	0
Okra	0	0	0	52,418	12,203,751	12,522,258
Onions, dry	255,127,795	238,177,153	308,310,177	232,517,906	243,227,422	219,359,494
Onions green	5,767,965	271,744,841	268,344,135	267,962,866	273,094,616	292,018,927
Oranges	20,475,020	19,722,111	121,810,753	21,720,629	32,294,128	38,299,964
Papaya	70,499,723	114,445,284	160,411,196	120,281,807	151,642,768	153,804,248
Parsley	1,050,000	12,661,436	11,763,912	10,344,378	12,319,307	11,209,811
Pear	0	0	0	0	0	3,870
Peas, green	6,316,170	13,237,688	16,839,331	13,240,502	12,966,330	16,165,188
Peas other	0	80,000	110,000	10,680	56,782	36,200
Pepper California wonder	318,102,269	329,308,577	356,783,238	348,919,071	308,045,880	367,936,234
Pepper other types	122,304,210	229,633,750	247,541,941	258,423,811	275,186,902	281,079,185
Pineapple	25,860,000	51,537,494	39,928,873	40,497,270	69,537,942	56,582,339
Plantain	0	380,000	10,000	30,778	14,541	3,163
Plum	0	0	0	0	546	5,526
Pumpkin	0	30,000	0	54,298	226,103	43,084
Radish	207,272	42,229,547	50,563,520	48,055,824	50,802,199	52,768,999
Raspberry	0	850,000	1,773,035	2,346,332	2,821,588	4,118,581
Spinach	3,400,000	8,884,749	8,381,277	10,245,179	17,763,249	15,836,874
Squash	425,946,078	457,879,378	426,317,478	396,311,758	398,528,766	433,837,008
Strawberry	7,080,000	54,435,802	98,978,314	75,594,848	65,647,839	87,660,021
Tangerine	8,000,000	2,169,217	4,246,572	11,192,438	9,690,776	7,160,000
Tomatoes	1,224,390,804	1,704,083,410	1,339,347,925	1,374,552,599	1,610,427,080	1,480,225,678
Turnip	0	170,000	996,305	721,730	2,492,723	786,845
Vegetables other	16,100,000	61,469,732	28,609,814	28,713,619	35,198,123	41,330,012
Watermelons	540,926,738	511,725,975	591,365,611	606,996,686	536,997,934	504,149,177
Total	**5,542,971,392**	**7,398,310,651**	**7,593,976,432**	**7,455,016,520**	**7,549,650,399**	**7,654,745,680**
Nogales Items						
Top 5	3,084,164,405	3,615,684,525	3,364,526,647	3,351,159,851	3,529,212,019	3,443,822,560
2nd 5	1,095,498,643	1,335,756,006	1,481,985,932	1,479,293,958	1,201,064,629	1,177,078,158
3rd 5	193,114,307	222,407,441	346,661,720	308,572,348	300,112,058	320,571,355

Note: All totals exclude New Mexico. 1996-1997 excludes all but Nogales and Texas.

Nogales, AZ – Fruit and Vegetable Imports From Mexico – Weight in Pounds

Commodities	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Apple	0	0	0	0	0	0
Artichoke	0	0	0	0	0	0
Asparagus	88,069	75,314	2,092,214	1,093,951	874,503	500,000
Avocado	0	0	0	0	0	0
Bananas	1,321,994	502,895	1,027,929	400,685	700,159	890,000
Beans, green	39,071,689	32,663,555	32,966,701	42,985,164	43,542,592	44,310,000
Broccoli	1,619,321	4,747,525	7,872,701	6,302,098	7,148,549	4,300,000
Brussels spouts	0	0	0	0	160,000	430,000
Beets	0	0	0	0	0	20,000
Cabbage	1,080,018	2,156,552	1,646,207	1,201,112	2,553,722	1,070,000
Cantaloupes	187,505,035	217,303,239	316,661,096	266,179,588	181,505,482	96,330,000
Carrots	0	0	0	0	180,000	1,710,000
Cauliflower	0	0	0	0	30,000	1,190,000
Celery	2,849,210	4,178,765	2,690,313	3,592,121	6,175,238	2,980,000
Chinese cabbage	0	0	0	0	0	0
Cherries	0	0	0	0	0	0
Corn	57,581,971	62,448,059	82,072,715	80,695,221	73,626,708	71,260,000
Cucumbers	568,268,516	506,657,605	510,822,974	460,008,839	497,141,932	464,340,000
Eggplant	67,345,627	81,191,465	77,761,382	85,264,502	84,128,484	87,580,000
Endive	0	0	0	0	0	0
Escarole	0	0	0	0	0	0
Fruit other	0	0	0	0	1,600,000	3,100,000
Garlic	561,708	819,467	970,064	1,689,055	556,802	80,000
Greens	0	0	0	0	0	390,000
Grapes, table	138,175,326	198,307,471	171,920,841	198,396,657	161,118,357	208,140,000
Honeydew melons	108,304,072	115,105,253	156,909,969	123,593,190	103,252,937	114,410,000
Lemon	0	0	0	0	0	80,000
Lettuce	772,717	3,674,685	5,840,995	2,830,489	6,590,280	18,920,000
Lettuce other	0	0	0	0	0	0
Lettuce p	0	0	0	0	0	0
Lettuce romaine	0	0	0	0	0	0
Limes	1,262,429	1,970,619	3,361,652	6,252,308	3,077,722	6,240,000
Mangoes	154,960,000	157,362,282	144,980,247	174,474,501	134,972,701	130,700,000
Misc. Berries	0	0	0	0	1,360,000	1,210,000
Misc. Citrus	0	0	0	0	0	0
Misc. Herb	0	0	0	450,000	380,000	380,000
Misc. Oriental veg	0	0	0	50,290,000	39,270,000	46,410,000

Nogales, AZ – Fruit and Vegetable Imports From Mexico – Weight in Pounds (continued)

Commodities	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Misc. Tropical fruit	0	0	0	17,150,000	21,090,000	17,930,000
Mixed melons	4,039,646	8,233,014	3,895,800	7,965,091	4,211,458	670,000
Mushrooms	0	0	0	0	0	0
Okra	0	0	0	50,000	0	0
Onions, dry	18,767,795	28,191,024	42,881,515	33,025,366	33,176,144	14,930,000
Onions green	1,327,965	2,388,487	2,355,009	2,295,072	2,442,893	1,820,000
Oranges	20,085,020	19,679,288	108,599,083	20,025,374	29,918,167	33,020,000
Papaya	9,829,723	11,364,189	5,745,034	5,840,549	5,966,572	6,590,000
Parsley	0	0	0	0	0	0
Pear	0	0	0	0	0	0
Peas, green	3,936,170	2,521,913	2,115,979	1,969,933	1,575,084	3,270,000
Peas other						
Pepper California wonder	313,572,269	273,077,477	307,553,034	320,910,256	247,478,606	308,950,000
Pepper other types	86,274,210	99,636,875	86,978,613	91,002,894	95,887,891	91,460,000
Pineapple	0	0	0	90,000	190,000	510,000
Plantain	0	0	0	0	0	0
Plum	0	0	0	0	0	0
Pumpkin	0	0	0	0	0	0
Radish	207,272	359,547	564,271	1,062,258	647,041	680,000
Raspberry	0	0	0	0	0	140,000
Spinach	0	0	0	0	20,000	30,000
Squash	405,956,078	405,026,000	352,995,372	332,792,333	327,748,287	351,000,000
Strawberry	0	0	0	0	0	0
Tangerine	0	0	0	0	590,000	110,000
Tomatoes	1,171,630,804	1,187,188,751	893,978,343	904,984,954	1,054,836,310	943,960,000
Turnip	0	0	0	0	0	0
Vegetables other	0	0	0	0	0	10,000
Watermelons	351,606,738	348,365,975	343,125,098	299,746,492	264,119,144	264,000,000
Total	**3,718,001,392**	**3,775,197,291**	**3,670,385,151**	**3,544,610,053**	**3,439,843,765**	**3,346,050,000**
Nogales Items						
Top 5	2,811,034,405	2,720,315,808	2,408,474,821	2,318,442,874	2,391,324,279	2,332,250,000
2nd 5	675,218,643	787,715,120	877,450,766	853,646,830	676,737,368	641,040,000
3rd 5	184,084,307	195,982,367	301,399,881	279,260,261	270,485,951	282,580,000
All others	47,664,037	71,183,996	83,059,683	93,260,088	101,296,167	90,180,000

Texas – Fruit and Vegetable Imports From Mexico – Weight in Pounds

Commodities	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Apple	0	0	0	0	0	0
Artichoke	0	0	0	0	0	0
Asparagus	10,860,000	12,845,164	16,336,029	19,466,170	18,169,751	21,930,000
Avocado		12,893,225	20,281,242	23,966,371	20,625,054	42,900,000
Bananas	168,080,000	172,808,811	126,710,284	109,590,610	79,837,212	70,910,000
Beans, green	3,920,000	3,996,505	3,508,944	2,329,238	4,815,488	4,380,000
Broccoli	45,770,000	72,101,393	66,063,914	77,704,259	104,062,438	110,240,000
Brussels spouts	0	0	0	0	0	0
Beets	770,000	270,160	1,003,246	545,646	350,751	330,000
Cabbage	14,860,000	26,843,692	19,697,402	17,942,270	46,251,987	37,510,000
Cantaloupes	134,120,000	118,099,134	118,737,997	107,021,066	62,689,894	60,630,000
Carrots	74,240,000	48,894,329	86,760,653	71,295,653	92,496,661	88,320,000
Cauliflower	530,000	1,886,410	456,617	1,359,566	1,419,691	1,480,000
Celery	1,460,000	2,035,821	1,480,931	1,133,978	6,028,838	890,000
Chinese cabbage	3,600,000	3,650,102	3,889,308	2,713,617	1,774,185	6,240,000
Cherries	0	0	0	0	0	0
Corn	2,060,000	3,488,097	5,538,252	6,401,143	5,969,067	6,880,000
Cucumbers	6,530,000	13,599,580	13,143,947	15,068,528	17,051,541	15,710,000
Eggplant	430,000	193,667	662,329	845,549	986,853	10,000
Endive	0	0	0	0	0	0
Escarole	0	0	0	0	0	0
Fruit other	6,070,000	6,819,435	4,561,007	6,708,038	7,240,856	8,770,000
Garlic	16,350,000	30,696,740	22,291,318	26,303,866	26,022,352	12,650,000
Greens	0	0	0	0	4,569,433	11,060,000
Grapes, table	0	0	0	0	0	0
Honeydew melons	62,650,000	49,575,778	67,939,496	72,739,712	53,929,895	43,170,000
Lemon	0	0	0	0	0	0
Lettuce	3,820,000	7,337,599	7,104,912	6,353,871	12,452,883	78,340,000
Lettuce other	0	0	0	0	0	0
Lettuce p	0	0	0	0	0	0
Lettuce romaine	0	0	0	0	0	0
Limes	373,860,000	432,719,550	424,612,687	510,026,772	528,417,738	585,430,000
Mangoes	187,480,000	203,649,099	214,330,739	244,983,994	209,004,185	228,650,000
Misc. Berries	0	0	1,017,205	2,585,895	3,663,630	5,090,000
Misc. Citrus	0	0	0	0	0	0
Misc. Herb	18,810,000	25,162,014	25,336,829	26,109,711	36,569,912	34,530,000
Misc. Oriental veg	2,230,000	2,073,982	2,477,329	1,430,954	1,738,638	3,190,000

Texas – Fruit and Vegetable Imports From Mexico – Weight in Pounds (continued)

Commodities	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Misc. Tropical fruit	18,110,000	28,286,455	45,579,045	51,136,290	62,525,214	64,930,000
Mixed melons	0	0	0	0	0	0
Mushrooms	0	0	0	0	0	0
Okra	0	0	0	0	12,198,858	12,520,000
Onions, dry	236,360,000	198,706,129	245,290,853	180,804,887	188,919,817	193,180,000
Onions green	4,440,000	4,496,354	4,533,423	5,651,050	8,573,682	8,420,000
Oranges	390,000	42,823	5,301,670	1,695,238	1,548,869	4,190,000
Papaya	60,670,000	62,921,095	53,899,431	49,088,122	71,821,484	72,990,000
Parsley	1,050,000	831,436	1,290,934	742,796	1,514,621	1,730,000
Pear	0	0	0	0	0	0
Peas, green	2,380,000	3,195,775	4,731,837	4,167,565	4,733,808	4,780,000
Peas other	0	0	0	0	0	0
Pepper California wonder	4,530,000	4,521,100	2,583,236	3,453,218	4,600,533	5,260,000
Pepper other types	36,030,000	49,076,875	66,132,411	68,395,252	77,789,781	87,770,000
Pineapple	25,860,000	43,237,494	34,022,269	33,624,007	51,565,579	38,450,000
Plantain	0	0	0	0	0	0
Plum	0	0	0	0	0	0
Pumpkin	0	0	0	0	0	10,000
Radish	0	0	0	0	1,250,000	3,420,000
Raspberry	0	0	0	0	0	420,000
Spinach	3,400,000	934,749	2,081,278	3,089,993	8,057,444	6,190,000
Squash	19,990,000	17,253,378	23,148,384	18,949,101	21,090,978	27,150,000
Strawberry	7,080,000	4,315,802	7,668,314	7,282,242	7,110,740	9,890,000
Tangerine	8,000,000	2,169,217	4,246,572	11,192,438	9,097,256	7,050,000
Tomatoes	52,760,000	36,494,659	62,325,703	67,732,919	91,668,156	98,130,000
Turnip						
Vegetables other	16,100,000	5,279,732	9,329,814	11,129,851	14,633,020	17,550,000
Watermelons	189,320,000	139,590,000	224,855,420	300,815,950	267,412,234	234,240,000
Total	**1,824,970,000**	**1,852,993,360**	**2,050,963,211**	**2,173,577,396**	**2,252,251,007**	**2,377,510,000**
Nogales Items						
Top 5	273,130,000	211,458,717	326,056,690	406,019,716	401,823,442	380,490,000
2nd 5	420,280,000	420,400,886	467,140,643	493,140,024	403,413,755	420,220,000
3rd 5	9,030,000	9,795,074	17,488,524	12,702,122	15,058,915	18,650,000

Calexico, CA – Fruit and Vegetable Imports From Mexico – Weight in Pounds

Commodities	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Apple		0	0	0	0
Artichoke	3,080,000	2,275,196	3,173,447	1,414,977	1,081,180
Asparagus	23,630,000	35,762,200	41,425,494	49,647,174	40,744,650
Avocado	60,000	0	0	0	35,512
Bananas	150,000	60,000	11,750	18,114	0
Beans, green	370,000	264,588	760,338	418,444	1,798,088
Broccoli	3,130,000	3,477,763	2,191,928	1,271,748	2,450,105
Brussels spouts	1,390,000	1,244,388	2,127,792	3,063,710	3,390,975
Beets	800,000	1,526,992	2,085,169	1,897,951	1,512,853
Cabbage	3,220,000	3,868,500	5,443,917	6,661,453	5,198,637
Cantaloupes	2,700,000	1,913,816	143,024	142,868	28,108
Carrots	12,580,000	12,463,913	5,712,940	97,275	133,754
Cauliflower	2,090,000	1,640,000	2,264,501	2,234,651	1,599,949
Celery	34,620,000	35,081,829	10,758,278	12,192,705	9,728,965
Chinese cabbage	700,000	640,000	463,833	1,233,480	646,213
Cherries	0	0	0	0	0
Corn	10,000	170,000	0	9,867	216,460
Cucumbers	590,000	782,483	2,958,721	6,063,641	4,414,013
Eggplant	10,000	4,537	16,231	19,330	40,505
Endive	310,000	10,000	12,316	163,085	55,069
Escarole	130,000	0	47,042	120,717	39,071
Fruit other	290,000	13,790,000	7,437,600	4,732,449	22,360,976
Garlic	5,220,000	8,620,000	10,005,776	9,856,510	11,398,411
Greens	9,100,000	6,889,772	7,183,989	10,455,519	7,643,050
Grapes, table	0	180,000	1,310,660	5,309,468	5,650,425
Honeydew melons	5,020,000	2,825,632	0	1,534,295	424,122
Lemon	100,000	80,000	737,246	872,741	1,339,204
Lettuce	0	0	2,363,101	3,926,785	4,681,777
Lettuce other	7,380,000	6,740,000	2,592,814	0	0
Lettuce p	0	0	0	0	0
Lettuce romaine	7,570,000	5,860,000	2,449,241	0	0
Limes	220,000	46,380	60,737	120,001	63,879
Mangoes	0	0	0	0	0
Misc. Berries	0	0	0	0	8,235
Misc. Citrus	0	0	0	0	0
Misc. Herb	2,580,000	5,261,232	5,882,925	7,444,750	8,190,251
Misc. Oriental veg	3,810,000	1,233,335	1,750,030	2,547,756	2,593,937

Calexico, CA – fruit and Vegetable Imports From Mexico – Weight in Pounds (continued)

Commodities	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Misc. Tropical fruit	1,430,000	1,347,725	1,537,608	2,038,508	1,491,132
Mixed melons	1,010,000	2,058,311	1,329,661	281,694	897,472
Mushrooms	0	0	0	0	0
Okra	0	0	40	3,799	0
Onions, dry	6,910,000	15,045,353	10,605,104	8,978,604	1,342,537
Onions green	119,830,000	124,258,428	138,596,408	154,418,443	170,004,430
Oranges	0	0	0	0	0
Papaya	0	10,395	13,860	86,902	0
Parsley	4,170,000	5,989,014	5,248,541	6,504,508	6,091,034
Pear	0	0	0	0	0
Peas, green	10,000	41,516	102,166	62,533	205,838
Peas other	0	0	5,811	23,399	26,617
Pepper California wonder	3,140,000	4,136,968	3,587,384	3,293,693	3,194,986
Pepper other types	560,000	350,917	113,215	0	3,194
Pineapple	30,000	330	4,992	0	4,752
Plantain	0	0	0	0	0
Plum	0	0	0	0	0
Pumpkin	0	0	0	0	0
Radish	17,700,000	23,852,359	23,997,904	26,101,381	23,787,947
Raspberry	0	0	0	0	19,061
Spinach	3,560,000	3,500,000	3,752,900	6,187,247	5,286,255
Squash	4,930,000	6,242,661	3,345,184	3,655,250	3,498,542
Strawberry	0	0	0	7,375	21,513
Tangerine	0	0	0	0	0
Tomatoes	8,110,000	5,003,879	3,862,695	2,460,357	2,257,202
Turnip	50,000	817,865	455,308	2,153,201	598,793
Vegetables other	30,000	250,000	307,666	304,484	51,627
Watermelons	4,980,000	4,799,235	426,025	229,242	1,077,832
Total	**307,310,000**	**350,417,512**	**318,663,312**	**350,262,084**	**357,329,138**
Nogales items					
Top 5	21,750,000	20,965,226	14,180,009	15,702,183	14,442,575
2nd 5	8,280,000	5,270,365	1,566,899	6,986,631	6,105,849
3rd 5	4,200,000	1,672,460	2,526,599	2,995,397	4,648,990

Otay Mesa, CA – fruit and Vegetable Imports From Mexico – Weight in Pounds

Commodities	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Apple	0	0	0	30,884	0
Artichoke	0	160,000	1,222,905	326,879	506,175
Asparagus	650,000	1,290,000	3,421,567	5,941,185	5,681,114
Avocado	0	0	37,316	0	0
Bananas	55,120,000	26,410,000	25,055,498	24,747,463	31,372,589
Beans, green	3,750,000	9,920,000	10,421,887	7,647,967	11,201,071
Broccoli	2,740,000	4,000,000	2,922,124	4,381,890	4,465,644
Brussels spouts	15,290,000	12,570,000	13,559,077	11,998,134	12,189,189
Beets	5,920,000	3,960,000	4,001,939	3,829,983	3,228,705
Cabbage	830,000	310,000	2,283,264	3,122,276	3,118,803
Cantaloupes	7,550,000	9,580,000	14,884,256	5,590,569	1,309,924
Carrots	3,010,000	2,410,000	2,993,523	2,371,398	2,335,201
Cauliflower	330,000	420,000	28,756	2,827	23,938
Celery	35,020,000	39,040,000	27,686,550	34,069,658	52,711,258
Chinese cabbage	2,590,000	2,370,000	550,976	199,591	262,598
Cherries	0	0	0	32,881	0
Corn	1,280,000	960,000	1,881,473	2,175,056	1,773,195
Cucumbers	86,370,000	120,100,000	139,099,559	154,201,260	169,177,877
Eggplant	2,330,000	2,240,000	421,506	140,859	86,776
Endive	50,000	180,000	15,619	182,869	292,193
Escarole	0	0	0	0	3,696
Fruit other	5,720,000	9,110,000	4,645,603	7,079,538	8,076,479
Garlic	530,000	200,000	320,099	203,163	194,299
Greens	2,130,000	1,450,000	1,148,117	1,231,862	964,491
Grapes, table	60,000	200,000	1,250,000	102,381	520,729
Honeydew melons	330,000	570,000	4,113,779	492,582	34,320
Lemon	110,000	150,000	151,965	107,655	94,102
Lettuce	1,400,000	1,800,000	654,357	740,305	1,387,090
Lettuce other	0	0	0	0	0
Lettuce p	0	0	0	0	0
Lettuce romaine	0	0	0	0	0
Limes	10,090,000	14,400,000	16,984,127	20,133,124	17,046,713
Mangoes	3,780,000	3,890,000	20,000	115,698	99,757
Misc. Berries	40,000	30,000	5,608	0	229,539
Misc. Citrus	0	0	0	0	122,613
Misc. Herb	15,840,000	12,390,000	12,791,568	15,623,901	13,758,561
Misc. Oriental veg	3,670,000	2,570,000	709,319	177,508	377,897

Otay Mesa, CA – fruit and Vegetable Imports From Mexico – Weight in Pounds (continued)

Commodities	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Misc. Tropical fruit	64,200,000	110,060,000	119,287,636	115,119,631	126,164,620
Mixed melons	1,650,000	2,660,000	2,746,397	2,872,126	4,237,349
Mushrooms	0	0	759	0	0
Okra	0	0	2,378	1,094	2,258
Onions, dry	3,280,000	4,680,000	4,548,998	10,722,250	3,369,642
Onions green	36,080,000	45,200,000	45,240,159	39,302,855	53,739,426
Oranges	0	7,910,000	17	77,755	0
Papaya	40,150,000	100,750,000	65,313,263	73,729,013	74,164,303
Parsley	1,440,000	230,000	531,792	647,072	406,611
Pear	0	0	0	0	3,870
Peas, green	7,080,000	9,490,000	6,509,999	6,113,443	7,603,218
Peas other	80,000	110,000	3,056	33,383	9,583
Pepper California wonder	48,570,000	42,490,000	20,948,213	52,457,241	50,161,427
Pepper other types	80,360,000	93,890,000	98,912,450	101,509,230	101,845,991
Pineapple	8,240,000	5,900,000	6,742,444	17,665,321	17,572,884
Plantain	380,000	10,000	30,778	14,541	3,163
Plum	0	0	0	546	5,526
Pumpkin	30,000	0	54,298	226,103	33,084
Radish	7,630,000	11,590,000	11,148,549	13,458,004	17,832,693
Raspberry	0	0	256,026	107,041	139,624
Spinach	2,310,000	1,410,000	1,624,433	1,518,206	1,207,588
Squash	27,610,000	41,410,000	39,445,005	42,374,849	48,160,003
Strawberry	49,930,000	91,190,000	68,013,831	58,272,972	75,003,660
Tangerine	0	0	0	3,520	0
Tomatoes	472,150,000	377,820,000	397,972,031	461,205,360	435,469,637
Turnip	0	90,000	176,431	137,742	25,836
Vegetables other	56,060,000	18,950,000	17,276,102	20,250,963	23,424,696
Watermelons	9,530,000	4,330,000	4,813,726	4,629,078	2,394,913
Total	**1,183,290,000**	**1,252,850,000**	**1,204,881,108**	**1,329,450,685**	**1,385,628,141**
Nogales Items					
Top 5	644,230,000	586,150,000	602,278,534	714,867,788	705,363,857
2nd 5	92,080,000	108,130,000	119,180,485	107,810,460	103,810,721
3rd 5	11,030,000	23,600,000	13,434,202	10,219,145	13,438,939

San Luis, AZ – Fruit and Vegetable Imports From Mexico – Weight in Pounds

Commodities	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Apple	0	0	0	0	0
Artichoke	1,100,000	837,959	284,589	341,698	1,290,143
Asparagus	29,480,000	31,660,001	27,116,946	12,530,876	17,198,614
Avocado	0	0	0	0	0
Bananas	0	0	0	0	0
Beans, green	440,000	302,693	143,552	26,869	7,845
Broccoli	8,630,000	11,040,000	12,199,147	6,176,236	3,639,564
Brussels spouts	110,000	0	0	0	0
Beets	520,000	869,195	963,107	868,052	645,492
Cabbage	5,720,000	10,280,001	8,353,998	11,836,598	10,666,964
Cantaloupes	13,120,000	5,817,827	925,558	455,028	1,460,892
Carrots	2,460,000	2,992,495	1,161,267	1,693,930	1,052,821
Cauliflower	280,000	30,000	30,809	506,976	774,029
Celery	20,750,000	17,094,785	17,805,821	18,363,774	27,144,317
Chinese cabbage	780,000	839,999	39,280	0	5,210
Cherries	0	0	0	0	0
Corn	10,000	78,163	0	211,481	0
Cucumbers	5,470,000	5,862,991	7,244,090	753,985	4,032,573
Eggplant	0	0	0	0	0
Endive	100,000	30,000	55,050	139,759	467,724
Escarole	50,000	0	32,577	108,830	82,229
Fruit other	0	80,000	101,397	67,060	585,048
Garlic	190,000	1,000,000	525,090	273,526	0
Greens	12,700,000	12,975,550	7,261,352	9,271,918	7,454,853
Grapes, table	920,000	150,000	0	35,545	0
Honeydew melons	13,240,000	16,926,331	8,178,811	5,196,598	2,580,441
Lemon	0	0	0	0	0
Lettuce	6,840,000	8,470,001	7,871,956	8,577,234	6,850,359
Lettuce other	0	80,000	545,762	14,567	0
Lettuce p	0	90,001	0	0	0
Lettuce romaine	1,780,000	0	0	0	0
Limes	70,000	44,476	57,620	225,006	342,886
Mangoes	0	910,000	2,655,351	429,244	1,860,255
Misc. Berries	100,000	742,936	1,413,449	1,726,039	2,534,871
Misc. Citrus	60,000	47,600	125,360	30,140	132,438
Misc. Herb	2,600,000	2,122,579	2,151,169	1,979,034	2,162,154
Misc. Oriental veg	950,000	2,119,999	505,612	364,963	155,617

San Luis, AZ – Fruit and Vegetable Imports From Mexico – Weight in Pounds (continued)

Commodities	1997-1998	1998-1999	1999-2000	2000-2001	2001-2002
Misc. Tropical fruit	1,680,000	1,609,383	1,836,743	1,561,596	1,990,532
Mixed melons	300,000	1,904,006	511,053	0	39,640
Mushrooms	0	0	0	0	0
Okra	0	0	0	0	0
Onions, dry	1,090,000	412,456	3,533,551	1,430,607	6,537,315
Onions green	108,950,000	91,997,275	76,180,177	68,356,743	58,035,071
Oranges	0	0	0	749,337	1,089,964
Papaya	10,000	6,336	26,013	38,797	59,945
Parsley	6,220,000	4,253,964	3,821,249	3,653,106	2,982,166
Pear	0	0	0	0	0
Peas, green	430,000	459,999	490,839	481,462	306,132
Peas other	0	0	1,813	0	0
Pepper California wonder	0	20,000	20,000	215,807	369,821
Pepper other types	0	190,000	0	0	0
Pineapple	30,000	6,274	35,827	117,042	44,703
Plantain	0	0	0	0	0
Plum	0	0	0	0	0
Pumpkin	0	0	0	0	0
Radish	16,540,000	14,556,890	11,847,113	9,345,773	7,048,359
Raspberry	850,000	1,773,035	2,090,306	2,714,547	3,399,896
Spinach	2,080,000	1,389,999	1,777,853	1,980,352	3,123,031
Squash	3,060,000	2,521,061	1,780,135	3,659,402	4,028,463
Strawberry	190,000	120,000	298,775	256,752	2,744,848
Tangerine	0	0	0	0	0
Tomatoes	140,000	220,000	0	256,897	408,839
Turnip	120,000	88,440	89,991	201,780	162,216
Vegetables other	100,000	80,000	0	9,656	293,689
Watermelons	9,260,000	14,255,858	1,194,493	608,236	2,436,432
Total	**279,520,000**	**269,360,558**	**213,284,651**	**177,842,858**	**188,228,401**
Nogales Items					
Top 5	17,930,000	22,879,910	10,238,718	5,494,327	11,276,128
2nd 5	27,280,000	23,994,158	11,759,720	6,116,415	5,901,588
3rd 5	1,400,000	2,500,855	649,164	1,352,650	1,253,426

Legal Study

Prepared by National Law Center for Inter-American Free Trade
for the Nogales CyberPort Project

Contents

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Foreword

This report has been prepared for the Arizona Department of Transportation and the University of Arizona Office of Economic Development (UAOED) under contract with the National Law Center for Inter-American Free Trade (NLCIFT).

The purpose of this report is to provide an overview of the main legal issues to be addressed in order to undertake a modernization and redesign project for the Mariposa Customs Port of Entry located in Nogales, Arizona and Nogales, Sonora. Implicitly, such tasks must be complemented by modifications to the overall customs regulatory environment that would enable the efficient commercial flow of goods. Generally, it is important to point out that an ideal CyberPort that allows an efficient trade flow between Mexico and the United States would imply profound and detailed reforms to both countries' Customs regulations.

The scope of the present report will focus on current U.S. and Mexican Customs operative practices and legal issues that would arise due to the port's modernization project and that would ultimately promote the inbound and outbound commercial flow of goods through such port. This report also identifies mid (less than five years) to long-term goals (five years or more) in order to ultimately facilitate trade flow between the countries so that the CyberPort initiative can be carried out successfully.

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Executive Summary

The CyberPort model should be based on the premise that an efficient port-of-entry must strike an appropriate, albeit delicate, balance between customs enforcement and trade. While these two notions are not necessarily contradictory, customs and other port authorities have traditionally been faced with the ever-challenging dual mission of facilitating and expediting trade on the one hand, and responding to security and law enforcement concerns on the other. The dichotomy between enforcement and facilitation is obvious; border law enforcement chiefly deals with preventing the introduction of contraband (broadly defined). A sealed border promotes the law enforcement goal, just as a completely uncontrolled border allows unfettered commerce. Ideally, a state-of-the art facility would achieve both goals, alongside the revenue collection function. Revenue collection is itself an enforcement function, but the demands for speed and minimal restrictions to maximize the volume of cargo processed necessarily impact the amount of revenue collected. In order for a balance to be appropriately struck, various components need to be interrelated: port logistics and operational issues must go hand-in-hand with the analysis of the legal system that underlies port operations.

On a daily basis, delays at the port-of-entry are exacerbated by a combination of factors. As one observes the movement of trucks at the Mariposa port of entry in Nogales, Sonora, it is easy to discern the role played by inadequate and insufficient infrastructure: additional docks and space for the trucks to maneuver would contribute greatly to expediting, and thereby reducing, the queue both at the entrance and exit lines. Insufficient and inadequately trained and equipped personnel, as well as a perceived lack of coordination between the hours of operation at the U.S. and Mexican ports, are just a couple of additional operational factors that contribute to the delays. However, changes to the infrastructure and re-examination of logistic considerations alone would not resolve these concerns. There are a number of legal factors that must be analyzed in conjunction with operational issues; these include, without limitation, cumbersome inspection procedures, duplicated efforts on both sides of the border, the absence of uniform documentation and continued reliance on a paper-based environment.

A significant number of amendments need to be introduced to the regulatory environment and practices in both countries. In addition, this report explores more modest operational changes within the current regulatory environment that could provide significant benefits. This report does not intend to provide an exhaustive catalog of all of the legal concerns that underlie the CyberPort project. Instead, it provides an overview of the principal legal issues that need to be addressed at the initial stages of implementation, taking into consideration where substantial benefits can most likely and realistically be achieved.

Coordination of local, state and federal authorities in order to carry out joint-inspections would be a significant step in expediting the movement of cargo at the border. Such inspections would necessarily entail the simplification of existing procedures and the coordination of risk-analysis criteria. In addition, the number of inspections could be considerably reduced by means of the implementation of increased pre-certification processes whereby pre-qualified importers and exporters would benefit from expedited procedures and/or special lanes when crossing the border. Given the sizeable amount of maquiladora industries present in the region and their continued volume of operations, changes in these areas would contribute significantly to expediting the flow of goods generated by this sector (both by truck and by rail).

A fluent exchange of information between both countries and even between different agencies within each country is also essential. Such an exchange would expedite the harmonization of tariff classifications, the granting of permits (an essential component when dealing with agricultural goods, which constitute a significant percentage of the products that pass through Nogales on a daily basis) and the unification of inspection procedures in general. At present, according to Mexican authorities, valuation determinations (mostly caused by subvaluation problems) can delay a shipment for up to 45 days. A database that could be easily accessible to government agencies as well as to importers, exporters and customs brokers would contribute to the elimination of these problems.

The CyberPort concept cannot be effective without the harmonization of trade documentation and the generalized use of electronic documents and electronic-signature technology. Although considerable strides have been made by both countries in adopting electronic systems, additional efforts are necessary in order for both systems to incorporate additional documents—most significantly, electronic invoices—and to effectively exchange the information contained in such documents between both countries.

Finally, the privatization of select port functions is one of the issues that should be taken into consideration in order to facilitate operations. Such privatization can play a significant role in the implementation of joint inspections and pre-certification procedures, as well as in promoting a more fluent exchange of information between both countries.

The North American Free Trade Agreement (NAFTA) establishes a valuable framework for both countries to pursue cooperative efforts. Although no specific guidelines are provided, the Agreement does promote the harmonization of trade documentation, the standardization of data information systems, the exchange of information and the unification of criteria regarding tariff classifications and valuation matters, among others.

Introduction

The signing and implementation of NAFTA have bolstered trade between Mexico and the United States (U.S.).

Currently, Mexico is the second largest exporter of goods into the United States; and in return, U.S. goods are by far the main source of imports into Mexico. Trade between the two countries currently amounts to approximately 260 billion dollars per year, while in 1993 it was valued at only 88 billion dollars.[1]

This gradual increase in the flow of goods between the two countries is currently running up against significant obstacles due to increased national security concerns in the U.S., caused particularly by the September 11, 2001 terrorist attacks.

In light of the above, Customs has become a primary point of law enforcement and prevention, due to its presence at the border regions and its proximity to important airport destinations in the continental U.S.

NAFTA has been a key component in the modern customs model's decreasing emphasis on revenue collection for government. However, revenue still serves as an excellent model, as the interest in business revenue has concurrently become greater and requires a similar security-trade facilitation balance to be achieved. The reliance on efficient, obstacle-free trade is evident on both sides of the border, as is the need to provide business and human interests with a safe trading environment through proper enforcement of border laws and regulations. More than ever before, the benefits of a system that balances enforcement and facilitation are of paramount importance in border administration. Through technology, standardization of requirements and cooperation between different agencies and national governments, this balance can be struck, providing increased economic benefits. The CyberPort initiative provides an ideal platform to explore and promote new efficiencies and to remove obstacles that have become endemic in the existing systems.

The Mariposa port-of-entry is located on the border between the states of Sonora and Arizona, roughly 68 miles (110 kilometers) south of Tucson. The cities of Nogales, Sonora and Nogales, Arizona, where the Mariposa port-of-entry is located, have a combined population of approximately 300,000. It should be noted that the Mexican Customs premises in Nogales, Sonora were substantially remodeled in 1998.

1 United States Department of Commerce in conjunction with Banco de México.

The southbound port-of-entry in Nogales, Sonora is mainly used for clearing agricultural items and inputs utilized in the manufacture of goods by maquiladora entities. Such imports account for approximately 80 percent of the 800 daily shipments that are introduced into Mexico through the Mariposa port-of-entry. In addition to these operations, the port also clears approximately 1,200 truckloads in northbound operations on a daily basis during peak season.

This report emphasizes current legal obstacles that adversely affect the flow of inputs imported by maquiladoras located in Nogales, Sonora and nearby cities, which are transformed at manufacturing facilities in Mexico and are ultimately shipped back to the United States as finished goods. It will also address legal issues related to the importation/exportation of inputs, machinery and equipment utilized by other important economic sectors utilizing the Mariposa facilities, such as agricultural, mining and automotive companies.

The U.S. and Mexican Customs authorities at Nogales also oversee the railroad port-of-entry. Currently, the railroad port-of-entry has limited users in Mexico including Ford Motor Company, Gamesa and Mitsubishi. Railroad containers are utilized by these companies to import inputs utilized in their production processes, such as steel, automotive parts and wheat. The main destinations for these containers are Hermosillo, Sonora and Guadalajara, Jalisco.

Mining companies also take advantage of the railroad crossing in Nogales to import and export minerals and ore to the United States.

Customs Port Concept and Port Authorities

From its inception, both in Mexico and in the U.S., the primary functions performed by customs include the powers to: a) inspect, survey and control the entry and exit of merchandise, as well as to inspect the means by which these are transported; b) enforce applicable foreign trade provisions and laws as they relate to national security, economy, health, communications, migration and sanitary measures, by restricting the flow of hazardous or illegal merchandise; and c) collect applicable duties and promote voluntary compliance with customs provisions by the relevant users.

In the U.S., these functions are undertaken by the United States Customs Service (USCS). Other federal agencies that participate in port-of-entry operations, along with USCS, include the Immigration and Naturalization Service (INS), the United States Department of Agriculture (USDA), the Federal Highway Administration (FHWA), the United States Department of Transportation (DOT), the Food and Drug Administration (FDA) and the General Services Administration (GSA).

In Mexico, under the Reglamento Interior del Servicio de Administración Tributaria[2] (SAT), customs functions have been specifically assigned to the SAT, which in turn authorizes the Administración General de Aduanas (AGA) to oversee all aspects related to the entry and exit of merchandise. The AGA is a federal agency within the Servicio de Administración Tributaria[3] (SAT), which in turn is a decentralized entity within the Secretaría de Hacienda y Crédito Público (SHCP). [4]

As is the case in the U.S., in pursuing its objectives, the AGA is assisted by other federal agencies, including the Inspección Fiscal y Aduanera[5] (IFA) and the Instituto Nacional de Migración[6] (INM). It is worth noting that the federal agency in charge of promoting foreign trade is the Secretariat of Economy (SECON). In fulfilling such functions, SECON's jurisdiction often overlaps with that of SHCP, which often results in conflicting interpretations and application of foreign trade regulations.[7]

In addition, there are many private sector agents who currently participate in the clearance process. The implementation of a CyberPort concept would require consolidation—or at least enhanced coordination—of many of the functions currently performed by transportation companies, freight forwarders and customs brokers.

2 Internal Regulations of the Tax Administration Service.
3 Tax Administration Service, Mexican equivalent to the Internal Revenue Service.
4 Secretariat of Finance and Public Credit.
5 Customs Patrol.
6 National Migration Institute.
7 For instance, SECON established the mechanism under which maquiladoras must pay import duties. However, collection of duties is a function expressly conferred upon SHCP.

CyberPort Concept

The objective of this project is to determine the feasibility of implementing a CyberPort concept that would utilize technology and information as tools to optimize resources at the port and would guarantee a continuance in the flow of goods without sacrificing efficiency, effectiveness, safety and national security. These principles are intended to transform the Mariposa port into a state-of-the-art facility and, possibly, a prototype that would serve as an example for other ports-of-entry.

The implementation of the CyberPort concept requires substantial national and regional legal reforms that would ensure its feasibility. The purpose of this report is to address such issues and propose modifications to current U.S. and Mexican legislation consistent with the goals of the CyberPort concept.

Legal Obstacles

Consistent with the overall concept of the CyberPort, an ideal flow of goods would imply non-stop border crossings. However, from both a U.S. and Mexican regulatory perspective, there are currently various obstacles that prevent the flow of goods in such a manner. The following is a listing of some of the main regulatory obstacles to efficient port operations.

Duplication of Inspections

At present, goods entering the U.S. from Mexico are subject to various inspections, primarily by U.S. government agencies, depending on the type of goods. Goods entering Mexico may be subject to various detailed inspections depending on their nature and tariff classifications. These inspections may be conducted by one or more authorized government agencies. As a practical matter, current inspection procedures conducted by USCS and AGA officials entail, in various instances, a duplication in the tasks performed and reflect a lack of information exchange between the relevant customs authorities. Inspections for crossing the U.S.-Mexico border can take anywhere from minutes to three days depending on variables such as date of crossing, type of goods, importer's records, etc.

In achieving the efficiency principle guiding the CyberPort concept, a procedure whereby border inspections are harmonized and conducted jointly by U.S. and Mexican officials would significantly contribute to the importer/exporter's scheduling and to the flow of port operations.

From a policy standpoint, joint inspections may currently seem unlikely since both AGA and USCS officers may have different inspection concerns. Nevertheless, discussions with U.S. and Mexican Customs officials indicate that combined inspections involving joint procedures and technology would likely produce better results than two random isolated inspections. An illustration of this is the railroad customs port in Nogales, Sonora. The USCS submits all rail containers to gamma-ray inspections prior to crossing into Mexico. Once railcars clear U.S. Customs, they are submitted to the random selection mechanism administered by the AGA. If the random selection system determines that there has to be an inspection, the railcar must stop for physical inspection since Mexican Customs facilities do not currently possess x-ray or gamma ray equipment. This procedure delays the entire railroad cargo since the selected container must be physically reviewed by AGA officials. Such delays could easily be prevented if the AGA official had a copy of the gamma-ray result prior to the railroad crossing or, better yet, if the AGA and USCS officials conducted a joint physical inspection, prior to the containers crossing into Mexico.[8]

Port operations—both northbound and southbound—could benefit significantly from joint inspection procedures. However, the implementation of such procedures would require significant regulatory changes.

8 However, U.S. Customs officials have pointed out that even if an agreement is reached on this matter, gamma rays cannot determine the product's country of origin, which is the main concern of the AGA.

Pre-Entry Certifications

The importation of certain goods requires compliance with pre-certification procedures. For instance, in order to import laser equipment for eye surgeries into Mexico, the importer must previously obtain a permit from the Mexican Ministry of Health (MH). Additionally, the importer must obtain a quality certification by an authorized laboratory stating that the equipment meets the Mexican standards for such imports.

Conversely, agricultural products entering the U.S. from Mexico are subject to verifications from government officials of the United States Department of Agriculture (USDA), in conjunction with the Foreign Agricultural Service (FAAS). A similar procedure takes place at the Confederation of Agricultural Associations of the State of Sinaloa (CAADES) facilities in Nogales, Sonora.

These pre-export certifications are required both by the AGA and the USCS in order to elaborate the corresponding import and export documentation that covers such goods.[9]

One of the objectives of the CyberPort concept should be to promote and facilitate the harmonization and unification of these processes, in order to avoid duplications by USCS and AGA. A CyberPort concept should harmonize and apply these provisions and regulations in such a manner that the importer/exporter could obtain the information prior to the shipment and comply with such requisites at the point of origin in order to avoid unnecessary delays at the Customs Port.

To the extent possible, pre-classified and certified importers should be relieved from the burden of complying with these requirements prior to importation, under the premise that customs officials may carry out subsequent verifications/inspections at the importer's address.

Both the pre-certification mechanism and the avoidance of duplicated inspections are governed by another a prior principle: any efficient and safe CyberPort must be able to rely on presumptions in favor of bona fide transactions and on an effective control of mala fide shipments. Bona fide transactions should be encouraged by giving them favorable, fast and inexpensive customs treatment, while mala fide shipments should be very carefully screened.

Information Exchange

Another legal issue to be addressed and which relates to the security and efficiency principles that should govern a CyberPort concept pertains to the exchange of information between government agencies.

One of the main concerns when dealing with the movement of goods between both countries is that of tariff classification. A significant number of maquiladoras operate in the border area adjacent to Nogales. These maquiladoras import inputs, machinery and equipment owned by their corresponding related parties or parent companies in the U.S. Upon shipment of these goods, it is not uncommon for maquiladoras to have to reclassify them in accordance with the Mexican General Import and Export Duty Law, since interpretation of the tariff code numbers in Mexico and the U.S. may vary (in many instances, differing interpretations respond to the need to take advantage of more beneficial duty rates).

To the extent that a maquiladora operates with various types of inputs and constantly changing technology, the administrative burden imposed on it to reclassify goods contributes to delays in the customs clearance process in Mexico and can also result in the imposition of penalties whenever the tariff codes are incorrect.

This problem could be minimized by harmonizing the tariff schedules between the U.S. and Mexico or, at the very least, correlating the existing tariff codes in both countries in a common electronic database that would facilitate this reclassification process.

9 USCS limits its pre-export certifications to verifying that produce that is subject to a marketing agreement has been inspected by FAAS.

Standard Paper-Based and Electronic Documentation

Another legal issue that should be addressed in order to expedite the clearance process is the excessive number of documents that must be issued and filed—particularly under Mexican Customs legislation. For example, in order to perform an import operation into Mexico, the importer must attach a value declaration, a calculation spreadsheet, a certificate of origin (if preferential access is claimed), a commercial invoice and other documents as required by the nature of the merchandise to be imported.

Such filings would be significantly reduced (and overall the Customs clearance procedure would benefit) as a result of the implementation of an electronic data interface between federal government agencies in the United States and Mexico. A CyberPort concept would likely imply the electronic pre-filing of most of the customs documents currently required for clearance and would rely on the electronic filing of a single, uniform document to import or export goods between the countries.

In other words, there would be a standard invoice or truck or rail bill of lading that would serve both as a shipper declaration before the USCS and an import pedimento presented before the AGA. Disparate and, at times, conflicting documentation is one of the main legal obstacles currently in place.

Privatization of Functions

An additional reform that would contribute to the efficiency and effectiveness of the clearance process would be the privatization of certain procedures performed at customs facilities. Currently, various clearance functions at Mexican Customs, such as the pre-validation of import filings (pedimentos) and the second customs inspection, are carried out by authorized individuals under concessions awarded by the Secretariat of Finance and Public Credit.

In order to expedite the clearance of goods, it is likely that some of these processes would need to be eliminated (e.g., the second customs inspection would be redundant). Nevertheless, the enhancement of currently privatized Customs functions is consistent with the efficiency principles guiding the CyberPort concept.

It should be noted that in recent statements the AGA has declared it has privatized the majority of its functions related to the Customs clearance of goods at the Mexico City airport.[10]

A possible way to streamline operations would be, for example, to increase the number of privately administered bonded warehouse authorizations at the border, which, in turn, may benefit industrial parks housing maquiladora facilities. Under this prototype, maquiladoras would be allowed to transport their imports into bonded warehouses located within their industrial parks and dispatch them on an as-needed basis.

On the U.S. side of the Nogales port-of-entry, however, it is envisioned that privatization would be limited or even non-existent, although a privatization proposal could be used as a model for other ports. At present, operations at the Mariposa port are assisted by the U.S. General Services Administration (GSA), working closely with USCS, the U.S. Immigration and Naturalization Service, U.S. Department of Agriculture, Food and Drug Administration, the Department of Transportation and state and local governments, in the management of the border station construction program, including strategic planning, budgeting and design guidance. However, it should also be noted that at the national level U.S. Customs is working with the private sector in order to improve its automated system.

In the following chapters, we will identify the legal issues surrounding the aforementioned proposals, as well as the necessary steps to implement these proposals into U.S. and Mexican legislation.

10 Article published on August 18, 2002 in the national section of the "Reforma" newspaper.

The Legal Environment in the U.S.

The Agencies

The government functions on the U.S. side of the border are carried out by a diverse array of agencies. However, decentralization seems to be greater in the United States than in Mexico. U.S. Customs is the primary gatekeeper and the final arbiter of what can enter and leave the country, but many other agencies are present at the border or otherwise involved via interfaces with U.S. Customs. These agencies fall under a variety of cabinet level departments, so their chains of command are separate at the very highest levels of government. This decentralization fosters a competitive, corruption-resistant system, but also fosters certain rivalries, inefficiencies, and massive communication gaps. Rigorous rules like the Trade Secrets Act[11] are in place to protect importers' confidential information from improper disclosure, and these rules often prevent agencies from sharing such information with each other. The agencies' responsibilities generally are assigned based on the industry sector being regulated or the type of activity being carried out. The list below provides a view of the agencies involved but is by no means an exhaustive list. A myriad of other agencies have at least peripheral involvement in cross-border trade. State governments also play a role in border regulation, such as with transportation safety and agricultural pest control. California is especially rigorous in these areas.

Some of the agencies involved in cross-border trade and law enforcement include:

Agency	Core Border Responsibility	Cabinet Department
U.S. Customs Service	Border enforcement, interdiction of contraband, trade administration and facilitation.	Treasury
Agricultural Marketing Service (AMS)	Country of origin labeling of agricultural products, collection of agricultural promotion fees on certain products.	Agriculture
Animal and Plant Health Inspection Service (APHIS)	Inspection of live animals, prevention of introduction of agricultural pests and other hazards.	Agriculture
Border Patrol (division of INS)	Border enforcement, prevention of illegal entry into the U.S.	Justice
Bureau of Alcohol, Tobacco, and Firearms (BATF)	Regulation of imports of alcoholic beverages, tobacco products, firearms and munitions.	Treasury
Bureau of the Census	Collection of trade statistics.	Commerce
Bureau of Industry and Security (BIS)	Enforcement of export regulations.	Commerce
Consumer Product Safety Commission (CPSC)	Product safety regulation for products such as toys, children's sleepwear, baby products, fireworks.	(Independent regulatory agency)
Drug Enforcement Administration (DEA)	Interdiction of illegal drugs.	Justice
Environmental Protection Agency (EPA)	Regulation of imported chemicals, prevention of importation of prohibited substances such as chlorofluorocarbons (CFCs).	EPA
Federal Communications Commision (FCC)	Enforcement of requirements on radio, television, telephone equipment, etc.	(Independent regulatory agency)
Federal Highway Administration (FHWA)	Enforcement of requirements on motor vehicles and parts.	Transportation
Federal Motor Carrier Safety Administration (FMCSA)	Promote highway safety, enforce regulations on truck safety.	Transportation
Federal Trade Commission (FTC)	Protect consumers from misleading product advertisement, enforce requirements for country of origin marking and textile fiber content labeling.	(Independent regulatory agency)
Fish and Wildlife Service (FWS)	Prevention of importation of endangered species and products therefrom.	Interior
Food and Drug Administration (FDA)	Regulation of imported food, beverages, drugs, cosmetics, and certain devices.	Health and Human Services
Food Safety Inspection Service (FSIS)	Inspection of imported meat and poultry.	Agriculture
Immigration and Naturalization Service (INS)	Border enforcement, administration of immigration and visa requirements. (Proposed control of the entry and exit of aliens to the U.S. under the Data Management Improvement Act.)	Justice
Internal Revenue Service (IRS)	Collection of taxes on certain products, including alcoholic beverages, tobacco products.	Treasury
International Trade Administration (ITA)	Trade policy, tariff administration, antidumping and countervailing duties.	Commerce
National Marine Fisheries Service (NMFS)	Enforce laws regarding proper fishery practice, prohibited fishing practices.	Commerce

11 The Trade Secrets Act is codified at 18 U.S.C. 1905.

U.S. Customs is the primary point of contact for most of these agencies. Some of the agencies, such as APHIS, FDA and FWS, have their own active presence at the border, while others, such as FCC, FHWA and EPA, rely on Customs to enforce their requirements, which often are documentary in nature. The authority and responsibilities of U.S. Customs in the affairs of the other agencies typically are set forth in the laws pertaining to the other agencies. For example, in the Federal Food, Drug and Cosmetic Act, at 21 U.S.C. 381, the Secretary of the Treasury (to whom U.S. Customs reports) is charged with assisting the Secretary of Health and Human Services (to whom the FDA reports) with carrying out the administration of Food and Drug laws with respect to imports and exports.

The laws that enable each agency to perform its mission are in different sections of the United States Code (U.S.C.). The regulations that provide for the specifics of the missions are similarly provided for in different parts of the Code of Federal Regulations (C.F.R.). There are areas of conflicting and overlapping jurisdiction, and vested interests in government and the private sector will oppose changes to the legal regimes. A widespread change to these laws and regulations would be a massive undertaking, perhaps an impossible one. As in Mexico, the U.S. lawmaking and regulatory processes are often slow and contentious, with the idea that changes will occur only when necessary and approved of by a sufficient majority of the people or their elected representatives. For these reasons, it is important to explore operational, as well as legal, solutions to the problems to be addressed with a CyberPort concept. Customs should be the principal party involved in the discussions, but other agencies must also play a part.

The Regulatory Framework

The laws governing customs and international trade matters in the U.S. are varied and complex. This area of law has a long history, with many radical changes along the way. Many different agencies are involved, each with their own set of laws and regulations that may conflict with those of other agencies, or even their own.

Constitutional Provisions

The Constitution is the supreme law of the U.S. It establishes the different components of government, and reserves certain limited powers for the federal government, leaving any other powers in the realm of state governments. The Constitution also protects the people, including businesses, from government actions outside of its rightful powers, and guarantees certain rights.

Executive Branch Agencies

The President's authority to regulate matters such as foreign trade is usually manifested in the creation of agencies within the executive branch. These agencies are authorized by the Congress, which makes the specific laws that the agencies are to enforce. Congress also controls funding for the agencies, and therefore has a great deal of influence over the agencies' activities.

United States Code

The laws, or statutes, enacted by Congress become part of the United States Code, the basic body of federal law. The U.S. Code is divided into sections, called "Titles." Typically, each area of law has its own title. For example, Customs matters are provided for in Title 19. The statutes in the U.S. Code may not conflict with provisions of the Constitution. It is worth noting that international treaties to which the U.S. is a party typically must have enabling statutes in the U.S.C. in order to be considered valid in the U.S. NAFTA is codified starting at 19 U.S.C. 3301.

Code of Federal Regulations

The statutory provisions in the United States Code provide the authority for an agency to perform its functions. For detailed aspects of these functions, the Congress typically defers to the agencies themselves. The U.S. Code Provisions remain as a general framework. The details of the regulatory activities are provided in agency regulations, the entire body of which is called the Code of Federal Regulations. Regulations are enacted by the agencies themselves or by the cabinet-level department to which they belong. For example, the Customs Regulations are provided in Chapter 19 and are enacted by the Department of the Treasury. In short, Congress tells the agencies what to do by enacting laws but leaves it to the executive branch to specify how these things will be done, in regulations. Regulations may not conflict with or exceed the authority provided by the enabling statutes.

Presidential Proclamations

The President may use his inherent authority to impose certain rules, such as embargoes or special duty reductions. These are often temporary and limited in scope but have the full force and effect of law.

Treasury and Customs Service Decisions

At either the Treasury Department or Customs Service level, these decisions provide official statements of the agency's interpretation of the law or guidance as to specific procedures. In practical terms, they have the same effect as regulations, but may not conflict with or exceed the authority provided in the regulations.

Customs Directives

Customs may direct its employees or members of the trade community to conduct business in a certain way, use a certain form, or behave in a specified manner. Customs Directives are a formal means by which these are communicated.

Customs Rulings

Customs issues written legal opinions on specific factual situations. This enables importers, for example, to be certain of how customs will classify or appraise a given product. The ruling is binding on customs and the party to whom it was issued, and no other party. Rulings are precedential, however, and are always useful for research and analysis of legal and policy questions.

Customs Practices

The practices actually in effect at ports-of-entry may vary widely, especially in terms of procedural matters, but also in more substantive areas as well. In many areas of the statutes and regulations, considerable discretion is given to the Customs Port Director.[12] In many cases, according to the discretion of the Port Director, documentary requirements may be waived or additional requirements may be imposed. These practices may be communicated to the trade community through local written notices or may be completely verbal.

Impact of Legal Structure

The nature of the Customs law system is hierarchical. Local procedures are fairly easy to change, compared to matters set forth in Customs Directives. Customs Directives can be rewritten but cannot conflict with Customs Regulations, which in turn are limited by the authority granted in statutes. It is therefore advisable, in considering CyberPort options, to evaluate changes in terms of what level of customs legal authority is involved, as the higher levels of authority, such as laws and regulations, are exponentially more difficult to change. Mere operational and local policy changes, by contrast, may be comparatively easy to achieve.

12 The discretion given to the Port Director in most cases translates to discretion being given to subordinate employees who, if acting within their authority, serve as representatives of the Port Director.
13 Art. 73.
14 Art. 89, Section I.
15 Id., Section X.
16 The Customs Law is deemed to be a tax law.
17 The last reform to Customs Regulations occurred on June 6, 1996.
18 Article 1 of the CL establishes that this "Law, the Laws of General Import and Export Duties [Currently known as General Import and Export Duty Law (GIEDL)] and the other applicable laws and regulations govern the entry into national territory and exit of merchandise therefrom and the means of its transport or conduction, the dispatch thereof at customs,

Mexican Customs Legislation

Although this report addresses practical obstacles to the implementation of a CyberPort concept, it should be emphasized that dealing with such obstacles will imply, in most instances, the need to implement legal reforms in the Mexican Customs regulatory environment.

Constitutional Provisions

Under Article 131 of the Mexican Constitution, the Federal Government is empowered to regulate foreign trade. The constitution further specifies that the Mexican Congress shall legislate regarding import and export duties and may issue all necessary laws in pursuance of the application of such duties,[13] while the Federal Executive Government is responsible for executing and regulating the laws issued by Congress.[14] In addition, the President is responsible for directing foreign trade policy and entering into international treaties (with the prior approval of the Senate).[15]

Federal Laws and Regulations

Only the Mexican Congress may enact the laws governing the export and import of goods into the national territory, as well as the applicable duties. Typically, amendments to the Mexican Customs Law (CL) are discussed on a yearly basis, prior to the beginning of each fiscal year, together with the proposal for the federal budget and other tax-related laws.[16]

Other applicable laws and regulations governing foreign trade operations are the Customs Regulations (CR), the Foreign Trade Law (FTL), the Foreign Trade Regulations (FTR), the Federal Tax Code (FTC), the Resolution that establishes General Foreign Trade Rules for 2002 (RGFT) and various presidential Decrees designed to promote Mexican exports.

Currently, the likelihood of amending a law through the traditional legislative process is contingent on the political support that an initiative may obtain from Congressional representatives.

Considering the technical level, complexity and specificity of tax provisions, federal authorities have depended to a considerable extent on sources other than laws to obtain "fast-track" implementation of such measures, including presidential decrees and general foreign trade rules. However, it should be noted that modifications to the CL have occurred at least once a year during the administrations of Presidents Zedillo and Fox.

Modifications to the CR, which are essentially issued by the federal government in order to interpret legal provisions, are not as consistent as to the regularity of their revision.[17]

Customs Law and Regulations

The entry and exit of goods into Mexico is primarily regulated by the Mexican CL[18] and the Customs Law Regulations (CLR).

Customs operations include: a) the entry of merchandise into and its exit from national territory; b) all maneuvers of loading, unloading, transshipment and storage of merchandise; and c) the embarkation and disembarkation of passengers and the inspection of their baggage.[19] These operations shall be performed at authorized locations, during business days and hours.[20] Any person transporting merchandise by any means shall be obligated to submit it to customs authorities, together with the relevant documents.[21] It should be noted that the CL attaches specific liability to the importers/exporters and, to some extent, to customs brokers handling the dispatch of goods, in certain cases and instances.[22]

18 (con't) and all facts and acts deriving from such dispatch or from said entry or exit of merchandise." Art. 1 further states that persons introducing merchandise into national territory or extracting it therefrom, whether as owners, possessors, consignees, consignors, attorneys-in-fact, customs brokers or other persons having intervention in the introduction, extraction, custody, storage, handling or holding of merchandise or in any of the acts or facts related to the entry, exit or transport of merchandise, must comply with the provisions stated in the Customs Law.

19 Art. 10 of the CL.

20 Business days and hours are determined in the RGFT. See infra, Section VII. Operational Issues.

21 Art. 3 of the CL establishes that "Customs authorities shall perform all administrative functions relative to the entry of merchandise into national territory or its exit therefrom."

22 Art. 52 of the CL. See also infra, Section V. A. Dispatch.

In addition to customs authorities, other federal and local officials are present at the port-of-entry. Article 3 of the CL establishes that "Federal and local officials and employees, each acting under their relevant jurisdiction, shall assist the customs authorities, upon their request, in the performance of their functions, and shall be obligated to denounce all acts of alleged violation of this law (...)" Customs, Immigration, Health, Communications, Navy and other authorities shall exercise their powers in a coordinated manner.

In order to accommodate the CyberPort concept and the proposals mentioned in Section I above, several provisions of the CL and CLR would need to be amended.

General Import and Export Duty Law (GIEDL)

The current Mexican General Import and Export Duty Law (GIEDL) entered into force on April 1, 2002. This law substitutes and consolidates the previous Mexican General Import Duty Law (GIDL) and General Export Duty Law (GEDL) enacted in 1995.

The Mexican GIEDL sets forth the Mexican tariff classification of merchandise which, like the United States Tariff Schedule (USTS), is based on the internationally recognized standards of codification of the Harmonized Tariff System (HTS) issued by the World Customs Organization (WCO).

The GIEDL incorporates updated changes to the HTS, in accordance with the amendments made by the WCO committee in 1999.

It is worth noting that the previous GIDL assigned an eight-digit tariff code to merchandise imported into Mexico, while the GEDL codified exports to a six-digit tariff code. Due to the enactment of the GIEDL, both imports and exports are currently subject to an eight-digit codification. In contrast, U.S. tariff codes are comprised of ten digits. This difference relates to the fact that the U.S. imports a wider variety of goods, which has brought about the adoption of more specific tariff code descriptions under the USTS.

Consequently, goods exported into the U.S. need to be reclassified by a customs specialist in the U.S. Under the Customs Modernization Act, the importer will be liable for the classification of the goods.

Goods imported into Mexico are also to be reclassified prior to their importation according to the classification criteria established in the explanatory notes of the GIDL (which also apply to the current GIEDL).

Tariff codification differences between Mexico and the U.S. constitute a significant obstacle to the implementation of the CyberPort concept, since importers must reclassify the goods before submitting them to the relevant customs authorities.[23]

Foreign Trade Law and Regulations

The Foreign Trade Law (FTL), enacted in 1993, regulates and promotes foreign trade through the establishment of non-tariff regulations and restrictions. It also incorporates various trade promotion principles applicable in Mexico in light of its membership in international organizations such as the WTO.

Such principles include rules regarding import restrictions (quotas) and regulations (anti-dumping and countervailing duties), as well as the procedures to bring about the relevant actions against imports into Mexico. Additional requirements (including the need to submit specific permits) are found in other bodies of law, such as the Agreement that established Mexican Official Norms,[24] depending on the nature of the merchandise that will be imported into or exported from Mexico.

By establishing the requisites for importing goods subject to non-tariff regulations and restrictions, the FTL should play an important role in the unification of documentation requirements and verification procedures to assure the observance of applicable non-tariff regulations

23 USCS officials have pointed out that in theory there should be no difference in classifications (except for the two extra digits applied in the U.S.). Under NAFTA, there is already a mechanism by which an importer or exporter can have a tariff classification coordinated between the two countries. In practice, however, the private sector has expressed concern about read access to such procedures/information.

24 Acuerdo que establece las Normas Oficiales Mexicanas (NOMs).

25 Decreto para el Fomento y Operación de la Industria Maquiladora de Exportación (Decree for the Encouragement and Development of the Export-Maquiladora Industry), Official Gazette, June 1, 1998 as amended.

26 Decreto que establece los Programas de Importación Temporal para producir Artículos de Exportación (PITEX - Official Gazette, May 5, 1990, as amended).

in Mexico and the U.S. However, the fact that permit and other specific requirements are dispersed throughout various regulations does not facilitate a clear and efficient process. Unification of these requirements into a single body of law would enhance the CyberPort concept.

Export Promotion Decrees

At present, there are various decrees that have an impact on foreign trade operations, notably because of their incidence with respect to certain types of companies. These include the Maquiladora Decree[25] and the PITEX Decree,[26] both issued by SECON.

Under the terms of these Decrees, companies are subject to strict measures, such as detailed inventory control and the presentation of annual declarations. Non-compliance with these requirements may be immediately sanctioned by the AGA through the suspension of the importer's registration—causing the loss of benefits stated therein—or the imposition of penalties.

The implementation of measures consistent with the CyberPort concept, such as the pre-clearance of goods and importations to bonded warehouses located at industrial parks, would fall under the scope of the programs that are regulated through these Decrees.

Modifications or issuance of new Decrees largely depend on their subject matter. As an example, the Maquiladora Decree was last amended on December 31, 2001, while the Decree that establishes Sectoral Promotion Programs has been amended on multiple occasions and was reissued on August 2, 2002.

Resolution that Establishes General Foreign Trade Rules

The Resolution that establishes General Foreign Trade Rules (RGFT) is comprised of a set of administrative rules that interpret or clarify provisions stated in the CL, Regulations or Decrees with regard to their application to specific situations. Insofar as they clarify criteria held by tax and customs authorities, these rules constitute useful interpretation tools.

These rules are issued by the SHCP on a yearly basis. The RGFT for 2002 were issued on May 31, 2002 and will remain in force through March 31, 2003. Among other matters, they regulate the entry and exit of merchandise, the powers of customs authorities, customs regimes, rules for the interpretations of the GIEDL and other duties triggered due to foreign trade operations, including the Derecho de Trámite Aduanero (DTA)[27] established in the Ley Federal de Derechos (LFD),[28] the Impuesto al Valor Agregado (IVA),[29] the Impuesto Especial sobre Productos y Servicios (IEPS),[30] the Impuesto sobre Autos Nuevos (ISAN)[31] and the Impuesto sobre la Renta (ISR).[32]

Moreover, the Annexes to the RGFT establish customs guidelines and procedures, including provisions pertaining to hours of operation,[33] authorized bonded warehouses[34] and instructions for the elaboration of pedimentos.[35]

The aforementioned administrative rules are issued and reviewed periodically by the SHCP and thus do not constitute permanent customs rules. The previous set of rules[36] was modified at least on thirty occasions since its initial enactment in April of 2000.

The flexible nature of the RGFT may contribute to the CyberPort concept to the extent that all principles and provisions included in these rules may be implemented without having to follow the steps of a cumbersome and unpredictable legislative process.

Other Sources

In addition to the aforementioned laws, regulations and decrees, foreign trade is further regulated by administrative agencies through circulares,[37] acuerdos[38] and other regulations.

Circulares are opinions usually issued by high-ranking officials within a federal agency regarding the interpretation or application of a legal provision. Typically, they are applied by lower ranking officials to specific cases, in response to an individual's claim or petition.

27 Customs Processing Fee.
28 Federal Fees Law.
29 Value Added Tax.
30 Special Tax on Goods and Services.
31 Tax on New Vehicles.
32 Income Tax.
33 Annex 4 of the RGFT.
34 Annex 13 of the RGFT.
35 Annex 22 of the RGFT.
36 Resolución Miscelánea de Comercio Exterior (2000).
37 Notices.
38 Accords.

Acuerdos are agreements between equal ranking officials within a federal agency or between equal ranking officials in different agencies, regarding the subject matter that falls within their jurisdiction.

Acuerdos are commonly published in the Diario Oficial de la Federación[39] prior to their application and therefore become general guidelines upon their entry into force. In contrast, circulares are only intended to provide guidelines regarding the specific cases they address.

When implementing the CyberPort concept, acuerdos could be useful tools, for instance, to regulate joint inspections and the procedures that would need to be followed in order to avoid unnecessary delays at the border.

In addition to these instruments, an additional source of customs regulations is the Manual de Operación Aduanera (MOA).[40] The MOA is a compilation of codes, regulations and procedures applicable to customs and foreign trade operations and is used in practice as a reference guide for the operation of the Sistema de Automatización Aduanera Integral (SAAI M3).[41]

The SAAI M3 is an automated computer system designed for the exchange and validation of information between customs brokers and the AGA. Initially, the broker transmits to AGA the information pertaining to the relevant import or export. Once this information is validated, AGA notifies the broker whether the operation has been approved or rejected; and in the latter case it indicates the errors that have been detected.[42]

The MOA is updated on a regular basis in order to reflect changes implemented to the SAAI M3.

In implementing the harmonization and unification proposals consistent with the CyberPort concept, both the SAAI M3 and the MOA would need to be substantially modified so as to allow interface connectivity between the SAAI M3 system and the U.S. Customs system.

Current U.S. Customs Clearance Procedure

The U.S. Customs clearance procedure, though highly automated, is built on an older paper-based system. The structure of the automated system reflects this in that the electronic transmissions mirror the submission of paper documents. The document submission requirements themselves have evolved over time and reflect the way liberalized entry processes were added to an existing system. The original customs entry document process was augmented by the "Immediate Delivery" procedure, whereby importers could gain release of their goods immediately via an Entry, and follow up with an Entry Summary and duty payment up to 10 days later. The data elements for Entry and Entry Summary are largely duplicated. Similarly, the electronic processes of Entry and Entry Summary filing feature many duplicated data elements. The requirements for Entry and Entry Summary filing, both paper and electronic, are set forth in parts 141 through 143 of the Customs Regulations. These procedures and filings occur in the Automated Commercial System ("ACS"), the principal commercial system in use by U.S. Customs. ACS is fed data by other source computer systems and similarly feeds data back out to them.

The most critical early points in the process are arrival and entry. Arrival concerns itself with the conveyance of information as it is typically declared by the carrier, such as an airline, shipping line, or trucking company. Entry concerns itself with the identity of the importer, the value and description of the goods and any trade issues that affect whether the merchandise can legally enter the U.S. Subsequent to the filing of the Entry, the Entry Summary is filed, providing complete transaction information, trade statistics and payment of duties and fees.

39 Official Gazette of the Federation.
40 Custom's Operations Manual.
41 Customs Integral Automated System.
42 See infra, Section V.A. Dispatch, and Sections V. C. 4 and V. D.3.

Arrival

At some time upon which or before the goods arrive at the border crossing, seaport or airport, data on the shipment (manifests, bills of lading, or waybills) is transmitted to U.S. Customs. Various mechanisms are in place for this step of the process. Air and sea shipments rely on the Automated Manifest System ("AMS"), which uses a standard set of data elements transmitted by the carrier to U.S. Customs. Rail traffic has begun to use a version of AMS on a smaller scale. There is no truck AMS in place. Instead, different procedures are in place, some in prototype form. These procedures include the Border Release Advanced Selectivity System ("BRASS") and the National Customs Automation Program Prototype (NCAP/P), among others. All of these programs rely on pre-filing of cargo information, or pre-approval for certain transaction patterns. The actual shipment arriving at the border is matched with transaction information in U.S. Customs' computer system. The matching is done through the use of transponders, the use of barcodes, or manual keystroke entry of the conveyance or waybill number by the inspector. The conventional method, requiring complete filing of manifest and entry documents, also remains available at some ports-of-entry, although this is not the case in Nogales, Arizona.

Entry

Filing the Entry is typically done electronically, though paper forms may be used instead or in addition to the electronic transmission. The Entry includes complete data on the broker, importer, port of lading, description and tariff classification of goods, number of cartons, value, manufacturer, country of origin and many other elements. These data are used by customs and other agencies to make the determination of whether the cargo may be admitted into the United States.

Entry Summary

Up to 10 days after filing the Entry, the importer or broker must file the Entry Summary. The Entry Summary contains essentially all of the Entry data, with some additional statistical information and payment of duties, taxes and fees owed. The Entry Summary is used chiefly as a mechanism for collecting revenue and trade statistics. It also represents the legal construct that customs may use to bill the importer for more duties.

Review and Liquidation

Entry Summaries are reviewed by automated systems as well as human customs officers, for correctness of classification, value, origin, use of special trade programs and the like. Customs officers, upon completion of the review, liquidate the Entry Summary, thereby fixing the final classification and appraisement of the merchandise in the shipment, and duties due. Liquidation is defined, and its requirements set forth, in part 159 of the Customs Regulations. Customs officers may liquidate the Entry Summary with a refund, a bill for additional duties, or as entered. Liquidation most typically occurs within 10 months of entry.

Impact of Operational Practices

U.S. Customs has a long history of innovation, even while constrained by a fairly rigid set of laws and regulations. The agency has often struck this balance through creativity. For example, the Immediate Delivery procedure was originally a special program for limited use. By shaping the operational aspects of the Entry/Entry Summary structure, the agency was able to largely fit it into the regulatory framework already in place. As a result, the process is somewhat cumbersome, requiring duplicate data to be transmitted, for example, but the regulations providing for the special program now serve to define the process used for the majority of shipments. This is less than ideal, but these results are better than a case where an entirely new regulatory and operational regime might be rejected due to political and institutional reasons. This kind of compromise is instructive on how to make progress under rigid bureaucratic conditions.

Automated Systems

ACS

The Automated Commercial System ("ACS") was implemented in the 1980s and has been continuously modified since then. It is the central repository for commercial import transaction data at U.S. Customs. All entries of merchandise have a record in this system; even the small numbers of manually filed paper Entries have a manually entered shell record in ACS. ACS facilitates the electronic processing of Entries and Entry Summaries. Integral to the current operation of ACS are the use of targeting criteria and paperless bypass.[43] Certain data elements, or combinations thereof, may be fed into ACS, resulting in shipments with those characteristics being subjected to intensive review. Entries not needing intensive review and not requiring special paper documents like textile visas or special certification may be given paperless status, whereby only the electronic records are provided to customs. There are still, however, many required elements of an Entry that are paper-only forms, which prevent many Entries from being truly paperless throughout the entire process.

ABI

The Automated Broker Interface ("ABI") is the electronic gateway for customs brokers, or importers filing on their own behalf, to transmit Entries, Entry Summaries and other electronic documents to U.S. Customs. Once through the ABI system, these transmissions reside in ACS. Through the use of the Automated Clearinghouse (ACH), brokers and importers can make electronic payments of duties and fees for Entry Summaries, making for a truly paperless process in many situations. The ABI interface also is used for customs to transmit transaction status back to the filer, as well as to communicate general trade related information to brokers.

ACE

The Automated Commercial Environment ("ACE") is the planned replacement for ACS. It has been in the works for several years, previously suffering from funding difficulties. The current outlook for ACE progress is very positive. Funding for the project is apparently on track, and a consortium of companies–led by IBM–is under contract to design and build the system. The system is anticipated to cost over a billion dollars and take at least four to five years to complete. Unlike ACS, which has a fixed architecture and is difficult to modify, ACE is being designed with a flexible, modular approach that is envisioned to allow upgrades to be made more easily, in the hopes that the system, as modified, will remain viable indefinitely. The ACE system is being designed to support a modern approach to conducting customs business, without the constraints built into ACS by virtue of its paper-based heritage. Filing of Entries and other transactional matters via the Internet is a very real possibility under ACE, as is a monthly statement-based payment of duties.

ITDS

Originally a competitor concept to ACE, the International Trade Data System ("ITDS") is now envisioned to be used as the front-end interface for ACE, much as ABI is the interface for ACS. The ITDS is a cross-agency initiative, developed under the auspices of the Treasury Department and designed to serve as a single point of contact for companies involved in international trade, including U.S. Customs, U.S. Dept. of Agriculture, Food and Drug Administration, etc. All trade related data would be transmitted to ITDS, which would then parse the data elements into specific data sets that would be provided to the agency with the need for those data elements. ITDS is a project equally ambitious in scope to ACE and will not likely be implemented until ACE implementation itself is well underway.

Data Standardization and Reduction Initiatives

At the international level, there has been some work by the World Customs Organization and the G7 (later G8) group of industrialized nations to agree on a standard set of data elements. Additionally, the United States has conducted a small-scale prototype with Great Britain whereby the export document for one country can serve as the import document for the other. All of these initiatives have been limited in scope, but the concept of such standardization holds great promise in making border transactions as seamless as possible.

43 Paperless review is provided for at 19 C.F.R. 143.36, which states, in relevant part, that if Customs determines the electronic form of the entry is satisfactory, no paper Customs forms will be required.

Customs Strategies

Risk Management

In conjunction with the Customs Modernization Act, which was enacted in the U.S. along with NAFTA, U.S. Customs underwent a radical change in its mission and the ways in which it is envisioned to do business. Institutional and political constraints, as well as the lack of an automated system to support the new paradigms, have thwarted progress, but over the past decade customs has continued to move toward, and in some ways beyond, the ideals set forth in the Modernization Act. One principal tenet of the Modernization Act is Informed Compliance. With the Modernization Act, the responsibility for determining the correct tariff classification and entered value was shifted to the importer.[44]

Another principal tenet arising out of the Modernization Act is that of risk management. Risk management determines how resources are deployed in response to probable outcomes. Customs lacks the resources to examine every shipment or audit every importer. Instead, the agency has employed various ways of assessing the level of compliance for shipments, importers and entire industries, and assigning them "risk levels." Importers designated as low risk, for example, are importers that customs believes have demonstrated a commitment to compliance and the necessary practices to ensure such compliance. Such importers are subjected to less scrutiny by customs, as the risk is assessed as low. The agency's resources can then be focused elsewhere, namely areas believed to present greater risk.

Account Management

Traditionally, customs has viewed each import transaction as a separate event. Shipments of merchandise cross the border one at a time and so the admissibility decisions are also made on an individual basis. The regulations that give customs the authority to fix the amount of duties for merchandise ("liquidate the entry summary") provide such authority on a per-summary basis. In seeking to assess the risk level of importers and to use its resources more effectively, customs began Account Management programs. The top several thousand importers account for the vast majority of the goods imported into the country. Customs believed that by focusing intently on these importers and correcting their compliance issues the greatest impact could be had for the resources available. Account Management also makes sense in the large importer context, as large importers typically have repetitive shipments of the same goods, and a problem that affects one shipment likely affects others. Because of the rigid structure of ACS, customs has met with limited success in implementing the Account Management paradigm. The ACE design parameters are built around the concept, but ACE will not be implemented for several years.

Counterterrorism Initiatives

On September 11, 2001, the focus of U.S. Customs, in fact of the entire government, underwent a radical change. The absolute first priority in the post 9/11 environment is safeguarding the nation from terrorist threats. The threat of terrorists using the U.S. cargo system as a weapons delivery platform is very real, and the results could greatly overshadow those of 9/11. In the months after the terrorist attacks, customs began implementing several key initiatives to safeguard the cargo system from terrorists. The Customs-Trade Partnership Against Terrorism ("C-TPAT") seeks to integrate security into every step of the supply chain, from the foreign producer up to the U.S. distribution center, denying terrorists the opportunity to insert weapons or human operatives into the supply chain. C-TPAT is voluntary and relies on cooperation among the members of the trade community. C-TPAT is voluntary because customs does not have legal authority to impose the kinds of security requirements involved. However, customs does have absolute discretion over which shipments get intensive review and which can pass through the system only by a screening on a computer system. It is entirely consistent with customs' risk-management principles that a shipment that was packaged and shipped entirely by C-TPAT participants can be considered low-risk, while other shipments might be considered high-risk.

44 In contrast to Mexico, where various agents have joint liability (Art. 53 of the CL), in the U.S. a customs broker may be held liable only if he has acted negligently.

Although Mexico is not a sponsor of terrorism, the U.S. is concerned with the possibility of terrorists from outside the region gaining access to U.S. targets via third countries. Enforcement activities designed to detect and prevent terrorism have an impact at the U.S.-Mexico border just as anywhere else.

Political Concerns vis-à-vis the Border

Mexico is one of the United States' closest allies and trading partners. Nonetheless, certain economic, political and cultural differences translate into specific law enforcement issues at the border, which are unlikely to disappear any time soon. Initiatives intended to streamline processes at the border must not ignore these factors, but must instead be designed to address them in the most efficient and business-friendly ways possible.

Illegal Drugs

Mexico is a source country for the United States' illegal drug habits as well as a conduit for drugs from other source countries such as Colombia. This being the case, there will continue to be strong political pressure for drug interdiction activities, including border enforcement activities such as intensive cargo examinations.

Commercial Products

In Mexico, many commercial pharmaceuticals are available at relatively low cost and without a prescription. In the U.S., by contrast, the same drugs cost much more and require a prescription from a physician. This disparity encourages the smuggling of these pharmaceuticals. Other products are available in Mexico but completely prohibited in the U.S. These include certain classes of pesticides and ozone-depleting refrigerants and solvents. These items can also be attractive to smugglers. Various domestic interests in the U.S. are concerned with these gray-market pharmaceuticals and environmentally hazardous products and encourage stronger regulatory enforcement.

Illegal Immigration

Mexico is the home country of many immigrants in the U.S. While both legal and illegal immigrants contribute greatly to the U.S. economy, U.S. policy is to control the numbers of immigrants. Particularly in times of economic recession, the number of immigrants is a major political issue and U.S. citizens and lawmakers call for tougher border enforcement. This is one of the policy issues associated with the Data Management Improvement Act (DMIA) enacted in May 2000 and which is intended to document the entry and exit of aliens to the U.S. at all ports of entry.

Corruption

Corruption is an impediment to cross-border cooperation between government agencies. U.S. agencies may be loath to share targeting or enforcement data with their Mexican counterparts if they believe the information may be shared with smugglers or other criminals. Likewise, U.S. officials may not be willing to rely on the documented results of a Mexican government examination if they perceive them to be unreliable.

Privatization

Overview

Privatization is often seen as the solution to the problem of government bureaucracy. There is a generalized perception that private companies that must make a profit tend to do things more efficiently than government agencies. The competing concern, of course, is integrity and thoroughness of the job being done; the need for profits may cause companies to cut corners. Moreover, recent scandals

in the U.S. involving corporate accounting demonstrate that third-party auditors and private businesses may not always be reliable. In the post-9/11 era, the U.S. government moved to federalize the security personnel at airports, after finding that private-sector security personnel were not adequately screened, trained or supervised.

U.S. Customs uses contract employees for many functions, including collections processing and public auctions of seized property. Some of these functions are very sensitive in terms of the potential for corruption, but customs has been able to maintain control through rigorous audit procedures. Not every function is suitable for privatization in this way, as in some cases such audit expenses may exceed the benefits otherwise obtained.

For the most meaningful of customs positions, such as customs inspectors, the prospect of privatization is most unlikely. Uniformed customs inspectors are seen as "America's Front Line," their symbolic importance nearly as great as their operational importance. The mission they perform is largely seen as too important to entrust to private sector employees. In addition, customs inspectors and other federal officers have labor unions such as the National Treasury Employees' Union ("NTEU"), which have considerable political power and could easily prevent any meaningful privatization of these functions. The same results are likely for other government agencies as well.

Nonetheless, a proposal for a joint government-private sector activity could meet with approval. If properly designed and presented, it could serve the best interests of both sides. Customs and other government officers, if freed from the more mundane aspects of coordinating the movement of information and cargo, could focus more on mission critical activities like detecting narcotics, terrorist threats and other situations. If given a chance to provide input into the process, the private sector may be able to design a system of optimal efficiency within the constraints that exist, and privatization in the appropriate places may contribute greatly to efficiency.

Privatized Examination Zone

One area where privatization may be quite successful could be in the interface between trade and customs. Logistics service providers such as freight forwarders and customs brokers already serve a quasi-regulatory role in the U.S., being licensed by the government and having certain responsibilities to safeguard the government's interest. Foreign Trade Zones (FTZs) in the U.S. largely run their own operations, managing the inputs and outputs from the zone under their own authority, with supervision from customs only in terms of plant security, screening of employees, and audits of records of activities. If government and industry could work together to set up a Privatized Examination Zone ("PEZ"), the impact could be significant in terms of efficiency. This effort would entail the establishment of a separate zone at the border, with particular security standards akin to an FTZ. Cargo selected for examination by any government agency, on either side of the border, would be moved into the PEZ. Once inside, any and all examinations would be done for the cargo before it could move out of the zone. A private sector entity could assist in this regard by being the central conduit for information about the cargo and coordinating with the government agencies.

Current Mexican Customs Clearance Procedure

Dispatch

The term "dispatch" (despacho) comprises the set of acts and formalities pertaining to the entry of merchandise into the national territory or the exit therefrom, which pursuant to the CL needs to be performed at customs facilities by customs authorities and consignees, addressees, owners, possessors or holders in the case of imports, and by senders in the case of exports, duly represented by a customs broker or attorney.[45]

45 Art. 35 of the CL.

Importers and exporters must clear customs through a customs broker or a customs attorney (who acts as their legal representative) and use the official forms approved by the SHCP.[46] Proof of title or ownership of the goods is not relevant for the purposes of the customs clearance process.

The requirement to be represented by a customs broker or attorney is only waived when the value of the exported or imported goods does not exceed U.S. $1,000.00–or U.S. $4,000.00 in the case of computer equipment.[47] Likewise, under these circumstances it is not required that a pedimento be submitted.

Once the customs clearance procedure is initiated, customs will analyze the relevant petition (pedimento or filing) and exercise its power to inspect the goods and the supporting documentation covered by such petition.[48]

It is important to note that the information and documentation presented upon entry or exit from the Mexican territory shall be deemed final. In other words, the information stated in the petition regarding applicable duties, taxable base, exchange rate and non-tariff restrictions may only be modified on a limited basis, and provided such modification occurs prior to the activation of the automated selection mechanism.

The customs broker who draws up the petition is legally liable, vis-à-vis customs, for the veracity and accuracy of the data and information submitted, the assessment of the customs regime to which the merchandise will be subjected and the determination of the relevant tariff classification.[49] In addition, he is also responsible for verifying that the importer submit all necessary documentation to evidence compliance with non-tariff regulations and restrictions, as applicable.

The broker is exempted from such liability only when: a) the importer has provided inexact or erroneous information and documents regarding the goods; b) the goods have been undervalued by less than 40 percent of their actual value; and c) the importer has complied with the conditions required to evidence the origin of the goods imported.[50]

Due to this stringent liability, it should be noted that the broker or person in charge of preparing the pedimento may physically examine the goods at customs facilities whenever there are uncertainties regarding their characteristics or the compliance with relevant requirements, or request that a second inspection be carried out.[51] Strictly interpreted, this could generate significant delays.

In light of the above, it can be concluded that the role performed by the customs broker may at times surpass that of the importer from a liability standpoint.[52] In addition, Art. 53 of the CL specifies that legal representatives, customs brokers, transportation companies and their owners, consignees, sellers and bonded warehouse operators are jointly liable vis-à-vis customs for import and other applicable duties (including antidumping and countervailing duties) and additional costs.[53] This has the effect, in practice, of divesting liability from importers (and also exporters), since they are not the only parties accountable upon dispatch of the goods. As a consequence, it may be hard to determine liability when there is a contingency and the competent authorities may need to adopt preventive measures in order to clarify the situation and allocate liabilities.

By virtue of Article 38 of the CL, the dispatch process takes place by means of an electronic system, the SAAI M3. Access to the SAAI M3 system is allowed only to authorized entities, brokers or attorneys, who have been granted a valid password.[54]

In order to prevent fraud and the importation of illegal merchandise, the document or electronic message whereby an importer or exporter confers authorization for the clearance of goods to a customs broker must be registered in the importer's record administered by customs authorities.

46 Arts. 36 and 41 of the CL.

47 Rule 2.7.3 of the RGFT. In contrast, the U.S. requires the intervention of a broker for shipments in excess of $ 250. (Visit to the Port, 4/3/02).

48 The Mexican Federal Tax Tribunal has interpreted that this filing is deemed a tax return for all legal purposes. (Contradiction of thesis 22/97. Upheld by the Second and Third Collegiate Tribunal of the Sixth Term, June 12, 1998. Unanimity of four votes. Absent: Guillermo I. Ortiz Mayagoitia. Drafter: Juan Díaz Romero. Secretary: Armando Cortés Galván. Court Thesis 62/98. Approved by the Second Chamber of this High Tribunal at a public hearing held June 12, 1998).

49 Art. 54 of the CL.

50 Id.

51 Provided a second inspection has not already been determined by operation of the automated system (see infra, Section B).

Under Art. 38 of the CL, the confidential electronic code used by a customs broker or attorney shall for all legal purposes be equivalent to his handwritten signature.

Once the authorized broker or attorney inputs the information regarding an import or export petition, the SAAI M3 electronic system generates a validation code or "signature," which essentially ratifies that the terms established in the pedimento meet the syntax and procedural criteria needed in order to perform the operations requested.[55]

All operations bearing the confidential electronic code of a customs broker or attorney and the validation code generated by the system shall be deemed as duly performed by the relevant customs broker or attorney; no evidence to the contrary shall be admitted.

Automated Selection Mechanism

Once the pedimento has been prepared and the applicable foreign trade and anti-dumping/countervailing duties determined by the interested party have been paid, as applicable, goods are presented to customs, along with the original pedimento and other relevant documents, and the automatic selection mechanism is activated in order to determine whether the goods will be subject to inspection.

The automatic selection mechanism is activated when the truck enters customs premises. Once activated, either a green or a red light will appear. The green light indicates that the truck may proceed without an inspection. If upon activation a red light appears, the shipment shall be subject to inspection by customs officials.

In compliance with rules issued by SHCP and taking into consideration the volume of operations and the infrastructure capabilities of the customs premises, imported goods may be subject to a second automatic selection mechanism regardless of the results of the first activation. The second inspection is a privatized function, and is carried out by customs adjudicators.[56]

The determination as to whether or not there will be an inspection—or even two—is carried out automatically based on risk-analysis considerations; the system contemplates factors such as the nature of the goods, their origin and the track record of the importer.[57] In order to implement an effective CyberPort concept, including the capability to conduct joint inspections, risk-analysis criteria should be coordinated between both countries.

If no irregularities are found during the inspection(s), goods will be cleared from the customs dispatch. However, it should be noted that the Mexican Customs official's authority to inspect foreign goods is not limited to customs' premises; consequently, subsequent inspections may be carried out at the importer/exporter's domicile. Moreover, if upon dispatch the authorities fail to object to the value of the goods or to the documents or information serving as the basis for determining such value, the declared value shall not be deemed as having been accepted by customs (i.e., no resolution in favor of the private party shall be deemed to exist).

When no customs pedimento is required to activate the automated selection mechanism (i.e., if the value of the merchandise does not exceed U.S. $1,000.00, or U.S. $4,000.00 in the case of computer equipment), only the merchandise and the relevant accompanying documents (e.g., invoice, certificate of origin, etc.) shall be submitted to the automated selection mechanism.

Import Requirements

As stated in the CL, imports may be temporary or final. A final import entails the entry of merchandise that will remain within Mexican territory for an undetermined period of time, whereas a temporary import is one that will remain in Mexico for a pre-established period of time.[58]

52 In contrast, in the U.S. liability lies mostly with the importer.

53 Penalties, arrears, surcharges and execution fees.

54 Art. 36 of the CL.

55 In addition to this validation procedure, this year's amendments to the CL established the obligation for individuals filing customs pedimentos to go through an additional pre-validation procedure to verify that the information submitted to Customs complies with all necessary requirements. This amendment was highly criticized as an unnecessary duplication.

56 Dictaminadores aduaneros. It is expected that, in the future, the second inspection will be eliminated in order to expedite procedures.

57 Although under Art. 43 of the CL there are two consecutive steps in order to determine whether there will be one or two inspections, the practice at the Nogales (Sonora) port-of-entry is different. When the truck driver submits the relevant documentation, a customs

From a duty standpoint, final imports are subject to the applicable import and antidumping/countervailing duties and to compliance with non-tariff regulations and restrictions upon entry into Mexico, while temporary imports are generally not subject to the payment of import duties. With regard to non-tariff regulations and restrictions, it is worth mentioning that these are only applicable to temporary imports since January 2001, provided that the relevant investigation imposing such regulations or restrictions were initiated and concluded after such date.[59]

Importers

Under Art. 59 of the CL, importers of merchandise into Mexico must:

a Possess an inventory control system to keep track of the origin of their goods. Companies introducing merchandise under a temporary regime (e.g., maquiladoras) must maintain an automated inventory control system.[60]
b Obtain information, documents and other evidence necessary to prove the country of origin of merchandise for the purposes of preferential treatment, application of quotas and other measures in compliance with the FTL and with international treaties to which Mexico is a party.
c Submit to the customs broker or attorney a declaration on the customs value of the goods, as well as all supporting documents. This value declaration, along with the corresponding commercial invoice, is intended to provide to customs an assessment of the importer's determination of the value of the goods that will be subject to dispatch, including all factors that may affect the declared value (e.g., the relationship between shipper and importer).
d Submit to AGA the authorization (carta de encomienda or legal proxy) for each customs broker or agent acting on its behalf.
e Register in the importer's registry maintained by SHCP.[61]

Information Required for the Elaboration of Import Documents

Annex 22 of the RGFT sets forth the information that must be submitted by importers in order to carry out international operations.

General Information

1 Number of the pedimento assigned by the customs broker or legal representative;
2 Type of operation (import or export);
3 Pedimento code (depending on the type of operation);
4 Customs status (e.g., temporary or final imports, exports of finished goods, etc.);
5 Code of the place of destination;
6 Exchange rate (pesos to dollars);
7 Gross weight (kgs.);
8 Code of customs port-of-entry and section;
9 Means of transport (entrance/exit from Mexico);
10 Means of transport when goods enter customs;
11 Means of transport when goods leave customs;
12 Value in dollars, as evidenced in the relevant invoice(s);
13 Value at customs (pesos);
14 Price paid (pesos);
15 Mexican Federal Tax I.D. number of the importer;
16 Identification number of the importer (individual or sole proprietor);

57 (con't) official scans the bar code printed by the customs broker on the pedimento (see infra, Sections V.C.2 a) and V.C.4), and the computerized system determines at that point whether the shipment will be subject to the first or second inspection, or whether it is to be released.
58 Article 95 of the CL.
59 Article 108 of the CL.
60 Annex 24 of the RGFT.
61 This importer's registry is referred to as the Padrón General de Importadores (General Registry of Importers) and is different from the Padrón de Importadores Sectorial (Sectorial Record of Importers) that is required by customs as a condition to import certain goods as provided for in Annex 10 of the RGFT.

17 Name, company name or status of the importer;
18 Legal address of the importer;
19 Insured value (pesos);
20 Insurance costs (pesos);[62]
21 Delivery costs;[63]
22 Packaging costs;[64]
23 Additional charges;
24 Electronic validation code;
25 Bar code printed by the customs broker or legal representative;
26 Code of the processing port-of-entry / Section;
27 Marks, serial numbers and total packages;
28 Dates (entry/payment of duties/release from bonded warehouse/presentation of pedimento/importation to the U.S. or Canada–when applicable);
29 Duties;
30 Code of the type of duty rate;
31 Rate;
32 Brief description of the duty;
33 Form of payment code;
34 Total amount of duties paid (pesos);
35 Amount of cash payment;
36 Amount paid by other payment methods; and
37 Total amount (cash and others).

Supplier or Recipient Information

1 Fiscal ID (Canada: business number or social security identification; U.S.: Tax I.D. number or social security number);
2 Name, company name or company status;
3 Address;
4 Relationship;
5 Invoice number(s);
6 Invoice date(s);
7 Incoterms;
8 Code of the foreign currency utilized in the invoice(s);
9 Total value in foreign currency;
10 Exchange rate (dollars and pesos); and
11 Value in dollars.

Transportation

1 Identification (license plates, type, model of vehicle, etc.); and
2 Country code of the country of origin of the means of transport.

62 When not included in the price paid for the goods.
63 Id.
64 Id.

Guides, Manifests or Shipping Lists

1 Number (guide/shipping order); and
2 ID code.

Containers

1 Container number; and
2 Type of container.

Customs Broker Information

1 Name or Company;
2 RFC: Federal Tax I.D.;
3 CURP: Individual identification number;
4 Legal representative name;
5 Oath;
6 Authorization or license; and
7 Signature.

Supplement to the Pedimento

1 Number of Pedimento;
2 Type of operation (import or export);
3 Pedimento code;
4 RFC: Federal Tax I.D.;
5 CURP: Individual identification number;
6 Sequential number of the tariff classification;
7 Tariff classification;
8 Sub-classification (if applicable);
9 Connection Code (when value is affected by commercial, financial relationships / connections);
10 Valuation method;
11 Unit of measure specified on the commercial invoice;
12 Quantity by unit of measure (invoice);
13 Unit of measure of the tariff;
14 Quantity by unit of measure (GIEDL);
15 Code of the country of origin;
16 Country of origin or destination;
17 Description (variable lines as required);
18 Value at customs (pesos);
19 Duty on price paid (for importation: value in pesos of the goods without the costs of delivery, insurance and other charges);
20 Unit price;
21 Value added to exports of goods from maquiladoras;

22 State of origin, destination, purchaser, foreign vendor (country of origin when the country of origin is the U.S. or Canada; Mexican state of destination for importation; Mexican state of the buyer of the goods; and state of the foreign vendor, only when the country is the U.S. or Canada);
23 Mark or make and model (only for the importation of pickup trucks and vehicles to the border region);
24 Product code;
25 Description of duty;
26 Rate applicable to the duty;
27 Type of rate;
28 Form of payment; and
29 Total

Non-Tariff Related Regulations and Restrictions

1 Permit code to prove compliance with non-tariff regulations and restrictions;
2 Permit number;
3 Electronic signature of the granter of the permit;
4 Commercial value in dollars; and
5 Quantity in units of measurement.

Supporting Documentation

Under Art. 36 of the CL, the following documents need to be attached to import pedimentos:

a a commercial invoice, when the customs value of the merchandise is determined by transaction value and the value of the merchandise exceeds the amount set forth in the rules issued by SHCP;[65]

Under Rule 2.6.1. of the RGFT, there is an obligation to attach an invoice when the value of the goods covered by such invoice exceeds U.S. $300. The invoice may be issued by national or foreign suppliers. Both the original and a copy must be submitted at the time of dispatch.

The invoice must contain the following information:

1 Place and date of issuance;
2 Name and address of the recipient of the goods;
3 The commercial description of the merchandise and specifications with regard to class, quantity of units, identification numbers (where applicable), unitary values and total value of the goods covered by the invoice; and
4 Name and address of the seller.

In the absence of any of the items listed above, or if there are any amendments or annotations that may alter the original information, it shall be interpreted that the invoice was not submitted. This omission may be settled at any time through the submission of an affidavit by the importer, broker or legal representative, provided a customs administrative procedure has not been initiated, or that the goods are not undergoing the customs inspection, second inspection or verification during transport.

If the information regarding the commercial description of the goods is stated in a language other than Spanish, English or French, it must be properly translated into Spanish language within the same invoice or in an attachment.

65 These values vary depending on the nature of the goods.

b documents evidencing compliance with non-tariff regulations and restrictions upon imports, issued in accordance with the FTL;
c documents evidencing the origin of the goods for purposes of applying preferential duty access, antidumping/countervailing duties and/or quantitative or other restrictions;
d when the declared value is less than the estimated price established by the SHCP,[66] a document setting forth the guarantee furnished through a deposit in the customs guarantee account referred to in Art. 84-A of the CL;
e information permitting the identification, analysis and control of the goods as may be indicated under the relevant rules issued by SHCP;[67] and
f when the goods are subject to an import permit or requisite, the importer must first obtain such authorization and attach it to the import filing. To the extent possible, it must also include an electronic signature evidencing compliance with such requirement within the pedimento.[68]

Customs SAAI M3 Processing System

The SAAI M3 establishes the guidelines and criteria to be followed with respect to electronic import filings. It provides an interface for customs brokers and customs authorities.

This system is administered by the Customs Broker Association and allows access to its authorized customs brokers.

Each file transmitted to customs may contain information on one or more pedimentos. In addition, an unlimited number of files may be transmitted using this system.

The name of each file adopts the form mppppnnn.ddd, where:

m is a constant indicating that the file is a pedimento, in order to differentiate it from other SAAI M3 files;
pppp is the patent or authorization granted to the customs broker who is sending the file;
nnn is the progressive number of the file. This number begins at 001 and includes all pedimento files sent by the customs broker until it reaches 999, to start again at 001;
ddd represents the number of days that have elapsed during the year in which the operation is undertaken.

For example, if on February 2 a customs broker with patent number 0123 transmits three pedimento files, the files would be named m0123001.033, m0123002.033 and m0123003.033.

Through the exchange of files, the customs broker informs customs of the pedimentos that will be dispatched once the submitted information is validated. The customs broker will receive a response from customs in the form of an electronic signature for each accepted pedimento and codes identifying the errors detected in those pedimentos that have not been accepted.

The customs broker must then correct and resubmit the information stated in the erroneous pedimentos, until approval is granted by customs. Correctly filed pedimentos may be printed immediately, including the electronic signature resulting from the validation, in order to proceed with the dispatch. The prior validation is useful in order to avoid peak hours for the transmission of information. Duties may be paid on the same day or on the day following validation. However, in order for the validation to be possible, the exchange rate applicable to the next day must already be known in order to calculate the applicable duties.

There are three types of documents that may be captured by the system: pedimento information, discharges to previous pedimentos, and preliminary information of consolidated pedimentos.

66 As provided in the Resolution that establishes the mechanism that guarantees payment of import duties for goods subject to estimated prices by the Secretariat of Finance and Public Credit (Official Gazette, February 28, 1994).

67 This information might include the serial number, part number, trademark, model or, in the absence thereof, the technical or commercial specifications necessary to identify the merchandise and distinguish it from similar merchandise. Such information is to be set forth on the customs pedimento, the invoice, the shipping document or on a list attached thereto indicating the number of the customs pedimento, duly signed by the importer or by the customs broker or attorney.

With regard to the information stated on the pedimentos, the SAAI M3 allows for the registration of the following data: general information, invoice information, dates, general pedimento identifiers, general pedimento import duties, observations, headings, merchandise, countries of origin at the heading level, permits at the heading level, identifiers at the heading level, duties at the heading level, and observations at the heading level–such as custom, importer, country of the buyer or seller, etc. Such information also includes the general characteristics of the goods stated on the pedimento, such as tariff code, quantity, import duties, permits, etc.

Certain types of pedimentos are discharged from their original operations (e.g., when there is a return of temporarily imported goods, a change of customs regimes, etc.).

In the case of consolidated pedimentos, before the goods and the relevant invoices are submitted for clearance, the customs broker must transmit to customs certain preliminary information, including the customs broker's code, the number assigned to the pedimento, the federal taxpayer ID of the importer, etc. Once these preliminary registries have been validated, the goods and the relevant documents may be presented to activate the automated selection mechanism.

Finally, once the consolidated pedimento has been elaborated, the relevant information must be submitted to customs and duties must be paid as stated in the validated pedimento.

It should be emphasized that at present the system is limited to the filing of electronic pedimentos and related information. This is a reflection of the fact that under Mexican laws, customs relies on the pedimento as the most detailed means to document a transaction.[69] There is no uniform set of rules establishing guidelines to be followed for the electronic submission of other types of documents (e.g., invoices, certificates of origin, permits, etc.).[70] Establishing guidelines for electronic documents to be formatted in such a way so as to facilitate search and identification processes while reviewing information should be a priority of the CyberPort project. However, this process would not be without obstacles. Although various countries and international organizations have promoted efforts in favor of the adoption of electronic invoices, uniformity has yet to be attained. If Mexico and the U.S. could agree on a common model, this would contribute greatly to the creation of a reliable set of documents that would, in addition, decrease litigation between various private parties, and also between such private parties and government agencies (including, but not limited to, customs authorities).

Inspection of Goods

As defined in Article 44 of the CL, the "customs inspection" and the "second inspection" entail an examination of goods–or samples thereof–by virtue of an export or import process, in order to determine the accuracy of the relevant declaration.[71]

Whenever customs officials encounter irregularities upon inspection of the goods, they may proceed to determine the precautionary seizure of the merchandise. In the case of goods subject to estimated values and other specific circumstances, the merchandise shall be released to the importer provided such importer posts a bond equivalent to the value of the merchandise in favor of SHCP.

If no irregularities are detected in the customs inspection or second inspection, the goods shall be cleared.

It should be noted that in cases of imports by passengers, the automatic selection mechanism shall be activated on a single occasion. As set forth by Art. 43 of the CL, there will also be only one inspection in the case of companies authorized under international agreements to which Mexico is a party (as regulated by SHCP). It should be clarified, however, that the provision under Art. 43 has not been implemented in practice.

68 Although current regulations provide for the inclusion of an electronic signature in order to evidence compliance with permitting requirements, in practice this has yet to be implemented.

69 In contrast, in the U.S. the most detailed means to document a transaction is the invoice.

70 Id. This year's amendments to the CL, under Art. 36, provide that when documentation is to be presented along with the merchandise in order to demonstrate compliance with non-tariff regulations and restrictions, Mexican NOMs and other obligations established within the CL for each customs regime, the Tax Administration may establish through administrative rules that those obligations may be complied with through electronic filings or digital means.

71 See supra, Section V.B.

Information Exchange Between Government Agencies

The efficient operation of the CyberPort must rely on the effective exchange of information between federal and state agencies, as well as between governments and the private sector. Federal law, however, tends to limit the dissemination of information to individuals. Other policy and structural constraints may also apply.

From a structural point of view, it is essential for governments to implement a reliable system to exchange information electronically. It is worth noting that, in Mexico, recent amendments to Art. 16 of the CL enable the SHCP to authorize private parties to render electronic data processing and related services necessary to carry out the customs dispatch and all other operations that the SHCP may decide to authorize–including taxes and inspection of merchandise.

Privatization of Customs Functions

Functions related to the handling, storage, surveillance, loading and unloading of merchandise, as well as information processing, are expressly conferred to the Customs Service and must be carried out within customs premises (recintos fiscales).[72] However, some of these functions may be conducted by private parties within authorized private customs premises (also known as fiscal premises or recintos fiscalizados)[73] at predefined customs ports, provided certain requisites are met by the private parties seeking such authorizations.

Handling, Storage and Surveillance of Goods

When addressing the handling, surveillance and storage of goods, the CL expressly distinguishes between two modalities: concessions and authorizations.

Concessions

Concessions to operate an authorized fiscal premises are awarded through a public bidding process.[74] The relevant award includes both the authorization to perform the aforementioned activities within the premises, as well as the right to use the land and/or the facilities that belong to the Mexican government in order to perform such functions.

In order to be awarded a concession, private entities must evidence that: a) they are duly incorporated in Mexico; b) both the entity and its shareholders have moral and economic solvency, as well as the technical capabilities required to operate the concession; c) they are current on their tax payments; and d) they have submitted an investment project and other relevant documents, as provided by SHCP.

The concession can be awarded for a term of up to twenty years, which may be extended for an additional twenty years upon request by the interested party, which must be filed within the three years prior to the termination of the concession. Extensions shall be granted only when the interested parties demonstrate full compliance with the requirements and obligations imposed for the initial authorization.

Upon the conclusion of the term granted for the concession (or, where applicable, the extension thereof), all improvements and adaptations to the facilities, as well as the equipment used in order to perform the activities under the concession shall remain in the possession of the Mexican government, without any right of compensation to the concessionaire.

Authorizations

Under Article 14-A of the CL, authorizations to operate a fiscal premises are granted by the SAT to petitioners who either directly own or are entitled to the temporary use of premises that neighbor fiscal premises.

72 "Recintos fiscales" are those locations where customs authorities perform functions of handling, storage, surveillance, loading and unloading of goods, as well as verification/inspection and clearance activities.

73 Authorizations or concessions to private parties to operate "Recintos fiscalizados" are limited to the handling, storage and surveillance of merchandise.

74 Art. 14 of the CL.

In order to obtain an authorization, interested parties must, in addition to complying with the requirements applicable to concessionaires, demonstrate legal title or possession of the property in which the storage, handling and surveillance of merchandise shall occur.

Extensions of an existing authorization are permissible under the same terms and conditions established for concessionaires, provided that the applicant demonstrates that the title or possession of the relevant property will continue throughout the term of the extension.

In addition to the aforementioned requirements, both concessionaires and authorized entities must comply with internal controls, as established by SHCP through miscellaneous rules. They must also comply with the obligations set forth under Art. 15 of the CL, as follows:

a Provide an annual guarantee or an insurance contract in favor of SHCP, in an amount equivalent to the average value of the merchandise stored during the preceding calendar year, to be applied by SHCP towards any duties payable on foreign trade operations. Once such duties have been collected, any remainder shall be returned to the beneficiary;[75]
b Designate facilities for customs authorities to carry out the inspection of goods, in compliance with the requirements set forth by SHCP and by any applicable legal provisions. Different concessionaires may opt to build one common facility to be shared by all of them in order for customs to perform such inspections;
c Implement an electronic system that allows data interface with SAT and inventory control, following the guidelines set forth by SAT by means of administrative rules;
d Provide storage, handling and surveillance services for goods seized by customs or goods that have been relinquished in favor of SAT, provided that the space occupied by such goods does not exceed 20 percent of the facility's storage capacity;
e Allow for the gratuitous storage of goods, in the case of: i) goods to be imported, for a term of up to two days, or up to five days in the case of maritime facilities; and ii) goods to be exported, for up to 15 days, or up to 30 days in the case of minerals; and
f Permit merchandise to be transferred from one warehouse to another upon the filing of a written request by the importer, exporter, consignee or addressee, provided the carrier's charges, as shown on the transport agreement, have been paid, and that there is evidence of the acceptance by the receiving warehouse.

In exchange for the right to render the services mentioned above, authorized entities and concessionaires must pay a monthly public service fee (aprovechamiento) to the federal government in an amount equal to 5 percent of the total income received for the handling, storage and surveillance activities performed during the preceding month.[76]

Such fee shall be paid by concessionaires, regardless of any other fees (aprovechamientos o derechos) imposed by virtue of the temporary use of the land or facilities owned by the Mexican government.

As a general rule, compensation for the services rendered by a concessionaire or an authorized entity is subject to private negotiation between the parties involved. However, in determining such amounts, concessionaires and authorized parties may, as a reference, use the amounts that customs authorities charge individuals when storage, handling and surveillance functions are performed within the "recinto fiscal."[77]

Recent amendment proposals foresee the possibility of extending the location of authorized fiscal premises to industrial parks, in the understanding that such facilities are in a better position to provide timely delivery of inputs on a just-in-time or as-needed basis.

75 The above shall not be applicable to bonded warehouses (almacenes generales de depósito), which are governed by the Ley General de Operaciones y Actividades Auxiliares de Crédito.

76 Certain costs, including expenses incurred in the construction of facilities to be used by customs for administrative purposes, may be deducted.

77 Art. 49 of the Federal Fees Law.

Current delays at the border could be significantly lessened by moving some of these functions to facilities located outside the customs area.

Information Processing

Article 16 of the CL provides that private entities may render certain services regarding the processing of information necessary for the dispatch of goods. Such entities must: a) have five or more years of experience in the rendering of similar services; b) comply with minimum capital requirements (as of January 2002, that amount is Mexican $1:265,481.00); and c) comply with the procedural requirements established by SHCP in the relevant call for tenders published in the Official Gazette.

Article 16 further provides that SHCP may authorize private parties to render other services to facilitate inspection of goods by customs. This provision is very important since it leaves the door open to the possibility of privatizing other functions to facilitate the clearance of goods.

In the area of information processing, it should be noted as well that private parties may also seek authorization to carry out the electronic processing of data and services related to the monitoring of the temporary importation of containers and towing equipment into national territory.

In addition to the above mentioned information processing services, private entities may also participate in the pre-validation of information stated in pedimentos, provided the relevant authorization is obtained.[78]

Pre-validation functions consist in verifying that the information stated in the pedimento meets syntax, classification, structural and normative criteria adopted by the SAT.

Export Requirements

Exports are generally understood as the exit of merchandise from Mexican territory. It should be noted that, as a practical matter, the CL does differentiate exports from returns abroad, in the sense that only goods of Mexican origin or that have been nationalized through their permanent importation (and that have paid the applicable import duties) are exported, while goods that have been imported temporarily and subsequently leave the country in the same condition or after undergoing a transformation shall be deemed as "returned," not exported.

Once this clarification has been established, Art. 102 of the CL defines final or permanent exports as the exit of goods from the national territory in order to remain abroad, while temporary exports are defined as the exit of national origin or nationalized goods which will stay abroad for a limited period of time and for specific purposes, provided they return to the country without undergoing modifications.[79]

It is worth noting that in an effort by the Mexican Government to promote exports and as mandated by the GIEDL and with very few exceptions, exports of goods are generally subject to 0 percent export duties. Moreover, the Value Added Tax Law applies a 0 percent rate to exports of goods and services.[80]

In fact, it can be easily concluded that the major burden that exporters currently face in their operations pertains to compliance with applicable non-tariff restrictions and regulations.

78 Art. 16-A of the CL. Currently, such authorizations are limited to the National Customs Broker's Confederations and national business associations that use apoderados aduanales for purposes of their foreign trade operations.

79 Art. 115 of the CL.

80 Art. 29 of the Value Added Tax Law.

In terms of numeral II of Art. 56 of the CL, the tariffs, taxable base, exchange rates, antidumping/countervailing duties and other non-tariff regulations or restrictions shall be those applicable on the date on which the goods are submitted to customs. In such regard, it shall be understood that goods are submitted to customs on the date the export pedimento is presented and the automated selection mechanism is activated.

Information Required for the Elaboration of Export Documents

As in the case of importations, Annex 22 of the RGFT establishes the information that must be submitted by exporters in order to carry out international operations. In addition to the information set forth supra (Section V.C.2), exporters must also provide the following recipient information:

1 Fiscal ID (Canada: business number or social security identification; U.S.: Tax I.D. number or social security number);
2 Name, company name or company status; and
3 Address.

Supporting Documentation

Under Art. 36 of the CL, the following documents must be attached to export pedimentos:

a the invoice or other document setting forth the commercial value of the goods; and
b documents evidencing compliance with non-tariff regulations and restrictions upon exports, issued in accordance with FTL provisions.

In practice, exports of goods are commonly documented with an invoice that complies with the information stated in Article 29-A of the FTC, which relates to the federal taxpayer's obligation to record information on both buyer and seller, as well as to calculate the applicable sales tax or withholding, as appropriate.

Customs SAAI M3 Processing System

The SAAI M3 establishes the guidelines and criteria to be followed in connection with electronic export filings. The terms and procedures for the processing of information for export pedimentos are identical to those set forth supra (Section V.C.4).

Inspection of Goods

In the case of exports, the customs inspection of goods is limited to verifying the values declared in the export pedimento.

Upon clearance of goods for exports, Mexican Customs must also verify that the exporter complies with the necessary requirements upon importation into the country of destination. A clear example of this is the role played by CAADES in Nogales in ensuring that agricultural goods, prior to their exportation, comply with quality standards required in the U.S. Similar quality controls are imposed on other products, including wood and electronic components. In implementing the CyberPort, joint-inspections carried out simultaneously to exercise these controls would avoid duplication and expedite the clearance process.

In most cases involving exports (by companies or by passengers), the automatic selection mechanism is activated only once. Only in limited instances will customs submit the goods to a second inspection.[81] Moreover, certain qualifying operations, such as the return of goods elaborated by maquiladoras, will also be exempt from the activation of the secondary automated inspection mechanism.[82]

81 Annex 14 of the RGFT.
82 RGFT 2.6.15.

Information Exchange Between Government Agencies

Current inspections by Mexican Customs are considered fairly impractical, since a truckload of goods could be inspected up to four times before it reaches its destination (this includes inspection by customs and other federal and local agencies). Certain goods may be monitored for quality purposes up to two times at the Mexican Customs port, depending on the type of goods involved. In addition to these inspections, goods may also be subject to inspection in the U.S., repeating in most cases the procedures and efforts performed by other inspectors.

The same phenomenon takes place when goods move from the U.S. and into Mexico. Government agencies (e.g., the United States Department of Agriculture) and, in some instances, international certification agencies (ISO 9000 compliance auditors) will inspect the goods, which may subsequently have to undergo one or two additional inspections in Mexico.

In these instances, U.S. and Mexican governments, importers and exporters would benefit from the implementation of joint-inspections, as well as from the use of electronic systems to enable the exchange of the relevant information.

Privatization of Functions

The facilities in which Arizona Department of Agriculture authorized inspectors conduct inspections of certain agricultural goods entering the United States are owned by a private entity, CAADES. This practice can be used as a good example when seeking to achieve full pre-clearance of goods entering both countries by allowing federal officials to carry out such functions outside the customs premises.

Maquiladora Operations

A maquiladora is a company that has been authorized to operate under an export promotion program created by the Mexican government that provides a variety of tax breaks and other benefits. The beneficiaries of the program are permitted to import goods temporarily and export the final product without paying duties, VAT or other tax liabilities,[83] although certain exceptions apply.[84]

Of all the industrial sectors, the maquiladora sector is the most dynamic in the Mexican economy. Although maquilas are concentrated in electronics, transportation (including autos and auto parts) and textiles, they include a variety of manufacturing activities.[85]

Although the maquiladora regime is granted and administered by SECON, it is closely monitored by SHCP in all matters relating to the payment of duties and performance with the overall customs regulatory environment.

Temporary Imports

From a customs perspective, maquila and PITEX companies may temporarily import goods for repairing, manufacturing or for use in transformation processes.[86] Such temporary imports will not be subject to the payment of import duties.

Goods that are temporarily imported must be returned abroad or recategorized under another import regime and nationalized within the authorized periods. If this obligation is not met, such goods will be deemed illegal and will be assessed the applicable duties.[87] Inputs[88] are allowed to stay within Mexican territory for transformation purposes for a period not to exceed 18 months, while fixed assets[89] utilized in the production process are allowed to remain for a period of up to five years, or of their useful life, in compliance with the terms of the Mexican Income Tax Law, if such term is greater.

83 Art. 3 Section V, Decreto para el Fomento y Desarrollo de la Industria Maquiladora de Exportación (supra note 25).
84 NAFTA Art. 303.
85 These three sectors account for almost 75 percent of total employment and 80 percent of production.
86 Art. 108 of the CL.
87 Id.
88 Defined in numeral I of Article 8 of the Maquiladora Decree, supra note 25.
89 Defined in numerals III and IV of Article 8 of the Maquiladora Decree, supra note 25.

Exports of Finished Goods

Once goods have been elaborated, transformed or repaired in the Mexican territory, they must be re-exported. However, it should be noted that, under certain circumstances, exports of finished goods to the U.S. or Canada that incorporate non-NAFTA inputs may be subject to the payment of duties upon export.[90] Such payment must be made within 60 calendar days following exportation of the goods.[91]

For those goods that are being returned abroad after a process of elaboration, transformation or repair, in terms of Articles 108, 111 and 112, numeral II of the CL, an invoice or any other document expressing the commercial value of the goods may be presented.

From a customs perspective, except in those cases where the exportation of goods is subject to export regulations or restrictions, these are immediately cleared for export at customs premises.

Other Significant Economic Activities

Agricultural Products

Agricultural products represent an important component in the overall northbound flow of goods at the Nogales port-of-entry.

In an effort to promote exports, the Mexican government has established Temporary Importation Programs in order to Produce Export Goods (PITEX) which enable importers in Mexico to import inputs and machinery on a temporary basis.

Some agricultural companies in the U.S. have taken advantage of the incentives provided by this system and have developed a business whereby they grow their crops in Mexico and then export them abroad.

From a customs perspective, these goods are subject to the same formalities applicable to imports and exports in general, as described in the preceding sections. However, agricultural products must also meet strict quality control standards, primarily when they are exported to the U.S.—the quality inspection requirement does not apply to products that are not under a marketing agreement or products that are destined for further processing (e.g., canning). CAADES[92] has established a module prior to exportation from Mexico in order to verify that the relevant produce exported meets such standards.

Certification made at the CAADES facility includes the participation of the United States Department of Agriculture (USDA) in conjunction with the Foreign Agricultural Service (FAS) and the Arizona Department of Agriculture. Such inspections and verifications are conducted by United States officials or third-party entities authorized to carry out such functions within the Mexican territory. At the CAADES facility in Nogales, Sonora, these agricultural grading inspections are completed by third-party inspectors contracted and certified through the Arizona Department of Agriculture.

Railroad Operations

Railroad operations are an important issue to be addressed when analyzing the flow of goods in and out of Nogales. Even though trade flow volume via rail continues to be less significant than via truck cargo, the value of goods transported by train has increased overall, making Nogales the third most important rail port-of-entry on the U.S.-Mexico border.

Under the CL, a pedimento may only cover goods imported by means of one vehicle, with limited exceptions. One of those exceptions is the importation of goods by rail.[93] These imports must be covered by a principal or main pedimento and a "part II" to the import pedimento. This additional document essentially covers partial shipments of the goods mentioned in the principal or main pedimento.

90 NAFTA Art. 303.

91 Id. In light of these recent NAFTA changes, maquiladoras have been paying duties for the first time since their inception in the 1960's and are subject to increased controls by customs authorities both in the U.S. and Mexico. Under the CyberPort concept, both countries would benefit from an increased exchange of information in this area.

92 Confederación de Asociaciones Agrícolas del Estado de Sinaloa, A.C.

93 RGFT 2.6.8.

The main pedimento must be submitted upon dispatch of the merchandise contained in the first railcar that transports the first container. For all subsequent containers, including those transported in the first railcar, Part II of the pedimento must be duly filed. In the absence of part II, additional containers and cars may not be accepted for dispatch, even if the main pedimento has already been submitted.

It should be noted that the principal pedimento and various part II pedimentos may be submitted by different customs brokers. In this case, the information submitted by each broker regarding partial shipments covered in part II of the pedimento shall be binding on the broker regarding the results of the inspection of such merchandise.

If the result of the automated selection mechanism for the pedimento presented for the first railcar determines that there will be no inspection, the same result applies to the remaining containers covered by the main pedimento. It is also worth noting that goods transported by rail are never subject to the second inspection[94] established in the CL.

Inspections of railcars in Nogales (Mexico) are subject to the physical unloading and reloading of goods in the containers by AGA personnel. On the U.S. side, in contrast, northbound and southbound cars are submitted to gamma-ray inspections. When irregularities are detected on northbound shipments, the train is stopped for further inspection either at the border or in Rio Rico, Arizona.

Hazardous Wastes

Hazardous waste is characterized differently under the U.S. and Mexican legal schemes. Because of the steady flow of hazardous cargo, this presents difficulties for regulatory and enforcement personnel on both sides of the U.S.-Mexico border. Not only do USCS/AGA personnel lack specialized training with respect to chemicals, they do not have ready access to any type of analytical equipment to verify waste mixture contents. In the hot weather conditions of many port locations, extreme combustion hazards can result from certain types of materials, particularly if they are not packaged properly or are mixed with incompatible substances.

Under U.S. law, a complex maze of criteria must be considered before a waste can be legally deemed to be "hazardous"; under Mexican law, simple observations could more easily lead an inspector to decide that a material is or is not hazardous under the law. For example, a waste chemical that smells of organic vapors is likely to be flammable and therefore would be hazardous under Mexico's system; that designation cannot be made directly under U.S. protocols.

The definition of recycled materials also differs; and since Mexican law allows imports of materials for recycling but not for disposal, this definitional distinction presents difficulties for officials at the ports-of-entry.

40 CFR 707.20(c)(2)(i) provides that "EPA and Customs will monitor chemical imports to determine if (they) comply with the certification requirements and the substantive mandates of the Act." Customs must deny entry to all shipments that are not properly certified. Customs must also detain shipments that appear to be in violation of the Toxic Substances Control Act (TSCA) or its regulations; these must then either "be brought into compliance, exported, destroyed, or voluntarily abandoned as per the provisions of 19 CFR 12.124."

Paragraph (ii) of that section provides that in cases where EPA decides to detain a shipment, EPA will identify the reasons for the detention and the necessary actions for an importer to bring the shipment into compliance. The section does not specify, however, that importers are required to route this information to customs before any action is taken by port officials. Instead, the importer is required to contact EPA directly to obtain assistance with bringing the shipment into compliance.

94 RGFT rule 2.6.15.

Exports of hazardous materials are governed by 15 U.S.C. 2611(b) (Section 12(b) of TSCA), which requires exporters to notify EPA before exporting any chemical substance or mixture. 40 CFR 707.70(a)(1) requires that EPA notify the importing country within five working days of receipt of the first annual export notice provided by the exporter.

Federal agencies are always responsible for reporting releases of hazardous substances from facilities or vessels under their jurisdiction or control. In connection with hazardous cargo moving through the port-of-entry, customs would be required to report all releases.[95]

Memorandum of Understanding

The Environmental Protection Agency and U.S. Customs entered into a Memorandum of Understanding ("MOU") in 1996; it serves to clarify and formalize "a cooperative relationship" between the two agencies with the goal of ultimately leading to improved environmental enforcement and compliance and a "framework for consultation, information-sharing, and mutual assistance in civil and criminal enforcement."[96] The MOU is also intended to "establish a framework" for the development of additional agreements between EPA and U.S. Customs relating to environmental matters.[97]

Documentation required by various government agencies for hazardous cargo movement in the U.S. is somewhat duplicative. Although the required hazardous waste forms all refer to a single document that originates with EPA, other import/export forms are unique to other agencies. These forms could be consolidated and harmonized, thereby reducing overall required documentation.

Notice policies are also complex. Imports and exports entail notice to EPA and U.S. Customs, but each has different responsibilities in given situations. Pre-registration of individuals involved in the routing of the cargo is required by law, various agency regulations, and specific port procedure; this can also potentially complicate the flow of hazardous goods.

Operational Issues

Consistent with the overall concept of the CyberPort, an ideal flow of goods would imply non-stop border crossings. The U.S. has made progress in this area in recent years. The legal and regulatory frameworks are largely flexible enough to allow non-stop crossings for cargo determined as low-risk and that presents no compliance issues. U.S. Customs and most other U.S. law enforcement agencies have discretion in how they use their resources and prioritize their workloads. For low-risk importers in certain industries, non-stop crossing is often a reality. However, there are many situations where this is not the case. Political and operational factors prevent total application of a non-stop crossing paradigm. These include staffing, domestic pressure for tougher border enforcement, and many others. Staffing and training needs are also a big concern in the case of Mexico.

The most basic shortcoming is that of current automated systems in both countries. In the U.S., the non-stop border release concept relies on all necessary decisions regarding cargo release being made prior to the truck's arrival at the border. In a paper document environment, this simply is not feasible. Even if paper documents were provided weeks in advance, the release decision would not always be made prior to the truck's arrival, as a paper document requires human intervention. With the current volume of trade between both countries, the decision process should be largely electronic. Both countries have elements of automation—to differing extents—but not all necessary components of the import declaration are electronic. In Mexico, only the manifests are transmitted electronically; in the U.S., truck bills of lading, special certifications, textile visas and many other documents, particularly forms required by government agencies other than U.S. Customs, remain in paper format. A single paper form that is part of an entry package negates the benefits of paperless transmission, and prevents a non-stop border clearance.

95 40 CFR §300.170.

96 Section I, Memorandum of Understanding Between the United States Environmental Protection Agency and the United States Customs Service for the Enforcement of U.S. Environmental Laws, signed by the Assistant Administrator of EPA and the Commissioner of U.S. Customs Service, March 5, 1996.

97 Id, Section I, paragraph E.

Hours of Operation

One of the main operational issues that currently inhibits the smooth and efficient flow of goods in ground operations at customs is the lack of uniformity regarding customs' hours of operation.

As indicated by customs officials in Nogales, Mexico, hours of operation at Mexican and U.S. Customs vary; consequently, there might be a long line of trucks waiting until the Mexican or U.S. Customs authorities begin their work shift. U.S. Customs officials, on the other hand, have expressed their disagreement with this statement and have pointed out that authorities at both ports try to coordinate their schedules so that all trucks that are released from Mexican Customs are allowed to enter the U.S. (even if it is beyond normal hours of operation). U.S. Customs asserts that they do not close until the last truck arrives.

Annex 4 of the RGFT establishes the hours of operation for Mexican Customs throughout the country. Currently, imports through the Mariposa port-of-entry in Mexico are dispatched Monday through Friday from 8 a.m. to 8 p.m. and Saturdays from 10 a.m. to 2 p.m. Exports through the port are currently dispatched Monday through Friday from 8 a.m. to 6 p.m. and Saturdays from 10 a.m. to 2 p.m. Imports and exports by rail are processed Monday through Friday from 8:30 a.m. to 4 p.m. and Saturdays from 8 a.m. to 2 p.m. In contrast, the U.S. port-of-entry in Nogales currently operates from 8 a.m. to 6 p.m. Monday through Friday and 8 a.m. to 5 p.m. on Saturdays. On November 4, 2002 and through June or July 2003 (the specific date has yet to be determined), hours of operation will change to 8 a.m. to 7 p.m. Monday through Friday, with no changes on Saturdays. For rail transportation, hours of operation are Monday through Saturday, 8 a.m. to 4 p.m. (this schedule remains the same all year long and it is possible to extend these hours depending on daily circumstances).[98]

Types of Goods

Ideally, ports-of-entry should implement the necessary planning and possess the infrastructure and human resources necessary to attend to seasonal changes related to the flow of certain types of goods, such as produce or toys.

The increase in the flow of certain pre-identified goods, according to seasons or consumption trends, should be dispersed by regions in order to prevent the saturation of customs ports that handle high volumes of operations or to accommodate importers that are regular users of the facilities, such as maquiladoras.

Annex 1 of the RGFT regulates which goods may only be imported through pre-designated ports-of-entry. In the case of Nogales, merchandise specifically authorized to clear through the port includes potatoes, certain textiles, compact disks, apples, certain beef products and beer.

A closely related issue is the lack of skilled personnel to conduct the inspections of goods—or, ideally, joint inspections—on a permanent basis. Even agricultural goods (which constitute the bulk of trade flow in Nogales) require highly specialized inspections. The specialized skills required to inspect a wide range of commodities for possible violations of public safety laws and regulations would, in fact, make it extremely difficult to harmonize port management in this area.

98 Information provided telephonically by port authorities, October 31, 2002.

Agency Organization

An operational issue that should be closely analyzed in Mexico pertains to the current structural nature of the AGA, which essentially relates to its dependency on the SAT and the resulting lack of authority by AGA port directors in basic decision making.

The AGA does not currently have an annual budget that it may utilize to attend to its needs. In order to obtain resources, local port directors must submit purchase orders for approval by SAT, and in turn SAT forwards such orders to its Purchasing Department so that they can be processed. In practice, this is a complicated and burdensome bureaucratic process[99]; and it applies to such diverse areas as the purchase of equipment needed at customs facilities, the disposal of seized goods due to inspections performed by customs, or the construction of additional facilities or inspection docks.

Both in the U.S. and Mexico, uniformity is an elusive goal, even within a single agency. Achieving perfect uniformity among and between many agencies on both sides of a border is a daunting challenge due to varying inspection procedures and standards. Due to the different political considerations involved, it is more likely that an enforceable regime of process uniformity will not exist in this arena. A possible solution could be in the form of a council designed to address these issues and work cooperatively to address them.

There is a lack of standardization and uniformity among different ports-of-entry in both countries. Different ports-of-entry have different operational realities, including bridge and parking lot capacities, work hours and the like. In the U.S., this is due to a very high degree of operational flexibility given to local customs port directors in the Customs Regulations; in Mexico, operational requirements are established under the RGTF. These variances create unique local problems that, due to the regulatory flexibility, can be corrected in the U.S. with a local solution; in Mexico, such changes would imply, in turn, changes to the regulations, which can only be done on a yearly basis.

North American Free Trade Agreement (NAFTA) Issues

Overview

The CL establishes that customs authorities shall cooperate with foreign authorities in those cases and under those terms established by the laws and by international treaties to which Mexico is a party.[100]

NAFTA and other international agreements present unique problems for the management of a port-of-entry. As NAFTA provisions continue to phase in, the nature of economic activity will continue to change. Different commodities may become more or less prevalent, as a result of such provisions. However, there are also unique opportunities for cooperation.

Chapter Five of NAFTA provides the legal framework regarding customs procedures between the United States, Canada and Mexico. Such chapter sets forth the general rules for the issuance of certificates of origin, administration and enforcement of customs procedures, request of advance rulings, review of origin assessments, uniform regulations and cooperation.

99 Interview with Nogales port personnel in Mexico (April 20, 2002).
100 Article 3 of the CL.

NAFTA establishes rules for cooperation and for the establishment of a Working Group and a Customs Subgroup. Article 512 Section 2 specifically provides that:

The parties shall cooperate:

(a) in the enforcement of their respective customs-related laws or regulations implementing this Agreement, and under any customs mutual assistance agreements or other customs-related agreement to which they are party (...)

(c) to the extent practicable and for purposes of facilitating the flow of trade between them, in such customs-related matters as the collection and exchange of statistics regarding the importation and exportation of goods, the harmonization of documentation used in trade, the standardization of data elements, the acceptance of an international data syntax and the exchange of information; and

(d) to the extent practicable, in the storage and transmission of customs-related documents.

As established in subsection (c), customs authorities in the U.S., Canada and Mexico are allowed to implement measures that would harmonize documentation used in trade and standardize their data information systems. Nevertheless, it is noteworthy that there are no provisions pertaining to the harmonization or unification of customs procedures.

In addition to the aforementioned provisions, Article 513 of the NAFTA establishes the creation of a NAFTA Customs Workgroup under the following guidelines:

1 The Parties hereby establish a Working Group on Rules of Origin, comprising representatives of each Party, to ensure:
a the effective implementation and administration of Articles 303 (Restriction on Drawback and Duty Deferral Programs), 308 (Most-Favored-Nation Rates of Duty on Certain Goods) and 311, Chapter Four, this Chapter, the Marking Rules and the Uniform Regulations; and
b the effective administration of the customs related aspects of Chapter Three.

2 The Working Group shall meet at least four times each year and on the request of any Party.

3 The Working Group shall:
a monitor the implementation and administration by the customs administrations of the Parties of Articles 303, 308 and 311, Chapter Four, this Chapter, the Marking Rules and the Uniform Regulations to ensure their uniform interpretation;
b endeavor to agree, on the request of any Party, on any proposed modification of or addition to Article 303, 308 or 311, Chapter Four, this Chapter, the Marking Rules or the Uniform Regulations;
c notify the Commission of any agreed modification of or addition to the Uniform Regulations;
d propose to the Commission any modification of or addition to Article 303, 308 or 311, Chapter Four, this Chapter, the Marking Rules, the Uniform Regulations or any other provision of this Agreement as may be required to conform with any change to the Harmonized System; and
e consider any other matter referred to it by a Party or by the Customs Subgroup established under paragraph 6.

4 Each Party shall, to the greatest extent practicable, take all necessary measures to implement any modification of or addition to this Agreement within 180 days of the date on which the Commission agrees on the modification or addition.

5 If the Working Group fails to resolve a matter referred to it pursuant to paragraph 3(e) within 30 days of such referral, any Party may request a meeting of the Commission under Article 2007 (Commission Good Offices, Conciliation and Mediation).

6 The Working Group shall establish, and monitor the work of, a Customs Subgroup, comprising representatives of each Party. The Subgroup shall meet at least four times each year and on the request of any Party and shall:

a endeavor to agree on

(i) the uniform interpretation, application and administration of Articles 303, 308 and 311, Chapter Four, this Chapter, the Marking Rules and the Uniform Regulations,

(ii) tariff classification and valuation matters relating to determinations of origin,

(iii) equivalent procedures and criteria for the request, approval, modification, revocation and implementation of advance rulings,

(iv) revisions to the Certificate of Origin,

(v) any other matter referred to it by a Party, the Working Group or the Committee on Trade in Goods established under Article 316, and

(vi) any other customs-related matter arising under this Agreement;

b consider

(i) the harmonization of customs-related automation requirements and documentation, and

(ii) proposed customs-related administrative and operational changes that may affect the flow of trade between the Parties' territories;

c report periodically to the Working Group and notify it of any agreement reached under this paragraph; and

d refer to the Working Group any matter on which it has been unable to reach agreement within 60 days of referral of the matter to it pursuant to subparagraph (a)(v).

7 Nothing in this Chapter shall be construed to prevent a Party from issuing a determination of origin or an advance ruling relating to a matter under consideration by the Working Group or the Customs Subgroup or from taking such other action as it considers necessary, pending a resolution of the matter under this Agreement.

It is worth noting that under section 6 (b), the working group agrees to discuss initiatives regarding administrative changes that would affect the flow of goods between both countries.

Uniform Documentation Under a NAFTA Perspective

To attain the speed and efficiency required for processing the large volume of trucks at the border and avoiding added delays, it is essential for the relevant documents–and particularly transportation documents–to be harmonized. Harmonization is not easy because the documents used in the U.S. and Mexico have evolved from different legal systems and trade environments. Depending on the goods shipped and the method of shipment, surface transportation between Mexico and the U.S. presently requires numerous documents such as invoices, certificates of origin, quality and health certificates, import and export declarations or manifests, insurance policies, etc.

Rail and truck bills of lading serve as: a) the carrier's formal receipt for the goods shipped; b) evidence of the contract of carriage between the carrier and shipper; and c) the consignor/shipper's means with which to stop or divert delivery of the goods shipped.

As the carrier's receipt for the goods, the bill of lading facilitates the shipper's or consignee's claim to the goods. It also provides a verification of the description of the goods for customs and banking officials.

Typically, when a shipment originates in the U.S. for delivery in Mexico, or vice-versa, the initial shipper contracts with a local carrier to deliver the goods to the border, and then the consignee contracts with a carrier in the receiving country in order to transport the goods to the final destination. Thus, two separate contracts of carriage are created, and two separate bills of lading are issued, each providing different terms and different liability regimes.

In order to avoid these conflicts, the North American Committee on Surface Transportation Law and Practice (NACST), created under the auspices of the National Law Center for Inter-American Free Trade (NLCIFT) and comprised of transportation attorneys and professionals from the three NAFTA countries (including carriers, freight-forwarders, insurers, shippers, large and small), has worked to develop a uniform NAFTA bill of lading, as well as a set of best North American Standard Transportation Practice rules (NASTRAPS). These efforts led to the adoption by a number of trucking companies in Canada, the U.S. and Mexico of a uniform truck bill of lading, both paper-based and paperless. In addition, it led to the adoption by many of the same companies of the best practices rules (NASTRAPS).

The uniform bill of lading includes provisions necessary to assure compliance with the essential requirements of current national laws and regulations in the U.S., Canada and Mexico. It is expected that further steps towards the widespread adoption of the NAFTA bill of lading will be made in the near future through additional efforts undertaken by the private sector. Such efforts will be coordinated with the insurance industry so that there can be warehouse-to-warehouse coverage in road transportation in the designated region. Future work should also be coordinated with customs authorities so that necessary information for customs purposes would be set forth in the uniform document. The fact that the document would be both in paper and paperless format would further facilitate the exchange of information between interested parties and agencies.

Conclusions and Recommendations

This report focuses on the current U.S. and Mexican legal regimes governing the importation of goods. To an impartial observer, such regimes may seem complicated and burdensome, particularly in Mexico.

In recent years, SHCP has directed its attention to fighting contraband and documentary fraud. Under this policy, amendments were made to the CL regarding the introduction of currency into Mexican territory,[101] the suspension of an importer's registration at the importer's registry administered by SHCP, and the issuance of agreements regulating the temporary importation of "sensitive" imports.[102] These amendments have resulted in additional administrative burdens for the importation of goods into Mexico.

Customs authorities are apparently aware of some of these problematic issues. In a recent statement addressing the Mexican Confederation of Customs Brokers, the Secretariat of Finance and Public Credit emphasized that the AGA is working to enable compliance with non-tariff regulations and restrictions through digital means. In reality, this would entail the implementation of a provision that already exists in the CL. However, in isolation, such a measure will not substantially impact the efficiency and effectiveness of the flow of goods through customs. AGA has recently announced a project that is intended to modernize and contribute to the efficiency of ports-of-entry within a span of two years.

Genuine simplification is required, not merely a rearrangement of old constructs. Such simplification should be based on the principle that good faith transactions are to be facilitated; it should lead to enhanced efficiencies and reduced costs for both businesses and governments. The AGA Administrator has acknowledged that the vast majority of importers (at least 80 percent) are serious companies and should therefore be encouraged to engage in international trade operations.[103]

Comparatively, the border enforcement structure for the United States is one that has been in a constant state of change over the past decade. In the year after the 9/11 terrorist attacks, the potential for changes appears to be greater than ever before, with the possibility of all border functions being transferred to a single cabinet level department. The likelihood, scope, and results of such a change are basically unknown as of this writing. In theory, such initiative could also incorporate concepts and changes necessary to facilitate the implementation of the CyberPort concept (including, most significantly, the exchange of information, pre-certification and joint-inspections, with privatization and the use of electronic documentation likely taking a secondary place).

The following constitute a set of recommendations and conclusions that would contribute to the efforts to implement the CyberPort concept.

Duplication of Inspections

As analyzed in this report, goods moving from one country to the other are often subject to various inspections, depending on the nature of the merchandise.

In order to expedite the customs clearance process, it would be advisable for both Mexican and U.S. authorities to implement joint inspections. Such inspections would imply the coordination of federal, state and local authorities involved in the process in order to subject goods to a single inspection at customs premises or at other designated locations.[104]

Single inspections would also need to factor in risk-analysis assessments that would likewise need to be coordinated by both countries, while recognizing that it will be impossible to have total consensus by both countries on all of the factors to be considered high-risk.[105] Inspections would be contingent, for instance, on the importer/exporter's record, the type of goods that are being transported, compliance with C-TPAT requirements and additional criteria, as necessary.

101 Article 9 of the CL.

102 Agreement establishing specific requirements for the temporary import of goods (Acuerdo que fija requisitos específicos para la importación temporal de mercancías, Official Gazette, June 13, 2001).

103 "Planean aduanas mejores que EU" Periódico "Reforma", August 18, 2002.

104 Given current infrastructure constraints at the Nogales port-of-entry (both on the U.S. and Mexican side), inspections outside customs premises might be a preferable alternative.

105 In the U.S., for instance, the political concerns identified supra (Section IV.G.4) play a significant role in the determination of risk analysis criteria. The same criteria need not be present in Mexico.

A variant to this alternative would be to implement joint-inspections by the aforementioned authorities only for certain pre-selected importers/exporters, at the place where shipments originate (i.e., the exporter's facilities). Once goods are inspected, the shipment would be sealed and transported abroad. Upon reaching the border, the shipment would only be inspected in the event customs officials detect gross irregularities in the documentation or tampering with the seals.

Whether joint-inspections apply to all importers and exporters or only to pre-selected companies, the structuring of a special facility or facilities to such effects would create considerable legal challenges. In the U.S., the possibility to create a Privatized Examination Zone (PEZ) would be a novel concept, and additional in-depth analysis would be needed to ascertain what legislative changes would be required in order to implement such a zone. Customs officers may currently be stationed in foreign countries for the purpose of examining persons and merchandise prior to their arrival into the U.S.[106] However, in order to exercise this power, the Secretary of State must enter into an agreement with the foreign country so as to authorize the presence of U.S. Customs officials in that country.[107] In addition, if cross-border inspection services are envisioned as an eventual element of the CyberPort concept, it would be advisable to conduct an in-depth study of possible civil liability and insurance issues, which could very likely become a concern for certain U.S. agencies.

Also in theory, in the U.S. this area could be created as a particular type of Foreign Trade Zone, or under a similar legal framework. In the Customs Regulations at 19 C.F.R. 146.3, Customs supervision is required for foreign trade zones, but the type and level of supervision is left to the discretion of the Port Director, and it can consist of physical supervision, periodic audits or spot checks. As mentioned, such a zone could be created outside of customs premises or as an adjunct of the examination area currently in existence at the port-of-entry. If, as stated, supervision of such a zone is under the control of the Port Director, implementation could take as little as one year in the U.S.

Under the Mexican current legal framework, such an area could be created either at the customs premises, or by resorting to a concession or authorization, where private parties can carry out the handling, storage and surveillance of goods, with special facilities designated for customs and other authorities from both countries to carry out the relevant inspections. In addition, under proposed amendments to the Mexican CL, such an area could be located in an industrial park. These amendments, however, could take up to two years to be actually incorporated into the legal framework. If a concession or authorization were to be granted under the existing framework, the award procedure could be initiated right away—such a process, including the preparation of the call for tenders and up to the final award, may take anywhere from one to two years. Private entities wishing to be awarded a concession or authorization would need to comply with the requirements set forth under Art. 14 of the CL, including the fact that they need to be incorporated in Mexico and provide evidence of their economic solvency and technical capabilities.

Enhanced security would be required around this area, with access given to a wide array of U.S. and Mexican government officials, as well as private service providers. In this sense, both in the U.S. and in Mexico the creation of such a zone is deeply connected to the issue of privatization analyzed below.

Arguably in Mexico, the creation of such an area would also imply substantial amendments to Arts. 43 and 44 of the Customs Law, regarding the dispatch process and procedures for the inspection and second inspection of goods. Nevertheless, it is our opinion that such changes could initially be implemented and enforced through amendments to administrative rules by the customs authorities, an inter-agency agreement, or a Presidential Decree that would redefine the scope of applicants and/or operations that would benefit from these procedures.

106 19 U.S.C. § 1629, 19 C.F.R. § 162.8.
107 Id.

Pre-Entry Certifications

A primary concern when goods enter a country is that of national security. In the U.S., this has been further enhanced by the events of September 11; and one of the ways it has been addressed is by making customs one of the main fronts of defense. Hence, goods entering the U.S. need to pass through various filters and comply with pre-clearance mechanisms.

Meanwhile, by endeavoring to ensure compliance in Mexico with non-tariff regulations and restrictions at the country of destination, Mexican Customs may be deemed to be exceeding its verification powers on goods that are in transit to another country; and, therefore, the elimination of such inspections at the point of export may be justified.

Inspections at the border could be substantially reduced if importers and exporters who operate at the Nogales port-of-entry on a regular basis were pre-certified by customs authorities in both countries and were therefore eligible for fast-track or special-lane treatment by customs officials. Indeed, pre-certification systems have been and continue to be used by both countries in the past.[108] This experience could be used by both governments in coordinating a common approach.

It is to be expected that a considerable number of maquiladoras would be favorably impacted if a pre-certification procedure were to be instituted.

Currently, there are some mechanisms under the Mexican CL whereby an importer may benefit from non-stop border crossings provided certain requirements have been met, including controls at the point of origin.[109]

In addition to the above, it should be noted that the Consejo Nacional para la Industria Maquiladora de Exportación (CNIME)[110] is currently working on an initiative that would potentially benefit companies operating under such sector. Under this initiative,

pre-certified maquiladoras would benefit from the use of expedited crossings, whereby inspections shall under no circumstances exceed two percent of the company's truck imports.

A pre-certification proposal could be implemented in the customs legislation, preferably by means of a Presidential Decree that would establish the applicable terms and conditions.

In the U.S., in addition to the BRASS program, efforts are underway to implement the C-TPAT agreement, whereby participating companies will benefit from a reduced number of inspections (and, hence, reduced border-crossing times). C-TPAT is currently open to all importers and carriers by air, rail and sea, and it is expected that enrollment to a broader spectrum of the trade community will be available in the near future. C-TPAT membership will be made available to all sectors of the supply chain.[111]

In summary, various efforts are currently under way in both countries that could yield favorable results in the short to mid-term.

108 Most recently, the U.S. has implemented the Border Release Advanced Screening and Selectivity (BRASS) program.

109 Art. 98 of the CL.

110 National Maquiladora Association.

111 See further at www.customs.gov.

Information Exchange

In addressing the information-exchange obstacle to the expeditious flow of goods between Mexico and the U.S., it is worth mentioning that a cornerstone of any significant change in port operations would be the harmonization of their respective import and export tariff classifications.

Although full implementation of this measure is not likely to happen in the near future, a common database administered by a private party that would correlate existing tariff classifications in Mexico and the U.S. is an alternative that may currently be applied in terms of Articles 15 and 16 of the CL; similarly, in the U.S. such a database could be structured as part of a privatization process. Such a database would ideally serve as a tool for importers and exporters to gather information regarding tariff classifications and to comply with non-tariff restrictions and regulations applicable in both countries.

Once implemented, this database could also serve as an interface between the importer/exporter and the agencies administering or issuing the permits and authorizations required for the importation or exportation of merchandise. It would also be a significant tool to enable agencies to interact with each other and to avoid unnecessary delays.

The implementation of a common database would require an inter-governmental agreement whereby all secretariats and agencies involved in the issuance of non-tariff regulations would create such a common database through which importers and exporters may obtain information regarding the requirements that need to be met in order to import goods. SHCP and USCS would also exchange a list of the current tariff codes existing in Mexico and the U.S., as well as any relevant rulings.

From a safety standpoint, an enhanced exchange of information between the U.S. and Mexico would provide an effective tool for identifying dangerous cargo, as well as for tracking the movement of hazardous materials. C-TPAT represents a potentially remarkable opportunity for a concept like CyberPort in this area. Data will be collected on the participating parties. The expediting of known trustworthy shipments will also rely on technology, such as transponders, barcodes and radio frequency identification ("RFID") tags on cargo and conveyances. Given that a goal of the CyberPort concept is a seamless and rapid border crossing, the opportunity exists in working with the U.S. and Mexican governments to help standardize and coordinate the massive amounts of information that will be involved in these counterterrorism efforts and reap the benefits given to low-risk cargo, while if possible, helping to define the realm in which this cargo will be processed. This could be achieved as a short- to mid-term goal.

U.S. and Mexican government agencies have stringent rules about the disclosure of information they collect. In the U.S., for instance, information can only be disseminated to an outside agency, even under the same cabinet department, on a "need to know" basis, and the agencies have a signed memorandum of understanding that details the specifics on the information sharing arrangement. The implementation of a CyberPort concept, which involves the coordination of many agencies, would result in a tangled web of memoranda such that the prospect of the governments sharing information with each other remains unlikely. On the other hand, private parties, typically the importer, who have all of the cargo and conveyance information, are free to share this information with whomever they wish. Competition factors present good reasons not to make the information completely public, but importers and exporters readily share the transaction data with customs brokers and freight forwarders. A third party service provider that specializes in collecting and routing confidential information to the parties that need it could significantly benefit the CyberPort concept.

Different pieces of information arrive at different times from different sources. Different pieces of information are fed to government agencies at different times. These agencies similarly respond at different times, typically with a "go/no-go" or "green light/red light" decision. The differences in times and decisions cause many delays, duplicate inspections, and other problems. A centralized, neutral

coordinating party—perhaps under the auspices of a port authority and/or of a chamber of commerce or trade organization—could provide the communication and coordination necessary to engineer a single point of examination and the integrity and security necessary to obtain the buy-in of governmental stakeholders.

Such a coordinating party would have to be the subject of voluntary participation by the parties involved. The government cannot compel the use of a specific service provider. An ideal scenario would perhaps be the creation of a new and separate facility built around the PEZ concept described above. It would have ample examination facilities for a moderate volume of cargo, presence of U.S. and Mexican government officers in the appropriate places, excellent perimeter security and a coordinating party who would be authorized by the importers and other parties to receive and transmit data on their behalf. In areas such as these, the potential for private sector assistance is considerable, and arguably the most necessary. Government agencies are often granted considerable operational flexibility but have little incentive to exercise it without outside influence. For a government agency to attempt to coordinate with several other agencies is a large undertaking with no perceived benefits for the agency.

In addition, a coordinated council or CyberPort authority, by understanding not only information needs but also operational limitations, can open the door to new and efficient practices, improving the efficiency, trade facilitation and enforcement capabilities of the border crossing.

If such a cross-border council could be endorsed by the NAFTA regulatory and dispute resolution bodies, its credibility and effectiveness would be greatly enhanced. This, however, would likely entail a long-term commitment.

Under the coordinated information exchange scenario, a truck would travel toward the border zone. Data on the merchandise, origin, truck, driver and parties involved would be transmitted to the usual parties, such as customs brokers, who would pass it on to the coordinating service provider ("CSP"). The CSP in turn would identify the data elements necessary to provide to the Mexican and U.S. governments. Once the truck has passed through a "point of no return" checkpoint, a signal to this effect would be transmitted, perhaps through the use of a transponder, to the CSP, who would pass it on to the governmental authorities.[112] These authorities would have a fixed amount of time to render a decision on whether their particular agency desires to conduct an examination. To facilitate the CyberPort concept, a regime may need to be set up where a non-response after a certain point of time is deemed a "no exam" decision.[113] If there are no agencies needing to examine the goods, this series of "green lights" would be communicated back to the CSP. The gate allowing the truck into the United States could then open. The actual access could be controlled by customs, or by the CSP with customs supervision. If any examinations are required, the CSP would collect these determinations and communicate them to a centralized Examination Control Office ("ECO"). The ECO would be staffed by representatives of each agency with a stake in the matter and would be able to determine the feasibility of joint examinations, or the relative priority of each targeted examination for a given truck. The truck would then be directed to an examination station, after which it would be descended upon by various personnel from any and all agencies needing to conduct a review. Once all examining parties completed their review, the ECO would notify the CSP, who then could communicate or arrange for the truck to move on to its destination.

Since the exchange of information is closely interrelated in both countries to privatization issues, implementation of full-scale coordinated efforts may very well be a mid- to long-term goal.

An additional matter that needs to be taken into consideration and that could also benefit from an improved exchange of information is the proposed implementation by the U.S. Immigration and Naturalization Service (INS) of the Data Management Improvement Act (DMIA), passed in May 2000. The Act is intended to document every entry and exit of aliens from the U.S., a process that could potentially generate delays even more severe than those that currently exist. Community meetings have been held in various locations

112 The private sector is making great advances in "track and trace" technologies that enable consumers to know exactly where the cargo is at any given time, and also significant improvements in logistics planning.

113 This may be politically sensitive. One alternative course of action could be to restrict early participation in the CyberPort to known low-risk importers who are participants in C-TPAT.

along the border as part of the work of a special federal Task Force that was created to these effects. A report will be submitted by the Task Force to the U.S. Congress by or before the end of 2002, and it is expected that new measures will be implemented at the border soon thereafter. In order for these measures to be effective, it is essential that the exchange of information be coordinated. Possible avenues include the implementation of a dual record-keeping system (so that entry and exit information are correlated) at a centralized location—this could be a remote location, not necessarily a border port-of-entry. An effective implementation of these measures is also closely linked to the feasibility of unifying procedures under a system of joint inspections, as well as to the notion of promoting the exchange of information via electronic means.

Standard Paper-Based and Electronic Documentation

As set forth in Article 512 of NAFTA, harmonization of the necessary documentation in order to carry out international trade operations would significantly contribute to a smooth trade flow between the United States and Mexico.

In order to achieve this harmonization, substantial modifications to Articles 36 (import and export documentation) and 59 (import obligations) of the CL would need to be implemented. In addition, rule 2.6.1 of the RGFT would need to be modified in order to harmonize the terms and fields of commercial invoices and those currently required by U.S. regulations.

Harmonization of trade documents is, as a threshold matter, needed in order to implement a uniform electronic system whereby documents can be shared by both customs administrations—as well as by other agencies involved in the clearance process. This would enable the SAAI M3 to incorporate other document formats, in addition to pedimentos. However, in order for the system to be truly operative, a study would need to be undertaken to determine how to interconnect the SAAI M3 system to its U.S. counterpart, the Automated Commercial System (ACS) and its successor, ACE. Depending on how incompatible the systems are, a special software program would need to be developed in order to function as an intermediary component to translate from one system to the other.[114] At the very least, it is essential to develop a common set of data elements.

In addition, significant modifications to current Mexican legislation would be needed in order to migrate many of the current documents attached to import filings to an electronic format. Under the Mexican legal framework, this would need to be promoted as a policy consideration, depending on the interest of the Mexican Congress. Legislative efforts need to include the enactment of specific electronic signature regulations.

In the case of maquiladoras, for example, a paperless environment that would enable the electronic filing of documents such as value declarations and certificates of origin would contribute significantly to the clearance process.

In the case of railroad crossing, the possibility of filing import and export documents electronically would contribute to the simplification of the current process, which in many instances requires repeated filings in order to import a single container.

In light of the legal modifications required, the migration to electronic documents following the existing models would be a long-term goal. The possibility to fully interconnect the SAAI M3 system and the U.S. ACS/ACE system under a uniform set of data elements also appears to be a long-term objective, given the changes that would be required under the SAAI M3 legal infrastructure (including incorporation of additional documents and/or information and administration of the system[115]) and the fact that ACE completion could still take several years.[116]

114 A similar approach is being analyzed by the Inter-American Development Bank in order to develop a system that could serve as a common denominator to existing electronic customs systems in various Latin American countries. The initiative to develop common electronic data interchange (EDI) elements is one of eight business facilitation measures that are being implemented as a result of the negotiations to establish the Free Trade Area of the Americas (FTAA).

115 Currently the system is administered by the Customs Brokers Association and can only be accessed by authorized customs brokers.

116 Information on the development of ACE can be found at www.customs.gov/.

As a general recommendation that could be implemented in the short- to mid-term, it should be noted that carriers, importers and customs authorities alike would benefit from a single document created for transport administrative purposes. All NAFTA countries currently require carriers to have a customs cargo control document for customs. The format and required data for these documents are not standardized; a uniform cargo control document would eliminate this duplication and assist carriers in satisfying regulatory requirements of the customs agencies.

The best use of a single cargo control document may be in the exchange of information by electronic means. It is recommended that the carriers and customs services work together to develop a document that would satisfy the needs of the government interests and the transportation industry. This effort could include the incorporation of the bill of lading or other shipping documents into the uniform cargo control document. The standard practice in all three countries is for the carrier to also issue a bill of lading when receiving a shipment from an exporter. Much of the information on the cargo control documents and the bill of lading is compatible. Critical information regarding motor carrier safety could also be incorporated into the document. A document must be created that is acceptable to the customs services as a cargo control document, but could also be used by the motor carrier industry as a bill of lading, including necessary contractual requirements. The uniform NAFTA bill of lading referenced above could be of significant assistance when developing such a document.

Privatization of Functions

According to AGA, activities related to the dispatch of goods at Mexico City's airport have been almost completely privatized—apparently, AGA currently does not own a single warehouse within such premises. Likewise, customs warehouses at maritime ports in Ensenada, Baja California, are almost wholly owned by private parties.

Considering the efficiency with which such facilities operate, a widespread adoption of this solution would be consistent with the CyberPort concept. Under Articles 14, 15 and 16 of the CL and Article 512 of NAFTA, individuals may apply for concessions to operate services related to customs operations. In Mexico, such services may cover, for example, the exchange of information for customs purposes and operations related to the loading, unloading and storage of goods. Similar functions could be privatized under the U.S. legal framework in the form of a privatized examination zone, as previously described. In theory, in both countries such an undertaking could be completed as a mid-term objective.

Nevertheless, if under a CyberPort concept, authorizations and concessions were also to be extended to industrial parks and other privately owned facilities that would allow the delivery of imported and exported goods in compliance with international standards, such as "just-in-time" delivery or on an as-needed basis, this would imply additional amendments to the Mexican legal framework (which are currently under consideration).

Finally, it should be noted that many of the proposals identified by this report are very closely interrelated. Most notably, privatization issues permeate the consideration of how to better implement joint inspections and the exchange of information. In addition, full implementation of an electronic environment is highly dependent on current efforts by the private sector.

The timeframes that have been identified for each of the proposals are necessarily arbitrary. Legal considerations and changes are necessarily linked to the political will and interests of the federal, state and local governments involved. Hence, what is now perceived as a short-term goal may very well become a low-priority issue in next year's agenda. Under the current framework and expectations, the timeline for possible implementation of the proposals can be summarized as follows:

Proposal	Short-term (1-5 years)	Mid-term (5-10 years)	Long-term (10 years or more)
Joint Inspections	Possible creation of a PEZ under the U.S. legal framework. Possibility to structure interagency agreements among a limited number of agencies (as opposed to full implementation).	Concession or authorization of private entities under the Mexican legal framework. Possibility to carry out joint-inspections at industrial parks in Mexico.	Full implementation.
Pre-Entry Certifications	Pre-certification of Maquiladoras by CNIME. Pre-certification under C-TPAT.	Pre-certification of Maquiladoras by CNIME. Pre-certification under C-TPAT.	Implementation of additional programs.
Information Exchange	Possibility to structure interagency agreements among a limited number of agencies (as opposed to full implementation).	Creation of a common database administered Oby a private party. Exchange of information under C-TPAT. Implementation of DMIA.	Full implementation under a coordinated council or CyberPort authority (with possible endorsement by NAFTA).
Standard and Electronic Documents	Coordination of efforts to adopt a uniform NAFTA bill of lading.	Possible adoption of a single customs cargo control document.	Validation of all types of electronic documents/signatures. Uniformity of data elements. Full implementation of ACE and interconnection with SAAI M3.
Privatization of Functions	Possible creation of a PEZ under the U.S. legal framework.	Concession or authorization of private entities under the Mexican legal framework.	

Concept Study

ENGINEERS
PLANNERS
ECONOMISTS
Wilbur Smith Associates

Prepared by Wilbur Smith Associates
for the Nogales CyberPort Project

Contents

Introduction

Wilbur Smith Associates (WSA) assisted the University of Arizona Office of Economic Development (UAOED) to complete a project to conceptually redesign the Mariposa port-of-entry in Nogales, Arizona. The study, referred to as the Nogales CyberPort Project, employed a bi-national perspective in addressing port issues through the involvement of key U.S. and Mexican stakeholders, including business owners, government officials, trucking industry representatives and commercial trade associations. The project was conducted in direct partnership with the Arizona Department of Transportation, UAOED, the National Law Center for Inter-American Free Trade and A. Epstein and Sons International, Inc., and sought to optimize the port facility's efficiency and effectiveness while strengthening safety and security procedures and increasing competitiveness of the port and region.

Three accompanying technical papers were developed for the project: (i) a trade flow study by UAOED; (ii) a logistics analysis by A. Epstein and Sons International, Inc.; and (iii), an assessment of legal issues by the National Law Center for Inter-American Free Trade. In addition, the Nogales CyberPort Concept Study was conducted by UAOED to re-envision the structure and function of the ideal border port-of-entry and to identify the functions that a Nogales CyberPort should serve. This component involved convening a panel of industry experts and agency officials to conceptualize the ideal port-of-entry and to inform the development of a preliminary model addressing such areas as process improvement, technology gaps and inter-agency collaboration.

WSA developed Technical Report #4: Trade Flow Projections and Alternative CyberPort Concept Models. This work represents a synthesis of previous reports and identified three alternative future scenarios depicting commodity flows through the Nogales, Arizona port-of-entry and four alternative conceptual CyberPort models. These alternatives were developed for consideration and evaluation by the extended CyberPort project team as well as the project's steering and technical advisory committees.

Report Structure

The balance of this report is presented in the following sections:

- Alternative Trade Flow Projections–Provides an overview of forecasts of trade flows between Mexico and the U.S. at the Nogales border port-of-entry (BPOE), including baseline forecasts developed by Reebie Associates and alternative forecasts developed by WSA.
- Definition of the CyberPort Concept–Provides a definition of the CyberPort concept including the basic components of the trade-flow process, the overarching guiding principles, and the variety of functions that a CyberPort should serve.
- Four Alternate CyberPort Concept Models–Presents four alternative CyberPort concept models. The models cover a spectrum from a completely centralized model with maximum consolidation of activities at a single unified port facility to a model based on maximum decentralization of border-crossing procedures and requirements.
- Concept Model Evaluation and Recommendations–Provides an evaluation of the four CyberPort concept models and preliminary recommendations regarding the viability of each model as an alternative to the current Mariposa BPOE.

Alternative Trade Flow Projections

This section provides an overview of forecasts of trade flows between Mexico and the U.S. at the Nogales BPOE, including baseline forecasts developed by Reebie Associates based on their TRANSEARCH Database and alternative forecasts developed by Wilbur Smith Associates.

Introduction

The University of Arizona Office of Economic Development (UAOED) purchased a complete U.S.-Mexico data set from Reebie Associates/TRANSEARCH International. This data set identifies the volume of trade (tonnage) by commodity (3 and 4-digit STCC Code) and mode (truck and rail). The data are for the years 1994, 1998, 2000, 2010 (projection) and 2020 (projection). The data identify the state of origin and destination for northbound and southbound flows in the U.S. and Mexico. The primary ports-of-entry through which trade travels are identified for the years 1998 and 2000. The Commodity Flow Study is supplemented with other trade data from the U.S. Bureau of the Census, International Trade Commission, Bureau of Transportation Statistics, U.S. Customs, et al. These data may serve as the primary basis for projecting future trade scenarios through the Nogales, Arizona BPOE.

Wilbur Smith Associates (WSA) was retained to provide alternative trade flow forecasts. In addition to the baseline forecasts provided by Reebie Associates, WSA developed both "high" and "low" growth scenarios for trade flowing through Nogales in 2010 and 2020. The alternative forecasts were developed based on a number of assumptions regarding infrastructure, global trends, commodity shifts and trade policy.

The first section of this report provides an overview of the historical trend in trade flows, followed by a summary of the baseline forecasts. The second section discusses the variables considered when developing the alternative forecasts. Next, the high scenario forecasts for northbound and southbound trade are presented and summarized followed by the presentation of the low scenario forecasts. A summary comparison of the alternative forecasts is provided in the conclusion of the section.

Historical Freight Flows

Commodity trade flows between the U.S. and Mexico going through the Nogales BPOE totaled more than 7.6 million tons and $10.4 billion dollars in 2000.[1] As Exhibit II-1 shows, northbound trade, or imports into the U.S. from Mexico, accounted for 51.3 percent of trade by volume and 58.7 percent of trade by value.

Based on the volume of trade in tons, more than 12.8 percent of the northbound commodities going through the Nogales BPOE during 2000 originated in the state of Mexico, representing the single most significant point of origin. Vera Cruz represents the second most significant origin with 12.1 percent of the total volume of northbound flows while Distrito Federal and Sonora were third and fourth with 10.7 percent and 10.1 percent of trade flows, respectively. The most popular destination for goods moving northbound through Nogales is Arizona, which accounted for 71.6 percent of total flows. California was the second most popular destination, capturing 16.4 percent of total northbound flows in 2000.

Exhibit II-1: Northbound and Southbound Trade Flows through Nogales BPOE, 2000

	Northbound Total	Percent		Southbound Total	Percent
Weight (tons)	3.9 million	51.3%		3.7 million	48.7%
Value ($)	$6.1 billion	58.7%		$4.1 billion	41.3%

Source of Exhibit II: TRANSEARCH Database, Reebie Associates, Stamford, CT 2002.

1 TRANSEARCH Database, Reebie Associates, Stamford, CT, 2002.

The most popular destination for commodities heading south through Nogales in 2000 was Sonora, which was the stopping point for 59.0 percent of the total flows in terms of weight. Distrito Federal and Baja California Norte were second and third with 12.4 percent and 7.7 percent of total goods, respectively. The most significant point of origin for goods traveling south through Nogales is Arizona, which accounted for 59.4 percent of the total volume of goods (in tons) in 2000. California with 14.6 percent and Texas with 5.8 percent represented the second and third most popular origins for southbound trade through Nogales in 2000.

Another important element to consider when evaluating freight flows is the type of commodities being shipped. The primary products being shipped northbound through Nogales are fresh vegetables and portland cement, which represent 24.0 percent and 18.4 percent of total volume of northbound goods, respectively. Other significant commodity groups moving north through Nogales include fresh fruits and nuts, industrial chemicals and motor vehicle equipment. In terms of value, motor vehicles and equipment , general industrial machinery and instruments, photographic equipment and optical equipment comprised the dominant commodities flowing north through Nogales.

Field crops and metallic ores are the most common commodities flowing southbound through Nogales, representing 19.9 percent and 17.3 percent, respectively. Rounding out the top five are products of petroleum refining, accounting for 9.6 percent; fiber, paper and pulpboard, accounting for 7.6 percent; and, electrical equipment, which represents 5.0 percent. In terms of value, electrical equipment, which represents 31.8 percent of the total value, is the most important commodity being transported southbound through Nogales. Miscellaneous plastics are a distant second, accounting for 8.2 percent of the total value. Metallic ore, field crops and fiber, paper and pulpboard each represents 7.5 percent, 7.3 percent and 6.0 percent of the total value of southbound goods, respectively. Exhibit II-2 provides a summary of the commodity flow characteristics for northbound and southbound trade flowing through Nogales in 2000.

Baseline Forecast

The baseline forecast used in the current analysis was produced by Reebie Associates and was based on recent freight flow trends and the national economic forecast produced by DRI-WEFA. Forecasts are produced for 2010 and 2020 by commodity classification, origin and destination. Exhibits II-3 through II-5 provide a summary of the baseline forecasts for northbound freight flows for Nogales and Exhibits II-6 through II-8 provide summaries of southbound baseline forecasts.

The dominant places of origin for northbound freight through Nogales, as highlighted in Exhibit II-3, are projected to be the states of Mexico, Veracruz and Sonora. These states are projected to be the point of origin for 12.7 percent, 11.9 percent and 10.6 percent, respectively. Exhibit II-4 highlights the baseline forecasts for the most significant destinations for northbound trade through Nogales. Not surprisingly, Arizona is projected to be the primary destination by an overwhelming margin. California and Texas are projected to continue to be the second and third most significant ending points, respectively.

Exhibit II-2: Freight Flow Characteristics for Nogales BPOE, 2000

	Northbound	Percent of total		Southbound	Percent of total
Primary Origin	Mexico City	12.8%		Arizona	59.4%
Primary Destination	Arizona	71.6%		Sonora	59.0%
Primary Commodity (in terms of volume)	Fresh Vegetables	24.0%		Field Crops	19.9%
Primary Commodity (in terms of value)	Motor Vehicle Equipment	27.3%		Electrical Equipment	31.8%

Source: TRANSEARCH Database, Reebie Associates, Stamford, CT 2002.

Exhibit II-3: Baseline Forecasts for Northbound Freight through Nogales by Origin

	2010		2020	
Origin	**Tons**	**% of Total**	**Tons**	**% of Total**
Aguascalientes	75,810.23	1.40%	91,806.93	1.40%
Baja California Norte	37,437.00	0.69%	44,513.00	0.68%
Baja California Sur	3,967.00	0.07%	4,604.00	0.07%
Campeche	9,304.60	0.17%	11,494.38	0.17%
Chiapas	94,542.37	1.75%	115,661.51	1.76%
Coahuila	27,665.24	0.51%	32,183.14	0.49%
Colima	66,073.27	1.22%	83,943.51	1.28%
Distrito Federal	577,021.78	10.69%	686,686.37	10.44%
Durango	165,326.89	3.06%	206,524.62	3.14%
Guanajuato	243,986.03	4.52%	300,020.03	4.56%
Guerrero	33,835.05	0.63%	43,121.71	0.66%
Hidalgo	181,074.00	3.35%	222,080.41	3.38%
Jalisco	306,746.90	5.68%	381,213.29	5.80%
Mexico	696,807.23	12.91%	833,742.49	12.68%
Michoacan	112,878.13	2.09%	141,942.08	2.16%
Morelos	93,286.38	1.73%	113,713.41	1.73%
Nayarit	85,471.95	1.58%	106,627.18	1.62%
Nuevo Leon	254,527.75	4.71%	292,905.78	4.45%
Oaxaca	148,063.65	2.74%	182,895.85	2.78%
Puebla	154,667.98	2.86%	184,715.74	2.81%
Queretaro	105,785.09	1.96%	127,599.77	1.94%
Quintana Roo	32,449.61	0.60%	40,382.12	0.61%
San Luis Potosi	63,590.39	1.18%	74,679.88	1.14%
Sinaloa	285,997.18	5.30%	356,283.64	5.42%
Sonora	556,411.74	10.31%	697,003.83	10.60%
Tabasco	79,157.95	1.47%	95,997.95	1.46%
Tamauipas	128,942.52	2.39%	154,124.92	2.34%
Tlaxcala	52,904.49	0.98%	64,817.69	0.99%
Veracruz	640,937.89	11.87%	782,431.33	11.90%
Yucatan	50,848.26	0.94%	63,031.10	0.96%
Zacatecas	33,087.39	0.61%	41,003.79	0.62%
TOTAL	**5,398,605.95**	**100%**	**6,577,751.46**	**100%**

Exhibit II-4: Baseline Forecasts for Northbound Freight through Nogales by Destination

	2010		2020	
Destination	**Tons**	**% of Total**	**Tons**	**% of Total**
Alabama	2,632.43	0.05%	3,531.98	0.05%
Alaska	2,964.4	0.05%	3,405.61	0.05%
Arizona	3,823,756.22	70.83%	4,599,632.19	69.93%
Arkansas	1,940.76	0.04%	2,370.03	0.04%
California	920,321.43	17.05%	1,162,311.78	17.67%
Colorado	12,219.58	0.23%	15,138.06	0.23%
Connecticut	8,417.28	0.16%	10,616.18	0.16%
Delaware	1,874.9	0.03%	2,378.82	0.04%
Florida	14,971.73	0.28%	18,942.25	0.29%
Georgia	16,715.56	0.31%	20,827.57	0.32%
Idaho	3,949.14	0.07%	5,151.74	0.08%
Illinois	58,308.88	1.08%	70,388.99	1.07%
Indiana	9,833.87	0.18%	12,608.86	0.19%
Iowa	2,611.62	0.05%	4,360.77	0.07%
Kansas	825.54	0.02%	1,068.22	0.02%
Kentucky	7,052.69	0.13%	8,668.79	0.13%
Louisiana	767.97	0.01%	981.24	0.01%
Maine	263.03	0.00%	301.45	0.00%
Maryland	1,349.66	0.03%	1,697.77	0.03%
Massachusetts	2,133.7	0.04%	2,743.52	0.04%
Michigan	39,247.85	0.73%	48,547.94	0.74%
Minnesota	2,579.7	0.05%	3,298.52	0.05%
Mississippi	806.64	0.01%	1,054.86	0.02%
Missouri	7,307.78	0.14%	9,472.14	0.14%
Montana	2,491.85	0.05%	3,005.74	0.05%
Nevada	5,594.25	0.10%	7,253.41	0.11%
New Hampshire	452.55	0.01%	601.37	0.01%
New Jersey	9,044.32	0.17%	11,619.72	0.18%
New Mexico	49,271.98	0.91%	59,839.97	0.91%
New York	16,338.46	0.30%	20,434.78	0.31%
North Carolina	11,080.52	0.21%	14,305.73	0.22%
Ohio	15,980.75	0.30%	20,894.53	0.32%
Oklahoma	1,305.02	0.02%	1,539.65	0.02%
Oregon	45,807.28	0.85%	58,181.61	0.88%

Exhibit II-4: Baseline Forecasts for Northbound Freight through Nogales by Destination (continued)

	2010		2020	
Destination	**Tons**	**% of Total**	**Tons**	**% of Total**
Pennsylvania	16,385.85	0.30%	20,334.18	0.31%
Rhode Island	817.24	0.02%	1,045.09	0.02%
South Carolina	2,577.98	0.05%	3,351.66	0.05%
Tennessee	12,286.43	0.23%	15,386.24	0.23%
Texas	230,408.93	4.27%	285,435.26	4.34%
Utah	6,667.68	0.12%	8,539.41	0.13%
Virginia	5,179.72	0.10%	7,691.83	0.12%
Washington	14,623.25	0.27%	16,798.49	0.26%
Wisconsin	7,762.33	0.14%	9,763.4	0.15%
Unknown	825.47	0.02%	1,145.69	0.02%
TOTAL	**5,398,605.95**	**100%**	**6,577,751.46**	**100%**

Note: Destinations accounting for less than 0.01 percent of the total were omitted form the table.

Exhibit II-5: Baseline Forecasts of Northbound Freight through Nogales by Commodity

	2010				2020			
Commodity	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**
Field crops	16,500.28	0.31%	6,981,763.48	0.08%	21,012.41	0.32%	8,890,981.04	0.08%
Fresh fruits and nuts	530,836.53	9.83%	224,612,860.94	2.53%	675,956.68	10.28%	286,017,550.01	2.65%
Fresh vegetables	1,302,658.70	24.13%	551,193,975.73	6.21%	1,658,785.45	25.22%	701,881,887.46	6.49%
Livestock	74,527.95	1.38%	31,535,011.48	0.36%	94,902.00	1.44%	40,155,883.26	0.37%
Misc farm products	1,876.98	0.03%	794,206.55	0.01%	2,393.04	0.04%	1,012,567.02	0.01%
Fish and marine products	29,990.96	0.56%	30,387,740.40	0.34%	38,190.11	0.58%	38,695,365.16	0.36%
Metallic ores	26,333.21	0.49%	13,071,805.44	0.15%	33,533.80	0.51%	16,646,178.32	0.15%
Ordnance or accessories	281.53	0.01%	139,751.49	0.00%	362.77	0.01%	180,079.03	0.00%
Meat or poultry	1,950.65	0.04%	1,976,457.10	0.02%	2,351.94	0.04%	2,383,056.17	0.02%
Dairy products	1,165.39	0.02%	1,180,808.11	0.01%	1,295.12	0.02%	1,312,254.44	0.01%
Canned or preserved foods	4,789.16	0.09%	4,852,520.59	0.05%	5,696.02	0.09%	5,771,378.34	0.05%
Grain mill products	4,043.54	0.07%	4,097,036.03	0.05%	4,943.53	0.08%	5,008,932.90	0.05%
Bakery products	19,101.92	0.35%	19,354,638.40	0.22%	20,025.99	0.30%	20,290,933.85	0.19%
Sugar, beet or cane	12,820.98	0.24%	12,990,601.57	0.15%	14,697.72	0.22%	14,892,170.84	0.14%
Confectionery or rel prod	1,439.71	0.03%	1,458,757.36	0.02%	1,650.48	0.03%	1,672,315.85	0.02%
Beverages	133,939.28	2.48%	135,711,296.67	1.53%	158,455.56	2.41%	160,551,927.06	1.48%
Misc food preparations	62,273.16	1.15%	63,097,033.91	0.71%	82,205.68	1.25%	83,293,261.15	0.77%
Cigarettes	57.49	0.00%	777,176.84	0.01%	52.34	0.00%	707,556.72	0.01%
Cotton fabrics	4,565.49	0.08%	32,270,389.93	0.36%	5,475.95	0.08%	38,705,821.66	0.36%
Man-made or silk fabrics	1,142.84	0.02%	8,077,970.26	0.09%	1,370.89	0.02%	9,689,902.91	0.09%
Wool fabrics	36.47	0.00%	257,782.00	0.00%	43.76	0.00%	309,310.12	0.00%
Knit fabrics	959.25	0.02%	6,780,295.55	0.08%	1,265.93	0.02%	8,948,011.00	0.08%
Floor coverings	159.44	0.00%	1,126,974.54	0.01%	164.91	0.00%	1,165,638.30	0.01%
Misc textile goods	4,397.83	0.08%	31,085,313.72	0.35%	5,648.42	0.09%	39,924,896.54	0.37%
Women or children's clothing	56,288.96	1.04%	397,868,944.64	4.48%	73,289.81	1.11%	518,036,562.72	4.79%
Caps and hats	888.61	0.02%	6,280,988.72	0.07%	1,156.57	0.02%	8,175,018.43	0.08%
Misc finished textile goods	27,480.72	0.51%	194,242,797.60	2.19%	37,012.10	0.56%	261,613,736.79	2.42%
Primary forest materials	53.42	0.00%	21,677.30	0.00%	67.16	0.00%	27,252.86	0.00%
Misc wood products	71,963.72	1.33%	29,202,157.94	0.33%	92,152.13	1.40%	37,394,412.83	0.35%
Household or office furniture	86,446.67	1.60%	409,370,799.19	4.61%	111,813.71	1.70%	529,497,178.12	4.90%
Pulp or pulp mill products	5,423.81	0.10%	5,242,925.94	0.06%	6,459.28	0.10%	6,243,863.01	0.06%
Fiber, paper or pulp board	26,581.00	0.49%	25,694,523.65	0.29%	30,929.75	0.47%	29,898,242.84	0.28%
Misc printed matter	3,077.13	0.06%	7,915,547.67	0.09%	3,274.86	0.05%	8,424,184.37	0.08%
Industrial chemicals	317,125.47	5.87%	429,866,745.84	4.84%	320,659.04	4.87%	434,656,535.31	4.02%
Drugs	121.32	0.00%	164,450.47	0.00%	261.03	0.00%	353,828.78	0.00%
Soap or other detergents	19,618.45	0.36%	26,593,005.16	0.30%	26,729.55	0.41%	36,232,172.32	0.34%
Paints, lacquers	528.85	0.01%	716,861.46	0.01%	625.48	0.01%	847,844.39	0.01%
Gum or wood chemicals	381.18	0.01%	516,693.30	0.01%	384.80	0.01%	521,600.25	0.00%
Agricultural chemicals	583.41	0.01%	790,818.09	0.01%	734.49	0.01%	995,608.54	0.01%

Exhibit II-5: Baseline Forecasts of Northbound Freight through Nogales by Commodity (continued)

	2010				2020			
Commodity	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**
Misc chemical products	7,246.33	0.13%	9,822,472.78	0.11%	8,279.23	0.13%	11,222,579.06	0.10%
Prod of petroleum refining	25.68	0.00%	5,943.38	0.00%	28.29	0.00%	6,547.44	0.00%
Tires or inner tubes	5,261.17	0.10%	11,757,241.82	0.13%	6,631.19	0.10%	14,818,852.92	0.14%
Misc plastic products	33,535.98	0.62%	74,943,525.23	0.84%	52,738.15	0.80%	117,854,998.57	1.09%
Leather footwear	1,965.33	0.04%	13,891,601.00	0.16%	1,708.67	0.03%	12,077,443.42	0.11%
Leather goods	7,761.53	0.14%	54,861,055.34	0.62%	9,542.60	0.15%	67,450,245.86	0.62%
Glassware	50,707.29	0.94%	5,694,428.41	0.06%	63,504.84	0.97%	7,131,593.50	0.07%
Portland cement	982,099.47	18.19%	110,289,770.48	1.24%	1,134,019.09	17.24%	127,350,343.81	1.18%
Structural clay products	52,130.67	0.97%	5,854,273.70	0.07%	55,385.16	0.84%	6,219,753.10	0.06%
Concrete, gypsum or plaster	78,870.81	1.46%	8,857,192.51	0.10%	90,382.42	1.37%	10,149,945.39	0.09%
Steel mill products	33,682.16	0.62%	31,216,289.07	0.35%	38,173.50	0.58%	35,378,818.07	0.33%
Nonferr smelter prod	2,823.54	0.05%	2,616,828.64	0.03%	3,474.60	0.05%	3,220,224.53	0.03%
Nonferr metal basic shapes	198,989.84	3.69%	184,421,793.81	2.08%	222,510.38	3.38%	206,220,395.08	1.91%
Misc primary metal products	24,260.40	0.45%	46,167,789.33	0.52%	28,879.59	0.44%	54,958,155.14	0.51%
Fabricated metal products	29,199.75	0.54%	55,567,416.25	0.63%	32,737.55	0.50%	62,299,885.03	0.58%
Cutlery, hand tools or hardware	585.85	0.01%	1,114,878.41	0.01%	658.77	0.01%	1,253,645.90	0.01%
General industrial machinery	153,118.91	2.84%	1,114,941,467.92	12.56%	109,491.88	1.66%	797,269,503.90	7.37%
Electrical equipment	243,716.92	4.51%	11,505,875.79	0.13%	310,565.30	4.72%	14,661,787.81	0.14%
Motor vehicle or equipment	418,888.95	7.76%	2,708,360,017.34	30.50%	534,539.72	8.13%	3,456,109,322.84	31.96%
Ships or boats	164.68	0.00%	1,064,768.18	0.01%	222.83	0.00%	1,440,747.47	0.01%
Railroad equipment	8,424.65	0.16%	54,470,248.55	0.61%	10,760.93	0.16%	69,575,653.79	0.64%
Instruments/photo/optical equip	39,958.25	0.74%	1,150,821,574.95	12.96%	55,454.20	0.84%	1,597,114,232.52	14.77%
Photographic equip/supplies	1,291.27	0.02%	37,189,350.76	0.42%	1,725.27	0.03%	49,688,811.16	0.46%
Watches and clocks	523.70	0.01%	15,082,874.22	0.17%	650.00	0.01%	18,720,390.00	0.17%
Jewelry and silverware	1,063.16	0.02%	2,797,492.91	0.03%	1,502.70	0.02%	3,954,054.51	0.04%
Musical instruments or parts	1,118.55	0.02%	2,943,341.28	0.03%	1,114.75	0.02%	2,933,342.00	0.03%
Toys/amusements/athletic goods	40,629.27	0.75%	106,911,454.79	1.20%	83,166.92	1.26%	218,844,601.62	2.02%
Misc manufactured products	128,150.38	2.37%	337,213,628.43	3.80%	183,872.67	2.80%	483,840,705.11	4.47%
TOTAL	**5,398,605.95**	**100%**	**$8,878,685,700.33**	**100%**	**6,577,751.46**	**100%**	**$10,812,792,480.22**	**100%**

Exhibit II-5 displays the projected northbound freight flows by commodity with the most significant commodities in terms of volume and value highlighted. Baseline projections indicate that fresh vegetables and portland cement will continue to dominate northbound trade through Nogales, accounting for 24.1 percent and 18.2 percent of the total tonnage in 2010 and 25.2 percent and 17.2 percent in 2020, respectively. Other significant northbound commodities in terms of volume include fresh fruits and nuts, motor vehicles and equipment and industrial chemicals. It should be noted that while agricultural goods are projected to account for the greatest volume of northbound trade, it is projected that will account for less than 10 percent of the total value of northbound trade. The most significant commodities based on value are projected to be motor vehicles and parts, instruments, photographic and optical equipment and general industrial machinery.

Southbound trade reflects U.S. exports to Mexico. As highlighted in Exhibit II-6, the states projected to account for the largest portions of southbound trade to Mexico continue to be Arizona (59.9 percent in 2010 and 60.2 percent in 2020), California (14.3 percent in 2010 and 14.4 percent in 2020) and Texas (5.8 percent in 2010 and 5.7 percent in 2020).

Exhibit II-6: Baseline Forecasts for Southbound Freight through Nogales by Origin

	2010		2020	
State	**Volume (tons)**	**% of Total**	**Volume (tons)**	**% of Total**
Alabama	1,631.97	0.03%	1,922.09	0.03%
Alaska	1,007.06	0.02%	1,294.86	0.02%
Arizona	2,968,568.27	59.90%	3,788,336.68	60.21%
Arkansas	3,559.97	0.07%	4,410.62	0.07%
California	710,291.64	14.33%	905,938.58	14.40%
Colorado	9,932.99	0.20%	12,507.90	0.20%
Connecticut	10,248.11	0.21%	12,804.25	0.20%
Delaware	2,199.15	0.04%	2,308.71	0.04%
Florida	10,020.47	0.20%	12,230.04	0.19%
Georgia	13,543.55	0.27%	16,121.40	0.26%
Idaho	2,507.47	0.05%	2,962.52	0.05%
Illinois	17,649.29	0.36%	22,096.09	0.35%
Indiana	7,819.97	0.16%	9,279.76	0.15%
Iowa	19,521.84	0.39%	24,764.54	0.39%
Kansas	51,516.06	1.04%	64,149.26	1.02%
Kentucky	3,972.85	0.08%	4,744.00	0.08%
Louisiana	6,045.24	0.12%	6,652.62	0.11%
Maine	819.47	0.02%	1,025.27	0.02%
Massachusetts	14,063.30	0.28%	18,740.79	0.30%
Michigan	110,420.70	2.23%	135,084.54	2.15%

Exhibit II-6: Baseline Forecasts for Southbound Freight through Nogales by Origin (continued)

	2010		2020	
State	**Volume (tons)**	**% of Total**	**Volume (tons)**	**% of Total**
Minnesota	3,231.96	0.07%	3,933.87	0.06%
Mississippi	11,452.91	0.23%	15,288.41	0.24%
Missouri	198,385.31	4.00%	252,286.60	4.01%
Nebraska	19,959.51	0.40%	25,414.13	0.40%
Nevada	13,157.48	0.27%	15,399.63	0.24%
New Hampshire	552.11	0.01%	632.60	0.01%
New Jersey	15,120.31	0.31%	19,059.49	0.30%
New Mexico	12,414.11	0.25%	14,769.60	0.23%
New York	7,548.14	0.15%	9,153.20	0.15%
North Carolina	6,730.34	0.14%	7,990.79	0.13%
North Dakota	710.27	0.01%	908.70	0.01%
Ohio	5,815.36	0.12%	6,804.17	0.11%
Oklahoma	7,304.33	0.15%	8,826.64	0.14%
Oregon	20,751.33	0.42%	24,921.23	0.40%
Pennsylvania	19,458.65	0.39%	23,833.78	0.38%
South Carolina	653.71	0.01%	802.86	0.01%
South Dakota	3,216.41	0.06%	3,895.09	0.06%
Tennessee	21,909.67	0.44%	26,129.01	0.42%
Texas	286,067.91	5.77%	360,873.27	5.74%
Utah	14,554.95	0.29%	18,521.10	0.29%
Virginia	2,542.71	0.05%	3,110.97	0.05%
Washington	62,976.19	1.27%	79,464.82	1.26%
Wisconsin	31,630.12	0.64%	39,964.46	0.64%
Unknown	223,030.02	4.50%	281,174.68	4.47%
TOTAL	**4,955,505.72**	**100%**	**6,291,718.70**	**100%**

Note: Origins that accounted for less than 0.01% of freight flows were omitted.

Exhibit II-7: Baseline Forecasts for Southbound Freight through Nogales by Destination

	2010		2020	
Destination	**Volume (tons)**	**% of Total**	**Volume (tons)**	**% of Total**
Unknown	294656.3769	5.95%	361,398.16	5.74%
Aguascalientes	6,564.57	0.13%	7,889.34	0.13%
Baja California Norte	370,688.95	7.48%	477,770.24	7.59%
Baja California Sur	11.21	0.00%	14.14	0.00%
Campeche	0.00	0.00%	0.00	0.00%
Colima	1,379.98	0.03%	1,631.76	0.03%
Distrito Federal	625,085.58	12.61%	793,759.15	12.62%
Durango	16,295.74	0.33%	20,136.72	0.32%
Guanajuato	51,365.26	1.04%	65,080.59	1.03%
Guerrero	60.55	0.00%	73.23	0.00%
Hidalgo	2,231.19	0.05%	2,589.87	0.04%
Jalisco	126,566.94	2.55%	160,721.91	2.55%
Mexico	248,077.61	5.01%	317,389.13	5.04%
Michoacan	1,237.27	0.02%	1,443.46	0.02%
Morelos	1,398.61	0.03%	1,765.05	0.03%
Nayarit	5,897.22	0.12%	7,651.43	0.12%
Nuevo Leon	4,234.96	0.09%	5,429.68	0.09%
Oaxaca	20.00	0.00%	26.40	0.00%
Puebla	1.37	0.00%	1.72	0.00%
Queretaro	8,968.88	0.18%	10,824.64	0.17%
Quintana roo	163.20	0.00%	187.57	0.00%
San Luis Potosi	4,536.13	0.09%	5,774.18	0.09%
Sinaloa	255,590.12	5.16%	317,683.35	5.05%
Sonora	2,928,162.94	59.09%	3,729,740.55	59.28%
Tamaulipas	17.55	0.00%	21.19	0.00%
Tlaxcala	2,292.14	0.05%	2,713.52	0.04%
Veracruz	0.00	0.00%	0.00	0.00%
Yucatan	1.37	0.00%	1.72	0.00%
Zacatecas	0.00	0.00%	0.00	0.00%
TOTAL	**4,955,505.72**	**100%**	**6,291,718.70**	**100%**

Exhibit II-7 displays the baseline forecast for southbound freight flows by destinations. The highlighted entries represent the most significant destinations in terms of the total volume of trade going through Nogales. Not surprisingly, Sonora is projected to continue to be the dominant destination, receiving nearly 60 percent of the freight flowing through Nogales. Distrito Federal represents the second most significant destinations as the baseline forecast projects 12.6 percent of southbound freight (in terms of volume) passing through Nogales to end up there.

Exhibit II-8: Baseline Forecasts for Southbound Freight Flows through Nogales by Commodity

	2010				2020			
Commodity	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**
Field crops	1,027,894.29	20.74%	434,932,910.93	7.37%	1,308,901.52	20.80%	553,835,500.16	6.96%
Fresh fruits and nuts	128,720.43	2.60%	54,465,475.55	0.92%	163,910.27	2.61%	69,355,352.55	0.87%
Fresh vegetables	65,283.60	1.32%	27,623,450.61	0.47%	83,131.05	1.32%	35,175,242.38	0.44%
Livestock	15,072.49	0.30%	6,377,622.69	0.11%	19,192.89	0.31%	8,121,087.55	0.10%
Misc farm products	3,028.55	0.06%	1,281,470.20	0.02%	3,856.52	0.06%	1,631,810.26	0.02%
Fresh fish	572.07	0.01%	579,638.49	0.01%	728.52	0.01%	738,158.32	0.01%
Metallic ore	894,479.34	18.05%	444,019,544.38	7.52%	1,139,013.27	18.10%	565,406,187.23	7.11%
Misc metal ores	11.53	0.00%	5,723.49	0.00%	12.88	0.00%	6,393.63	0.00%
Meat or poultry	100,987.88	2.04%	102,323,949.65	1.73%	120,217.30	1.91%	121,807,774.88	1.53%
Dairy products	9,046.37	0.18%	9,166,057.50	0.16%	10,904.06	0.17%	11,048,325.57	0.14%
Canned or preserved foods	3,363.03	0.07%	3,407,523.38	0.06%	4,163.90	0.07%	4,218,989.01	0.05%
Grain mill products	55,435.53	1.12%	56,168,941.00	0.95%	71,402.64	1.13%	72,347,296.93	0.91%
Bakery products	3,945.78	0.08%	3,997,982.67	0.07%	4,454.81	0.07%	4,513,747.14	0.06%
Sugar, beet or cane	7,287.22	0.15%	7,383,626.26	0.13%	8,571.64	0.14%	8,685,040.28	0.11%
Confectionery or rel product	3,322.31	0.07%	3,366,267.12	0.06%	3,907.95	0.06%	3,959,647.31	0.05%
Beverages or flavored extracts	114,441.06	2.31%	115,955,111.39	1.96%	149,426.65	2.37%	151,403,562.67	1.90%
Misc food preparations	72,962.56	1.47%	73,927,858.37	1.25%	94,164.56	1.50%	95,410,361.90	1.20%
Cigarettes	5.05	0.00%	68,268.27	0.00%	6.67	0.00%	90,168.19	0.00%
Cotton fabrics	7,841.91	0.16%	55,429,240.27	0.94%	9,658.00	0.15%	68,265,900.56	0.86%
Man-made or silk fabric	2,592.16	0.05%	18,322,258.53	0.31%	3,192.47	0.05%	22,565,397.16	0.28%
Wool fabrics	302.01	0.01%	2,134,721.80	0.04%	371.95	0.01%	2,629,096.67	0.03%
Knit fabrics	5,266.66	0.11%	37,226,521.83	0.63%	6,486.36	0.10%	45,847,700.41	0.58%
Floor coverings	1,213.82	0.02%	8,579,656.22	0.15%	1,136.56	0.02%	8,033,554.08	0.10%
Misc textile goods	10,795.83	0.22%	76,308,489.06	1.29%	12,883.06	0.20%	91,061,719.49	1.14%
Women's or children's clothing	11,941.27	0.24%	84,404,836.98	1.43%	12,623.42	0.20%	89,226,498.29	1.12%
Caps	120.10	0.00%	848,921.41	0.01%	131.44	0.00%	929,084.35	0.01%
Misc finished textile goods	4,128.97	0.08%	29,184,945.30	0.49%	5,501.53	0.09%	38,886,659.90	0.49%
Primary forest materials	2,133.36	0.04%	865,696.15	0.01%	2,524.52	0.04%	1,024,424.97	0.01%
Misc wood products	142,649.77	2.88%	57,885,850.17	0.98%	174,533.62	2.77%	70,823,997.66	0.89%
Household or office furniture	18,681.53	0.38%	88,466,945.76	1.50%	21,939.29	0.35%	103,894,165.97	1.31%
Pulp or pulp mill products	20,275.81	0.41%	19,599,611.74	0.33%	26,764.17	0.43%	25,871,584.93	0.33%
Fiber, paper or pulpboard	311,735.82	6.29%	301,339,430.40	5.11%	376,484.41	5.98%	363,928,654.93	4.57%
Misc printed matter	2,247.65	0.05%	5,781,809.91	0.10%	2,724.49	0.04%	7,008,423.59	0.09%
Industrial chemicals	49,555.38	1.00%	67,172,813.14	1.14%	50,175.97	0.80%	68,014,029.09	0.85%
Drugs	603.25	0.01%	817,714.11	0.01%	1,334.84	0.02%	1,809,382.23	0.02%
Soap or other detergents	14,803.88	0.30%	20,066,807.38	0.34%	18,304.72	0.29%	24,812,231.01	0.31%
Paints, lacquers, etc	6,550.08	0.13%	8,878,698.94	0.15%	6,468.74	0.10%	8,768,441.76	0.11%
Gum or wood chemicals	12,521.70	0.25%	16,973,284.69	0.29%	10,979.07	0.17%	14,882,233.23	0.19%
Agricultural chemicals	43,740.11	0.88%	59,290,156.51	1.00%	42,489.32	0.68%	57,594,698.15	0.72%

Exhibit II-8: Baseline Forecasts for Southbound Freight Flows through Nogales by Commodity (continued)

	2010				2020			
Commodity	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**
Misc chemical products	38,480.39	0.78%	52,160,553.45	0.88%	37,137.61	0.59%	50,340,401.73	0.63%
Prod of petroleum refining	445,641.36	8.99%	103,139,236.36	1.75%	588,246.74	9.35%	136,143,825.51	1.71%
Tires or inner tubes	21,468.11	0.43%	47,975,204.43	0.81%	23,344.33	0.37%	52,168,037.84	0.66%
Misc plastic products	240,860.18	4.86%	538,255,059.99	9.12%	349,865.17	5.56%	781,850,692.70	9.83%
Leather footwear	155.76	0.00%	1,100,963.08	0.02%	172.21	0.00%	1,217,237.11	0.02%
Glassware	25,113.42	0.51%	2,820,237.07	0.05%	28,417.85	0.45%	3,191,324.56	0.04%
Portland cement	58,214.90	1.17%	6,537,533.27	0.11%	66,814.49	1.06%	7,503,267.23	0.09%
Concrete, gypsum or plaster	29,046.62	0.59%	3,261,935.43	0.06%	33,294.23	0.53%	3,738,942.03	0.05%
Steel mill products	108,765.08	2.19%	12,214,318.48	0.21%	120,572.14	1.92%	13,540,251.32	0.17%
Nonferrous primary smelter prod	8,513.34	0.17%	7,890,079.49	0.13%	11,943.99	0.19%	11,069,572.05	0.14%
Nonferrous metal shapes	93,218.40	1.88%	86,393,880.94	1.46%	105,600.54	1.68%	97,869,524.47	1.23%
Misc primary metal products	118,058.77	2.38%	109,415,689.83	1.85%	152,146.29	2.42%	141,007,655.49	1.77%
Fabricated metal products	81,384.61	1.64%	154,875,726.68	2.62%	103,424.01	1.64%	196,816,925.27	2.47%
Cutlery, hand tools/hardware	3,394.99	0.07%	6,460,699.11	0.11%	4,073.80	0.06%	7,752,488.78	0.10%
General industrial machinery	52,795.86	1.07%	100,471,049.54	1.70%	60,233.08	0.96%	114,624,153.57	1.44%
Electrical equipment	284,128.06	5.73%	2,068,889,834.01	35.05%	429,194.67	6.82%	3,125,198,157.39	39.28%
Motor vehicle or equipment	116,118.32	2.34%	5,481,945.89	0.09%	136,424.82	2.17%	6,440,615.75	0.08%
Aircraft or parts	217.68	0.00%	1,407,459.56	0.02%	247.51	0.00%	1,600,267.55	0.02%
Ships or boats	148.34	0.00%	959,145.44	0.02%	158.70	0.00%	1,026,131.73	0.01%
Railroad equipment	3,296.84	0.07%	21,315,997.83	0.36%	3,311.27	0.05%	21,409,296.78	0.27%
Instruments, photo/optical equip	4,794.35	0.10%	138,080,156.61	2.34%	6,835.39	0.11%	196,863,333.23	2.47%
Photographic equip or supplies	125.08	0.00%	3,602,359.03	0.06%	157.90	0.00%	4,547,733.27	0.06%
Watches, clocks, etc	129.82	0.00%	3,738,856.43	0.06%	194.38	0.00%	5,598,399.08	0.07%
Jewelry, silverware, etc.	7.03	0.00%	18,490.17	0.00%	8.03	0.00%	21,128.93	0.00%
Musical instruments or parts	47.58	0.00%	125,199.19	0.00%	49.72	0.00%	130,834.97	0.00%
Toys/amusements/athletic equip	5,768.41	0.12%	15,178,929.78	0.26%	7,135.14	0.11%	18,775,325.24	0.24%
Misc manufactured products	39,828.03	0.80%	104,803,067.24	1.78%	49,794.15	0.79%	131,027,819.17	1.65%
TOTAL	**4,955,489.48**	**100%**	**$5,902,673,482.08**	**100%**	**6,291,697.01**	**100%**	**$7,956,687,803.43**	**100%**

Baseline forecasts for southbound freight flows through Nogales by commodity are presented in Exhibit II-8. The most significant commodities by volume and value are highlighted. The five most significant commodities include field crops, metallic ore, fiber, paper and pulpboard, products of petroleum refining and electric equipment. Together, these commodities account for nearly 60 percent of the total projected volume of southbound freight and 90 percent of the total value. Interestingly, electrical equipment is projected to account for just 5.7 percent and 6.8 percent of the total volume of southbound freight in 2010 and 2020, respectively. However, in terms of value, this commodity is projected to comprise 35.1 percent and 39.3 percent of the total during those years.

The baseline forecasts presented in the preceding tables serve as the starting point for the development of alternative forecasts. Following is a discussion of the various factors considered most likely to impact future freight flows through Nogales.

Variables Impacting Freight Flow Forecasts

In addition to the traditional factors that influence economic activity, there exist numerous other factors that could potentially impact both the volume and type of freight flows passing through the Nogales BPOE. This section of the report discusses some of the factors considered in developing alternative forecasts for both northbound and southbound trade through Nogales for the years 2010 and 2020.

The number of elements or events that could impact freight flows is endless and to try to incorporate all of them would prove an impossible task. Therefore, for the purpose of the current analysis, only the most relevant or probable factors and events will be considered. These factors can be grouped into four categories: commodity mix, infrastructure, trade policy and global shifts. Each of these categories is discussed in more detail in the following sections.

Commodity Mix

A shift in the commodity mix being shipped through Nogales would have obvious impacts on both the volume and value of trade. Currently the most significant commodities for northbound trade are fresh fruits and vegetables, portland cement, women's and children's clothing and home and office furnishings. Several factors could impact commodity mix, including changes in consumption patterns in the primary destinations (fueled by changing demographics), changes in the manufacturing focus of the Sonora region, changes in infrastructure leading to the Nogales BPOE and changes in policies directly affecting commodities that are currently significant to Nogales. Since evaluating the probability that certain events will or will not occur is not always feasible, the analysis of the probability of specific events occurring or factors changing will be more qualitative in nature as opposed to quantitative.

One of the most obvious factors impacting freight flows through Nogales is the demography of the destination states. For example, Arizona and California are the two primary destinations for northbound trade. Changes in immigration laws would have an immediate impact on the population of these two destinations. In the era of heightened concerns over national security, it is plausible to expect stricter enforcement of immigration policies and tighter patrol of our borders. To the degree that this occurs, population in the two most significant destinations for trade flowing north through Nogales could be less than projected in the baseline forecasts. This would result in decreased demand for these goods, thus decreasing the volume of goods going through the BPOE. Other demographics that could significantly alter the volume or mix of commodities include age of population, ethnic mix of the population, educational attainment levels and income levels, just to name a few.

Another factor that would have significant impact on the mix of commodities is a shift in the type of goods produced in Mexico. There is already evidence that many manufacturing jobs, especially in textiles and even electronics, are moving to China in search of lower labor costs. For example, an article appearing on www.thenewsmexico.com on November 4, 2002, pointed to the current exodus of manufacturing firms as it discussed the closing of a Philips Electronic plant in Monterrey. While it is expected that this trend will continue, the ability of Mexico to attract replacement companies will impact the quantity of freight flows both northbound and southbound for all BPOEs including Nogales. In addition, the commodity mix can be expected to change as the type of companies locating south of the border changes. If Mexico is able to attract high-technology manufacturing firms, such as automotive assemblers, the flow of supplies into and finished goods out of Mexico can change positively in both volume and value. However, failure to attract new industries could lead to losses in freight flows.

Infrastructure

The second category of variables most likely to impact freight flows through Nogales to be considered is infrastructure. There are several notable infrastructure improvements that if completed, would likely have significant impacts on Nogales. These include I-15 in western Mexico from Mexico City to Nogales, completion of the Hoover Dam commercial bridge in 2008 and Highway 93 improvements that consist of a four-lane highway from Phoenix to the Hoover Dam. All of these infrastructure improvements would bode well for the Nogales BPOE as there would likely be a shifting of freight movements from border crossings in Texas (especially Laredo) to Nogales. In particular the northbound trade heading for California that currently goes through Texas would be a good candidate for shifting to the border crossing at Nogales.

Other infrastructure changes to consider include the future role of inland ports and distribution hubs and the capacity limits of North American sea ports. For example, the proposed Puerto Nuevo in Tucson would serve as a distribution hub for goods traveling through Nogales. The ability for intermodal connections at a regional hub would significantly increase the efficiency of moving northbound freight through Nogales, especially for commodities heading to the western portion of the U.S. Conversely, failure to complete a distribution hub to support Nogales could result in the shifting of trade from that border crossing to regions providing more intermodal connectivity.

The capacity limits of North American sea ports could play a role in shifting trade among alternative border crossings. For example, global trade is expected to triple at the port of Los Angeles/Long Beach by 2020. Failure to increase capacity at that port is likely to constrain this growth and lead to a shifting of trade to other west coast ports such as San Diego, Manzanillo, Mazatlan, Topolobampo and Guaymas, all of which are located on the west coast of Mexico. As a result, trade through the Nogales BPOE would be expected to increase significantly. Of course, in addition to assuming no sufficient expansion of capacity at the port of Los Angeles, this scenario also hinges on the ability of these alternative ports to accommodate the increase in freight flows.

Trade Policy

A third element with the potential to have direct impacts on the quantity and mix of commodities flowing through Nogales is international trade policy. There are currently several issues with regards to trade policy that are likely to have a significant impact on the trade flows in the near future, including policies that govern trade with China and Cuba, full execution of NAFTA, implementation of the Free Trade Area of the Americas and trade polices that target specific commodities.

The lifting of trade restrictions with Cuba would impact trade moving through Nogales by diverting trade from Mexico and the western U.S. to Cuba and the southeastern U.S. States such as Florida and Mississippi would witness increases in trade through their seaports combined with a reduction of goods coming from Mexico through the border crossings in Texas and Arizona. The effect of expansion in trade with China, the probability of which is bolstered by China's inclusion into the World Trade Organization in December 2001, would depend in large part on the capacity level of alternative west coast ports, both in the U.S. and Mexico. To the extent that freight gets diverted to the seaports of Mexico, the impacts of declining freight flows at the Nogales border crossing are more likely to be somewhat mitigated.

Trade policies targeting specific commodities will impact Nogales to the extent that those commodities are significant to the border crossing. One policy under consideration is aimed at protecting tomato growers in Florida. The introduction of tariffs or quotas on tomatoes imported from Mexico would have a negative impact on the volume of freight moving through Nogales, especially given that fresh vegetables are the number one commodity coming through the border crossing in terms of weight. Electronics represent another product significant to Nogales that is a potential target of trade restrictions.

Global Shifts

Global shifts in terms of production cannot be ignored when forecasting freight flows. Currently there is a trend of manufacturing firms, especially labor-intensive manufacturing, moving to China. According to the Mexican statistics agency INEGI, 529 factories and 223,000 related jobs have left Mexico since December 2000.[2] This trend is expected to continue and to spread to other nations as trade continues to become more global.

Another global trend is the increase in smaller, more frequent and higher value shipments. Increasingly the higher value commodities, especially high-tech electronics, bio-medical goods and defense-related components, are being shipped via air. This could have significant impacts for traditional freight movement through all border crossings, including Nogales. The shift toward containerized freight represents another global trend with potentially significant impact on the pattern of trade flows. The border crossings that are best equipped to stage and handle containers will be the winners if this trend continues to spread. The use of intelligent transportation systems (ITS) to increase the efficiency of freight movements is receiving significant attention. Border crossings that fail to implement systems are likely to witness a diversion of trade to other, more technologically advanced crossings.

Alternative Forecasts

Based on assumptions regarding the variables discussed above, alternative "high" and "low" forecasts were developed. The high scenario assumed that variables played to the advantage of Nogales. These variables include infrastructure providing better access from southern Mexico to Nogales was completed (creating a shift in the movement of all commodities away from other BPOEs to Nogales); manufacturing in the Sonora region shifted toward more technically advanced commodities (resulting in a shift to higher value commodities being imported); the share of inputs to the manufacturing process coming from the U.S. increased (increasing southbound flows through all BPOEs); NAFTA being fully implemented (increasing north and southbound flows for all BPOEs); and Nogales being successful in diverting a larger market share of freight heading for the western U.S. through its border crossing. Exhibit II-9 highlights some of the key assumptions underlying the "high" scenario forecasts. Of course, if only a portion of these assumptions are realized, the volume and value of freight flows would lie somewhere in between the baseline and high forecasts.

Exhibits II-10 and II-11 provide the high scenario forecast for northbound and southbound trade, respectively, for 2010 and 2020 by commodity.

Exhibit II-9: Key Assumptions Underlying High Scenario Forecasts

- Full implementation of NAFTA resulted in 10% increase in all commodities for all BPOEs.
- Infrastructure improvements enabled Nogales to shift:
  - 50% of freight going to/from western U.S. via other BPOEs.
  - 15% of freight moving from rest of U.S. to western Mexico.
  - 5% shift in freight moving from rest of U.S to the rest of Mexico.
- Shift in manufacturing in Sonora leads to 20% increase in high-value commodities passing through Nogales.
- Favorable and more open trade policies related to key commodities (such as no protection for Florida tomato growers) lead to 10% increase in flow of those commodities.

2 "Mexican Plants Flee to China, Endangering $77 Billion Industry," www.thenewsmexico.com, November 4, 2002.

Exhibit II-10: High Scenario Forecast for Northbound Freight Flows through Nogales by Commodity

	2010				2020			
Commodity	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**
Field crops	18,765.90	0.37%	7,940,416.96	0.06%	23,899.05	0.32%	10,112,406.52	0.05%
Fresh fruits and nuts	590,825.01	11.54%	249,995,786.56	2.01%	752,347.28	10.12%	318,340,702.83	1.67%
Fresh vegetables	377,170.11	7.37%	159,591,989.67	1.28%	480,281.12	6.46%	203,221,351.40	1.07%
Livestock	71,343.44	1.39%	30,187,548.26	0.24%	90,849.63	1.22%	38,441,205.24	0.20%
Misc farm products	5,416.97	0.11%	2,292,083.12	0.02%	6,899.42	0.09%	2,919,352.09	0.02%
Fish and marine products	16,954.41	0.33%	17,178,719.63	0.14%	23,609.58	0.32%	23,921,938.31	0.13%
Metallic ores	21,580.65	0.42%	10,712,636.99	0.09%	27,485.65	0.37%	13,643,874.93	0.07%
Ordnance or accessories	568.08	0.01%	281,993.24	0.00%	732.10	0.01%	363,413.06	0.00%
Meat or poultry	6,032.85	0.12%	6,112,663.90	0.05%	7,958.63	0.11%	8,063,918.35	0.04%
Dairy products	1,757.78	0.03%	1,781,038.23	0.01%	1,959.61	0.03%	1,985,536.59	0.01%
Canned or preserved foods	2,578.08	0.05%	2,612,192.64	0.02%	3,067.67	0.04%	3,108,251.39	0.02%
Grain mill products	5,648.07	0.11%	5,722,794.88	0.05%	6,894.47	0.09%	6,985,688.68	0.04%
Bakery products	26,303.73	0.51%	26,651,727.33	0.21%	29,819.32	0.40%	30,213,826.81	0.16%
Sugar, beet or cane	31,351.25	0.61%	31,766,027.15	0.26%	35,953.41	0.48%	36,429,073.36	0.19%
Confectionery or rel prod	3,607.58	0.07%	3,655,309.53	0.03%	4,136.94	0.06%	4,191,674.31	0.02%
Beverages	150,622.74	2.94%	152,615,480.76	1.23%	319,632.59	4.30%	323,861,328.42	1.70%
Misc food preparations	41,814.40	0.82%	42,367,601.91	0.34%	72,780.35	0.98%	73,743,237.69	0.39%
Cigarettes	121.32	0.00%	1,640,043.39	0.01%	112.43	0.00%	1,519,885.64	0.01%
Cotton fabrics	22,802.36	0.45%	161,174,598.64	1.30%	31,675.80	0.43%	223,895,032.14	1.18%
Man-made or silk fabrics	3,426.35	0.07%	24,218,572.50	0.19%	4,856.99	0.07%	34,330,786.92	0.18%
Wool fabrics	122.60	0.00%	866,577.26	0.01%	147.20	0.00%	1,040,458.18	0.01%
Knit fabrics	2,448.33	0.05%	17,305,600.75	0.14%	3,506.96	0.05%	24,788,371.58	0.13%
Floor coverings	706.56	0.01%	4,994,175.01	0.04%	973.34	0.01%	6,879,920.15	0.04%
Misc textile goods	6,845.90	0.13%	48,389,080.35	0.39%	7,854.30	0.11%	55,516,784.32	0.29%
Women or children's clothing	117,795.73	2.30%	832,619,056.89	6.70%	138,437.51	1.86%	978,521,969.72	5.15%
Caps and hats	1,794.62	0.04%	12,684,938.37	0.10%	2,504.71	0.03%	17,704,116.20	0.09%
Misc finished textile goods	14,260.21	0.28%	100,795,856.35	0.81%	46,662.14	0.63%	329,823,399.95	1.73%
Primary forest materials	164.75	0.00%	66,852.51	0.00%	204.32	0.00%	82,911.73	0.00%
Misc wood products	119,165.08	2.33%	48,355,996.04	0.39%	178,614.84	2.40%	72,480,116.17	0.38%
Household or office furniture	225,975.59	4.41%	1,070,114,175.01	8.60%	292,286.75	3.93%	1,384,132,662.59	7.28%
Pulp or pulp mill products	6,472.62	0.13%	6,256,757.18	0.05%	7,710.85	0.10%	7,453,691.59	0.04%
Fiber, paper or pulp board	46,664.26	0.91%	45,108,009.97	0.36%	54,834.83	0.74%	53,006,083.64	0.28%
Misc printed matter	5,676.70	0.11%	14,602,630.43	0.12%	6,041.44	0.08%	15,540,866.61	0.08%
Industrial chemicals	219,866.25	4.29%	298,030,895.55	2.40%	284,829.87	3.83%	386,089,737.92	2.03%
Drugs	317.40	0.01%	430,238.87	0.00%	675.20	0.01%	915,240.35	0.00%
Soap or other detergents	39,670.09	0.77%	53,773,197.53	0.43%	83,139.64	1.12%	112,696,609.97	0.59%
Paints, lacquers	805.50	0.02%	1,091,863.31	0.01%	946.90	0.01%	1,283,532.42	0.01%
Gum or wood chemicals	733.00	0.01%	993,588.83	0.01%	764.90	0.01%	1,036,829.60	0.01%
Agricultural chemicals	967.17	0.02%	1,311,008.61	0.01%	1,715.70	0.02%	2,325,648.51	0.01%

Exhibit II-10: High Scenario Forecast for Northbound Freight Flows through Nogales by Commodity (continued)

	2010				2020			
Commodity	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**
Misc chemical products	13,542.59	0.26%	18,357,122.17	0.15%	15,461.63	0.21%	20,958,394.87	0.11%
Prod of petroleum refining	52.34	0.00%	12,113.57	0.00%	72.56	0.00%	16,793.29	0.00%
Tires or inner tubes	7,150.40	0.14%	15,979,141.89	0.13%	9,011.90	0.12%	20,139,073.17	0.11%
Misc plastic products	119,048.87	2.33%	266,040,898.61	2.14%	254,218.72	3.42%	568,107,656.71	2.99%
Leather footwear	5,273.67	0.10%	37,276,038.13	0.30%	4,584.87	0.06%	32,407,380.23	0.17%
Leather goods	7,553.98	0.15%	53,394,019.87	0.43%	10,445.59	0.14%	73,832,889.48	0.39%
Glassware	184,585.64	3.61%	20,728,967.22	0.17%	365,983.29	4.92%	41,099,923.17	0.22%
Portland cement	390,638.78	7.63%	43,868,734.50	0.35%	591,523.57	7.96%	66,428,096.68	0.35%
Structural clay products	99,829.15	1.95%	11,210,813.38	0.09%	142,776.96	1.92%	16,033,852.46	0.08%
Concrete, gypsum or plaster	117,197.96	2.29%	13,161,330.76	0.11%	215,844.25	2.90%	24,239,309.72	0.13%
Steel mill products	303,703.24	5.93%	281,469,122.65	2.26%	409,484.54	5.51%	379,506,174.48	2.00%
Nonferr smelter prod	3,461.58	0.07%	3,208,157.73	0.03%	4,621.10	0.06%	4,282,789.27	0.02%
Nonferr metal basic shapes	135,488.18	2.65%	125,569,088.89	1.01%	173,449.07	2.33%	160,750,861.15	0.85%
Misc primary metalproducts	48,560.43	0.95%	92,410,988.91	0.74%	72,703.04	0.98%	138,354,616.15	0.73%
Fabricated metal products	31,909.90	0.62%	60,724,858.80	0.49%	35,772.60	0.48%	68,075,615.53	0.36%
Cutlery, hand tools or hardware	765.90	0.01%	1,457,515.36	0.01%	858.70	0.01%	1,634,114.69	0.01%
General industrial machinery	281,856.78	5.51%	2,052,351,400.18	16.50%	201,544.95	2.71%	1,467,557,600.59	7.72%
Electrical equipment	372,018.35	7.27%	17,562,986.17	0.14%	474,057.23	6.38%	22,380,241.77	0.12%
Motor vehicle or equipment	668,302.32	13.05%	4,320,962,088.07	34.75%	1,126,133.59	15.15%	7,281,106,807.19	38.29%
Ships or boats	165.90	0.00%	1,072,659.41	0.01%	245.98	0.00%	1,590,418.99	0.01%
Railroad equipment	9,487.63	0.19%	61,343,003.53	0.49%	16,720.29	0.22%	108,106,391.85	0.57%
Instruments, photo/optical equip	37,186.21	0.73%	1,070,985,280.60	8.61%	101,769.63	1.37%	2,931,026,497.35	15.41%
Photographic equip/supplies	5,316.56	0.10%	153,120,033.67	1.23%	9,625.59	0.13%	277,222,767.45	1.46%
Watches and clocks	1,536.37	0.03%	44,248,375.26	0.36%	2,938.81	0.04%	84,639,571.06	0.45%
Jewelry and silverware	1,663.49	0.03%	4,377,149.21	0.04%	2,458.17	0.03%	6,468,185.60	0.03%
Musical instruments or parts	1,051.70	0.02%	2,767,430.30	0.02%	1,487.06	0.02%	3,913,036.47	0.02%
Toys/amusements/athletic goods	44,127.07	0.86%	116,115,533.02	0.93%	115,386.87	1.55%	303,627,853.03	1.60%
Misc manufactured products	19,024.69	0.37%	50,061,376.60	0.40%	38,942.70	0.52%	102,473,439.80	0.54%
TOTAL	**5,119,643.09**	**100%**	**$12,436,125,952.57**	**100%**	**7,434,926.70**	**100%**	**$19,016,591,788.02**	**100%**

Exhibit II-11: High Scenario Forecast for Southbound Freight Flows through Nogales by Commodity

	2010				2020			
Commodity	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**
Field crops	1,368,640.99	22.68%	579,113,062.34	7.70%	1,742,802.07	23.03%	737,431,838.23	7.41%
Fresh fruits and nuts	114,382.00	1.90%	48,398,457.57	0.64%	167,971.64	2.22%	71,073,838.46	0.71%
Fresh vegetables	46,632.80	0.77%	19,731,738.05	0.26%	66,615.10	0.88%	28,186,847.81	0.28%
Livestock	14,705.79	0.24%	6,222,458.94	0.08%	20,012.72	0.26%	8,467,981.18	0.09%
Misc farm products	2,399.14	0.04%	1,015,148.22	0.01%	3,498.90	0.05%	1,480,489.98	0.01%
Fish and marine products	1,297.56	0.02%	1,314,731.61	0.02%	1,652.32	0.02%	1,674,176.36	0.02%
Metallic ores	299,819.62	4.97%	148,830,460.17	1.98%	381,784.74	5.05%	189,517,945.11	1.90%
Ordnance or accessories	171.92	0.00%	85,340.37	0.00%	191.81	0.00%	95,214.32	0.00%
Meat or poultry	159,311.10	2.64%	161,418,788.52	2.15%	189,646.04	2.51%	192,155,052.19	1.93%
Dairy products	15,774.60	0.26%	15,983,296.41	0.21%	19,013.97	0.25%	19,265,523.93	0.19%
Canned or preserved foods	5,110.13	0.08%	5,177,736.10	0.07%	6,957.93	0.09%	7,049,982.91	0.07%
Grain mill products	105,340.99	1.75%	106,734,648.62	1.42%	135,682.27	1.79%	137,477,344.97	1.38%
Bakery products	8,235.62	0.14%	8,344,581.77	0.11%	9,298.03	0.12%	9,421,038.13	0.09%
Sugar, beet or cane	29,417.87	0.49%	29,807,067.92	0.40%	34,602.89	0.46%	35,060,689.75	0.35%
Confectionery or rel prod	6,425.71	0.11%	6,510,724.62	0.09%	7,558.31	0.10%	7,658,305.50	0.08%
Beverages	28,594.95	0.47%	28,973,261.86	0.39%	37,336.74	0.49%	37,830,708.15	0.38%
Misc food preparations	91,924.14	1.52%	93,140,295.22	1.24%	118,636.09	1.57%	120,205,647.84	1.21%
Cigarettes	14.20	0.00%	191,919.23	0.00%	18.74	0.00%	253,365.76	0.00%
Cotton fabrics	31,534.85	0.52%	222,898,713.16	2.96%	38,837.47	0.51%	274,516,073.06	2.76%
Man-made or silk fabrics	13,281.54	0.22%	93,878,315.16	1.25%	16,617.23	0.22%	117,456,049.35	1.18%
Wool fabrics	544.36	0.01%	3,847,724.66	0.05%	670.45	0.01%	4,738,970.72	0.05%
Knit fabrics	10,332.49	0.17%	73,033,418.44	0.97%	12,725.29	0.17%	89,946,562.26	0.90%
Floor coverings	2,542.62	0.04%	17,972,104.24	0.24%	2,380.78	0.03%	16,828,123.28	0.17%
Misc textile goods	30,437.48	0.50%	215,142,172.09	2.86%	36,321.97	0.48%	256,735,679.00	2.58%
Women or children's clothing	14,884.17	0.25%	105,206,251.68	1.40%	15,734.45	0.21%	111,216,302.21	1.12%
Caps and hats	146.01	0.00%	1,032,055.67	0.01%	159.78	0.00%	1,129,410.56	0.01%
Misc finished textile goods	4,070.59	0.07%	28,772,250.46	0.38%	5,423.73	0.07%	38,336,729.00	0.39%
Primary forest materials	12,858.01	0.21%	5,217,651.15	0.07%	16,636.65	0.22%	6,750,984.27	0.07%
Misc wood products	331,806.13	5.50%	134,643,611.35	1.79%	405,968.52	5.36%	164,737,967.26	1.65%
Household or office furniture	32,973.93	0.55%	156,149,022.33	2.08%	38,723.84	0.51%	183,377,884.31	1.84%
Pulp or pulp mill products	185,438.83	3.07%	179,254,445.87	2.38%	244,779.45	3.23%	236,616,058.02	2.38%
Fiber, paper or pulp board	294,996.45	4.89%	285,158,316.22	3.79%	356,268.34	4.71%	344,386,791.95	3.46%
Misc printed matter	4,160.83	0.07%	10,703,245.66	0.14%	5,043.54	0.07%	12,973,911.02	0.13%
Industrial chemicals	168,525.03	2.79%	228,437,364.67	3.04%	170,635.53	2.25%	231,298,165.00	2.32%
Drugs	1,668.76	0.03%	2,262,017.59	0.03%	3,692.15	0.05%	5,004,745.94	0.05%
Soap or other detergents	33,195.13	0.55%	44,996,330.21	0.60%	41,045.07	0.54%	55,637,001.51	0.56%
Paints, lacquers	18,060.92	0.30%	24,481,756.59	0.33%	17,836.64	0.24%	24,177,744.62	0.24%
Gum or wood chemicals	5,544.88	0.09%	7,516,135.40	0.10%	4,861.75	0.06%	6,590,150.91	0.07%
Agricultural chemicals	23,781.97	0.39%	32,236,703.25	0.43%	23,101.90	0.31%	31,314,860.02	0.31%
Misc chemical products	90,517.46	1.50%	122,697,317.02	1.63%	87,358.72	1.15%	118,415,617.00	1.19%

Exhibit II-11: High Scenario Forecast for Southbound Freight Flows through Nogales by Commodity (continued)

	2010				2020			
Commodity	**Volume (tons)**	**% of total**	**Value ($)**	**% of Total**	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**
Prod of petroleum refining	544,982.44	9.03%	126,130,735.62	1.68%	719,376.99	9.51%	166,492,609.89	1.67%
Tires or inner tubes	30,572.06	0.51%	68,319,986.30	0.91%	33,243.99	0.44%	74,291,009.78	0.75%
Misc plastic products	262,694.33	4.35%	587,048,280.34	7.80%	381,580.81	5.04%	852,726,256.96	8.57%
Leather footwear	580.00	0.01%	4,099,638.37	0.05%	641.16	0.01%	4,531,964.28	0.05%
Leather goods	514.40	0.01%	3,635,980.61	0.05%	553.64	0.01%	3,913,325.98	0.04%
Glassware	44,294.80	0.73%	4,974,305.98	0.07%	50,123.15	0.66%	5,628,829.99	0.06%
Portland cement	162,716.10	2.70%	18,273,018.06	0.24%	186,752.71	2.47%	20,972,328.84	0.21%
Structural clay products	117,144.91	1.94%	13,155,373.84	0.17%	134,275.43	1.77%	15,079,130.53	0.15%
Concrete, gypsum or plaster	240,169.33	3.98%	26,971,015.41	0.36%	266,241.06	3.52%	29,898,870.69	0.30%
Steel mill products	23,760.27	0.39%	22,020,778.46	0.29%	33,334.85	0.44%	30,894,405.76	0.31%
Nonferr smelter prod	102,049.90	1.69%	94,578,823.31	1.26%	115,605.16	1.53%	107,141,709.89	1.08%
Nonferr metal basic shapes	54,033.36	0.90%	50,077,580.61	0.67%	69,634.76	0.92%	64,536,795.92	0.65%
Misc primary metal products	111,375.35	1.85%	211,948,395.40	2.82%	141,536.35	1.87%	269,345,083.71	2.71%
Fabricated metal products	4,058.99	0.07%	7,724,295.76	0.10%	4,870.63	0.06%	9,268,850.99	0.09%
Cutlery, hand tools or hardware	115,763.93	1.92%	220,299,912.79	2.93%	132,071.60	1.75%	251,333,576.93	2.52%
General industrial machinery	295,994.59	4.91%	2,155,296,472.34	28.65%	447,120.10	5.91%	3,255,722,902.19	32.71%
Electrical equipment	222,674.35	3.69%	10,512,456.14	0.14%	248,135.50	3.28%	11,714,477.19	0.12%
Motor vehicle or equipment	237.17	0.00%	1,533,444.41	0.02%	269.65	0.00%	1,743,440.44	0.02%
Ships or boats	319.83	0.01%	2,067,918.66	0.03%	342.14	0.00%	2,212,144.56	0.02%
Railroad equipment	7,408.18	0.12%	47,898,196.80	0.64%	7,440.59	0.10%	48,107,752.38	0.48%
Instruments, photo/optical equip	10,518.12	0.17%	302,928,030.26	4.03%	14,995.90	0.20%	431,890,931.39	4.34%
Photographic equip/supplies	3,462.47	0.06%	99,721,133.97	1.33%	4,370.28	0.06%	125,866,687.26	1.26%
Watches and clocks	148.86	0.00%	4,287,233.07	0.06%	222.90	0.00%	6,419,572.36	0.06%
Jewelry and silverware	112.36	0.00%	295,655.06	0.00%	128.55	0.00%	338,265.73	0.00%
Musical instruments or parts	168.57	0.00%	443,576.38	0.01%	176.11	0.00%	463,416.05	0.00%
Toys/amusements/athletic goods	6,738.28	0.11%	17,731,032.68	0.24%	8,334.74	0.11%	21,931,961.06	0.22%
Misc manufactured products	62,316.59	1.03%	163,979,264.54	2.18%	77,909.71	1.03%	205,010,839.64	2.06%
TOTAL	**6,034,311.12**	**100%**	**$7,522,483,175.54**	**100%**	**7,567,392.02**	**100%**	**$9,953,968,912.29**	**100%**

Relative to the baseline forecasts, the high-scenario forecasts projects a 30.9 percent increase in the volume and a 40.1 percent increase in the value of freight flows heading northbound through Nogales in 2010. In 2020, the high forecasts are 13.0 percent greater than the baseline in terms of tons and 75.9 percent higher in terms of value. For southbound freight flows, the high forecasts project a 27.8 percent increase in the ton of freight relative to the baseline forecast and a 20.3 percent increase in the value for 2010. In 2020, the high scenario forecast is 27.4 percent higher in terms of volume and 25.0 percent higher in value relative to the baseline. While the primary destination and origination states remained the same, there was some shifting of commodities between the baseline and the high scenario forecasts, as illustrated by the highlighted commodities. For example, for northbound trade there was a shifting away from vegetables and portland cement toward motor vehicles and equipment and household and office furniture. For southbound trade, the primary shift was a decrease in metallic ores coupled with an increase in general industry machinery.

The low-scenario forecasts assumed that all factors and events played out in a manner that negatively impacted economic activity at the Nogales BPOE. For example, the only new infrastructure completed was located in regions that benefited Texas BPOE relative to those in Arizona, trade policies restricting the import of commodities important to Nogales were implemented and manufacturing continued to shift away from the Sonora region, just to name a few. Exhibit II-13 enumerates the key assumptions driving the low scenario forecasts. Again, the forecasts assume that all these events materialize simultaneously, indicating a worse-case scenario.

The results of forcing the low scenario assumptions on the baseline forecast are depicted in Exhibits II-14 and II-15. Exhibit II-14 depicts the forecast for northbound freight flows and II-15 depicts the forecasts for southbound freight flows.

Exhibit II-13: Key Assumptions Underlying Low Scenario Forecasts

- Tightening of trade policy leads to 10% reduction in all freight flows and 20% reduction in vegetables.
- Failure to improve infrastructure key to Nogales while improvements are made to other BPOEs lead to:
  - 20% reduction in freight to/from western U.S.
  - 30% reduction in freight to/from rest of U.S.
- Textile industry continues to migrate to China, resulting in 10% reduction in those commodities.
- Sonora industries continue to use domestic inputs, leading to 5% reduction in flows to that region.

Exhibit II-14: Low Scenario Forecasts for Northbound Freight Flows through Nogales by Commodity

	2010				2020			
Commodity	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**
Field crops	9,280.99	0.28%	3,927,064.14	0.05%	14,451.61	0.33%	6,114,910.77	0.05%
Fresh fruits and nuts	300,003.93	9.14%	126,940,662.88	1.62%	456,739.39	10.52%	193,260,138.84	1.62%
Fresh vegetables	264,776.84	8.06%	112,035,026.11	1.43%	337,161.64	7.76%	142,663,206.73	1.43%
Livestock	61,300.44	1.87%	25,938,054.12	0.33%	78,060.96	1.80%	33,029,935.59	0.33%
Misc farm products	2,711.88	0.08%	1,147,476.26	0.01%	3,454.03	0.08%	1,461,503.29	0.01%
Fish and marine products	8,188.06	0.25%	8,296,390.16	0.11%	11,842.47	0.27%	11,999,143.90	0.11%
Metallic ores	10,481.68	0.32%	5,203,104.49	0.07%	15,442.46	0.36%	7,665,638.95	0.07%
Ordnance or accessories	281.31	0.01%	139,641.75	0.00%	362.53	0.01%	179,960.68	0.00%
Meat or poultry	2,228.09	0.07%	2,257,562.66	0.03%	2,688.88	0.06%	2,724,452.18	0.03%
Dairy products	646.22	0.02%	654,772.80	0.01%	720.42	0.02%	729,952.25	0.01%
Canned or preserved foods	1,059.05	0.03%	1,073,063.43	0.01%	1,260.21	0.03%	1,276,877.84	0.01%
Grain mill products	2,140.77	0.07%	2,169,096.24	0.03%	2,613.22	0.06%	2,647,794.91	0.03%
Bakery products	10,033.17	0.31%	10,165,905.75	0.13%	10,517.46	0.24%	10,656,606.84	0.13%
Sugar, beet or cane	11,648.78	0.35%	11,802,890.13	0.15%	13,358.66	0.31%	13,535,391.74	0.15%
Confectionery or rel prod	1,324.59	0.04%	1,342,110.84	0.02%	1,518.95	0.03%	1,539,046.83	0.02%
Beverages	230,980.17	7.04%	234,036,038.11	2.98%	345,972.35	7.97%	350,549,562.62	2.98%
Misc food preparations	55,320.92	1.68%	56,052,814.42	0.71%	73,024.60	1.68%	73,990,712.66	0.71%
Cigarettes	9.76	0.00%	131,972.03	0.00%	15.42	0.00%	208,487.39	0.00%
Cotton fabrics	1,330.92	0.04%	9,407,350.65	0.12%	1,535.85	0.04%	10,855,925.48	0.12%
Man-made or silk fabrics	766.45	0.02%	5,417,502.22	0.07%	919.58	0.02%	6,499,911.63	0.07%
Wool fabrics	42.97	0.00%	303,726.13	0.00%	51.39	0.00%	363,264.71	0.00%
Knit fabrics	75.01	0.00%	530,197.17	0.01%	98.80	0.00%	698,349.95	0.01%
Floor coverings	33.05	0.00%	233,604.13	0.00%	34.22	0.00%	241,911.63	0.00%
Misc textile goods	1,120.66	0.03%	7,921,222.11	0.10%	1,440.07	0.03%	10,178,906.50	0.10%
Women or children's clothing	23,315.59	0.71%	164,802,303.80	2.10%	30,357.46	0.70%	214,576,565.91	2.10%
Caps and hats	762.55	0.02%	5,389,978.81	0.07%	992.51	0.02%	7,015,387.32	0.07%
Misc finished textile goods	8,741.03	0.27%	61,784,493.48	0.79%	34,613.99	0.80%	244,663,076.24	0.79%
Primary forest materials	82.45	0.00%	33,459.26	0.00%	102.26	0.00%	41,496.75	0.00%
Misc wood products	59,225.93	1.80%	24,033,290.02	0.31%	75,844.47	1.75%	30,776,926.88	0.31%
Household or office furniture	112,935.31	3.44%	534,808,564.67	6.81%	146,075.49	3.36%	691,744,852.54	6.81%
Pulp or pulp mill products	3,206.95	0.10%	3,099,999.85	0.04%	3,820.45	0.09%	3,693,041.80	0.04%
Fiber, paper or pulp board	43,649.48	1.33%	42,193,770.11	0.54%	51,302.95	1.18%	49,591,996.60	0.54%
Misc printed matter	5,384.38	0.16%	13,850,664.01	0.18%	5,730.32	0.13%	14,740,571.53	0.18%
Industrial chemicals	63,609.17	1.94%	86,222,869.02	1.10%	64,317.78	1.48%	87,183,392.00	1.10%
Drugs	108.90	0.00%	147,612.02	0.00%	531.56	0.01%	720,533.36	0.00%
Soap or other detergents	12,717.26	0.39%	17,238,371.80	0.22%	17,327.66	0.40%	23,487,822.38	0.22%
Paints, lacquers	1,344.87	0.04%	1,822,983.56	0.02%	1,580.93	0.04%	2,142,960.67	0.02%
Gum or wood chemicals	456.73	0.01%	619,095.59	0.01%	646.46	0.01%	876,289.12	0.01%
Agricultural chemicals	522.78	0.02%	708,632.57	0.01%	895.12	0.02%	1,213,342.87	0.01%
Misc chemical products	4,718.87	0.14%	6,396,471.18	0.08%	6,958.69	0.16%	9,432,577.97	0.08%

Exhibit II-14: Low Scenario Forecasts for Northbound Freight Flows through Nogales by Commodity (continued)

	2010				2020			
Commodity	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**
Prod of petroleum refining	36.43	0.00%	8,431.12	0.00%	56.17	0.00%	12,999.09	0.00%
Tires or inner tubes	35,791.81	1.09%	79,984,682.37	1.02%	45,109.80	1.04%	100,807,782.14	1.02%
Misc plastic products	111,971.27	3.41%	250,224,436.98	3.19%	176,107.37	4.06%	393,550,664.70	3.19%
Leather footwear	2,639.26	0.08%	18,655,187.66	0.24%	2,294.55	0.05%	16,218,621.74	0.24%
Leather goods	1,777.79	0.05%	12,565,981.79	0.16%	2,185.75	0.05%	15,449,621.86	0.16%
Glassware	113,918.36	3.47%	12,793,032.34	0.16%	142,669.02	3.29%	16,021,730.39	0.16%
Portland cement	247,536.54	7.54%	27,798,353.14	0.35%	325,208.26	7.49%	36,520,887.58	0.35%
Structural clay products	93,071.60	2.83%	10,451,941.16	0.13%	98,880.95	2.28%	11,104,330.35	0.13%
Concrete, gypsum or plaster	58,312.62	1.78%	6,548,507.30	0.08%	66,824.43	1.54%	7,504,383.71	0.08%
Steel mill products	152,001.06	4.63%	140,873,066.52	1.79%	172,291.67	3.97%	159,678,192.37	1.79%
Nonferr smelter prod	1,160.37	0.04%	1,075,422.90	0.01%	2,398.00	0.06%	2,222,438.70	0.01%
Nonferr metal basic shapes	65,507.94	2.00%	60,712,104.42	0.77%	73,251.42	1.69%	67,888,684.28	0.77%
Misc primary metal products	24,146.76	0.74%	45,951,530.43	0.59%	35,705.41	0.82%	67,947,745.44	0.59%
Fabricated metal products	159,669.06	4.86%	303,851,816.02	3.87%	226,354.90	5.21%	430,755,631.49	3.87%
Cutlery, hand tools or hardware	3,834.02	0.12%	7,296,171.61	0.09%	4,298.37	0.10%	8,179,839.20	0.09%
General industrial machinery	254,825.28	7.76%	1,855,520,468.80	23.63%	182,215.67	4.20%	1,326,810,724.89	23.63%
Electrical equipment	128,101.45	3.90%	6,047,669.63	0.08%	290,093.56	6.68%	13,695,316.99	0.08%
Motor vehicle or equipment	449,796.58	13.70%	2,908,195,796.74	37.03%	573,979.03	13.22%	3,711,107,367.51	37.03%
Ships or boats	60.91	0.00%	393,833.56	0.01%	90.31	0.00%	583,932.21	0.01%
Railroad equipment	3,485.66	0.11%	22,536,840.55	0.29%	4,450.39	0.10%	28,774,381.88	0.29%
Instruments, photo/optical equip	11,504.16	0.35%	331,326,774.71	4.22%	14,694.07	0.34%	423,198,144.66	4.22%
Photographic equip/supplies	1,224.59	0.04%	35,269,055.94	0.45%	1,699.52	0.04%	48,947,142.16	0.45%
Watches and clocks	117.58	0.00%	3,386,350.18	0.04%	157.10	0.00%	4,524,592.95	0.04%
Jewelry and silverware	832.86	0.03%	2,191,496.60	0.03%	1,033.81	0.02%	2,720,264.97	0.03%
Musical instruments or parts	517.56	0.02%	1,361,903.50	0.02%	731.81	0.02%	1,925,677.20	0.02%
Toys/amusements/athletic goods	6,293.63	0.19%	16,561,005.87	0.21%	6,694.26	0.15%	17,615,220.86	0.21%
Misc manufactured products	38,523.09	1.17%	101,369,270.64	1.29%	78,853.96	1.82%	207,495,534.38	1.29%
TOTAL	**3,283,226.23**	**100%**	**$7,853,230,940.95**	**100%**	**4,342,712.87**	**100%**	**$9,386,234,281.54**	**100%**

Exhibit II-15: Low Scenario Forecasts for Southbound Freight Flows through Nogales by Commodity

	2010				2020			
Commodity	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**
Field crops	820,127.04	25.76%	347,020,353.17	8.78%	1,095,680.81	25.51%	463,615,420.64	8.21%
Fresh fruits and nuts	21,840.56	0.69%	9,241,394.24	0.23%	39,520.05	0.92%	16,722,120.48	0.30%
Fresh vegetables	13,445.83	0.42%	5,689,334.91	0.14%	20,916.42	0.49%	8,850,364.84	0.16%
Livestock	6,660.97	0.21%	2,818,454.87	0.07%	9,156.91	0.21%	3,874,565.10	0.07%
Misc farm products	716.05	0.02%	302,980.73	0.01%	911.82	0.02%	385,819.70	0.01%
Fish and marine products	755.01	0.02%	764,997.77	0.02%	961.43	0.02%	974,146.11	0.02%
Metallic ores	80,495.27	2.53%	39,957,853.43	1.01%	163,520.26	3.81%	81,171,455.86	1.44%
Ordnance or accessories	113.10	0.00%	56,145.10	0.00%	126.19	0.00%	62,641.24	0.00%
Meat or poultry	99,403.48	3.12%	100,718,589.49	2.55%	118,331.22	2.76%	119,896,738.97	2.12%
Dairy products	9,296.52	0.29%	9,419,508.65	0.24%	11,205.59	0.26%	11,353,842.20	0.20%
Canned or preserved foods	2,933.14	0.09%	2,971,946.22	0.08%	3,631.61	0.08%	3,679,654.48	0.07%
Grain mill products	64,891.67	2.04%	65,750,190.28	1.66%	83,582.37	1.95%	84,688,167.62	1.50%
Bakery products	4,819.64	0.15%	4,883,400.58	0.12%	5,441.37	0.13%	5,513,363.61	0.10%
Sugar, beet or cane	18,625.61	0.58%	18,872,023.07	0.48%	21,908.45	0.51%	22,198,297.95	0.39%
Confectionery or rel prod	4,125.81	0.13%	4,180,390.36	0.11%	4,853.02	0.11%	4,917,225.19	0.09%
Beverages	17,041.94	0.54%	17,267,401.21	0.44%	22,251.85	0.52%	22,546,238.10	0.40%
Misc food preparations	51,317.05	1.61%	51,995,975.13	1.32%	66,229.14	1.54%	67,105,347.80	1.19%
Cigarettes	9.00	0.00%	121,653.57	0.00%	11.88	0.00%	160,603.16	0.00%
Cotton fabrics	18,245.62	0.57%	128,966,051.41	3.26%	22,470.81	0.52%	158,831,128.35	2.81%
Man-made or silk fabrics	7,877.95	0.25%	55,683,964.06	1.41%	9,702.32	0.23%	68,579,182.97	1.21%
Wool fabrics	259.54	0.01%	1,834,480.16	0.05%	319.65	0.01%	2,259,400.45	0.04%
Knit fabrics	4,676.84	0.15%	33,057,468.59	0.84%	5,759.91	0.13%	40,712,967.73	0.72%
Floor coverings	1,203.26	0.04%	8,505,059.26	0.22%	1,126.67	0.03%	7,963,680.01	0.14%
Misc textile goods	14,145.88	0.44%	99,987,739.39	2.53%	16,880.71	0.39%	119,318,412.98	2.11%
Women or children's clothing	6,424.41	0.20%	45,409,815.26	1.15%	6,791.41	0.16%	48,003,946.86	0.85%
Caps and hats	55.47	0.00%	392,109.67	0.01%	60.71	0.00%	429,100.38	0.01%
Misc finished textile goods	1,776.89	0.06%	12,559,648.59	0.32%	2,367.57	0.06%	16,734,761.35	0.30%
Primary forest materials	8,971.06	0.28%	3,640,367.68	0.09%	10,615.89	0.25%	4,307,820.50	0.08%
Misc wood products	128,935.43	4.05%	52,320,708.49	1.32%	203,891.82	4.75%	82,737,262.92	1.47%
Household or office furniture	16,641.04	0.52%	78,804,138.24	1.99%	19,542.87	0.46%	92,545,837.50	1.64%
Pulp or pulp mill products	115,390.27	3.62%	111,542,005.50	2.82%	152,315.28	3.55%	147,235,567.51	2.61%
Fiber, paper or pulp board	166,173.43	5.22%	160,631,542.87	4.06%	200,688.30	4.67%	193,995,346.30	3.44%
Misc printed matter	2,450.24	0.08%	6,302,961.21	0.16%	2,970.06	0.07%	7,640,135.79	0.14%
Industrial chemicals	103,935.12	3.26%	140,885,098.44	3.56%	108,674.22	2.53%	147,308,987.54	2.61%
Drugs	1,028.84	0.03%	1,394,602.43	0.04%	2,276.33	0.05%	3,085,586.20	0.05%
Soap or other detergents	20,488.04	0.64%	27,771,738.35	0.70%	25,333.02	0.59%	34,339,168.27	0.61%
Paints, lacquers	10,958.25	0.34%	14,854,011.92	0.38%	10,822.17	0.25%	14,669,554.96	0.26%
Gum or wood chemicals	2,937.29	0.09%	3,981,521.17	0.10%	2,575.41	0.06%	3,490,997.79	0.06%

Exhibit II-15: Low Scenario Forecasts for Southbound Freight Flows through Nogales by Commodity (continued)

	2010				2020			
Commodity	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**	**Volume (tons)**	**% of Total**	**Value ($)**	**% of Total**
Agricultural chemicals	13,020.72	0.41%	17,649,714.37	0.45%	12,648.38	0.29%	17,145,001.69	0.30%
Misc chemical products	56,793.48	1.78%	76,984,130.47	1.95%	54,811.59	1.28%	74,297,654.41	1.32%
Prod of petroleum refining	317,439.32	9.97%	73,468,155.42	1.86%	449,790.04	10.47%	104,099,407.32	1.84%
Tires or inner tubes	19,086.79	0.60%	42,653,621.17	1.08%	20,754.93	0.48%	46,381,465.95	0.82%
Misc plastic products	155,385.81	4.88%	347,243,782.05	8.78%	225,708.15	5.26%	504,394,508.17	8.94%
Leather footwear	302.89	0.01%	2,140,904.10	0.05%	334.83	0.01%	2,366,667.31	0.04%
Leather goods	257.50	0.01%	1,820,065.10	0.05%	277.14	0.01%	1,958,882.61	0.03%
Glassware	27,131.40	0.85%	3,046,856.34	0.08%	30,701.38	0.71%	3,447,764.89	0.06%
Portland cement	95,002.22	2.98%	10,668,749.36	0.27%	117,440.66	2.73%	13,188,585.61	0.23%
Structural clay products	64,365.96	2.02%	7,228,296.75	0.18%	73,778.43	1.72%	8,285,317.17	0.15%
Concrete, gypsum or plaster	122,118.55	3.84%	13,713,913.39	0.35%	151,399.05	3.53%	17,002,113.38	0.30%
Steel mill products	11,886.23	0.37%	11,016,043.72	0.28%	16,676.00	0.39%	15,455,150.91	0.27%
Nonferr smelter prod	60,081.13	1.89%	55,682,586.24	1.41%	68,061.70	1.58%	63,078,898.42	1.12%
Nonferr metal basic shapes	29,022.88	0.91%	26,898,111.21	0.68%	37,402.86	0.87%	34,664,592.74	0.61%
Misc primary metal products	67,103.67	2.11%	127,698,951.89	3.23%	85,275.69	1.99%	162,280,484.63	2.88%
Fabricated metal products	2,422.08	0.08%	4,609,251.40	0.12%	2,906.41	0.07%	5,530,926.21	0.10%
Cutlery, hand tools or hardware	57,364.13	1.80%	109,164,505.63	2.76%	65,445.02	1.52%	124,542,524.87	2.21%
General industrial machinery	136,987.21	4.30%	997,477,824.00	25.23%	256,742.58	5.98%	1,869,481,368.11	33.12%
Electrical equipment	43,570.64	1.37%	2,056,969.89	0.05%	81,931.58	1.91%	3,867,990.02	0.07%
Motor vehicle or equipment	106.92	0.00%	691,301.33	0.02%	121.56	0.00%	785,983.91	0.01%
Ships or boats	157.28	0.00%	1,016,934.58	0.03%	168.25	0.00%	1,087,859.37	0.02%
Railroad equipment	3,865.95	0.12%	24,995,621.81	0.63%	3,882.86	0.09%	25,104,967.67	0.44%
Instruments, photo/optical equip	5,317.83	0.17%	153,156,657.01	3.87%	7,581.75	0.18%	218,358,926.05	3.87%
Photographic equip/ supplies	1,873.62	0.06%	53,961,471.89	1.36%	2,364.86	0.06%	68,109,467.19	1.21%
Watches and clocks	73.54	0.00%	2,118,046.60	0.05%	110.12	0.00%	3,171,471.49	0.06%
Jewelry and silverware	64.63	0.00%	170,059.57	0.00%	73.94	0.00%	194,570.16	0.00%
Musical instruments or parts	82.20	0.00%	216,304.70	0.01%	85.88	0.00%	225,984.25	0.00%
Toys/amusements/athletic goods	3,521.93	0.11%	9,267,578.07	0.23%	4,356.38	0.10%	11,463,332.76	0.20%
Misc manufactured products	40,298.27	1.27%	106,040,452.02	2.68%	50,381.86	1.17%	132,574,321.78	2.35%
TOTAL	**3,183,897.30**	**100%**	**3,953,414,485.58**	**100%**	**4,294,639.39**	**100%**	**5,644,451,048.42**	**100%**

The low scenario forecasts represent a 16.1 percent reduction in volume and 11.6 percent contraction in value in 2010 for northbound freight. In 2020 the reductions total 34.0 percent in terms of volume and 13.2 percent in value. For southbound freight, the low forecast projected a decline of 35.8 percent in terms of volume and 33.0 percent in the value for 2010. In 2020, the reduction arising from the low scenario is 31.7 percent with regards to volume and 29.1 percent in value. The highlighted commodities represent some of the most significant differences between the baseline and the low scenario forecasts. For example, the low scenario forecasts projects a significant decrease in fresh vegetables, portland cement and industrial chemicals for northbound trade and critical losses in the flow of metallic ores, electrical equipment and motor vehicle and equipment going south through Nogales.

Conclusions

This section of the report provides alternative forecasts for northbound and southbound freight passing through the Nogales BPOE for 2010 and 2020. These forecasts are based on a number of events occurring simultaneously and therefore represent the most optimistic and most pessimistic alternatives. Exhibit II-16 provides a summary of the baseline, high and low forecasts for both northbound and southbound freight movements through Nogales.

Exhibit II-16: Summary of Baseline, High and Low Freight Flow Forecasts for Nogales

	Northbound		Southbound	
Tons of Freight (millions)	**2010**	**2020**	**2010**	**2020**
Baseline	3.9	6.6	5.0	6.3
High	6.1	7.4	6.0	7.6
Low	3.3	4.3	3.2	4.3
Value of Freight (billions)	**2010**	**2020**	**2010**	**2020**
Baseline	$8.9	$10.8	$5.9	$8.0
High	$12.4	$19.0	$7.5	$10.0
Low	$7.8	$9.4	$4.0	$5.6

In terms of the types of commodities being transported through Nogales, the most vulnerable commodity groups include women's and children's clothing and electrical equipment. Women's and children's clothing represents 4.48 percent and 4.79 percent of the total value of goods moving northbound through Nogales in 2010 and 2020, respectively. Electrical equipment represents 35.05 percent and 39.28 percent of the baseline forecasted value of freight moving southbound through Nogales in 2010 and 2020, respectively. More and more the manufacturing of clothing and the assembly of electronics utilizing electrical equipment are moving to other countries in search of cheaper labor, particularly China. If the trend continues at a pace even greater than that anticipated in the baseline projections, the Nogales BPOE could be adversely affected. However, if Nogales is able to offset the loss of freight resulting from decreases in these two commodity groups by diverting other types of freight through its border, the negative impacts of reduced economic activity in the region can be mitigated. Improvements in infrastructure on both sides of the border crossing, including road enhancements, distribution hubs and implementation of ITS systems that increase the efficiency of the crossing, would better position Nogales to increase its market share of both northbound and southbound freight, especially cargo going to and coming from the western U.S.

To put the forecasts into perspective, Exhibit II-17 summarizes the percentage of total freight flows being transported through Nogales in comparison to the baseline projection of the percentage going through Laredo, the most significant of all BPOEs along the U.S.-Mexico border.

Exhibit II-17: Percentage of Freight Transported through Nogales for Alternative Forecasts, by Weight

	2010		2020	
BPOE Nogales	**Northbound**	**Southbound**	**Northbound**	**Southbound**
Baseline	9.30%	6.27%	12.82%	6.36%
High	12.16%	7.63%	14.49%	7.65%
Low	7.80%	4.03%	8.46%	4.34%
BPOE Laredo	**2010**	**2020**	**2010**	**2020**
Baseline	42.31%	47.71%	41.98%	47.49%

As can be seen, even in the high scenario, Nogales accounts for only 7.65 percent of southbound freight and 14.49 percent of northbound freight in the year 2020.

Definition of the CyberPort Concept

This section provides a definition of the CyberPort concept including the basic components of the trade-flow process, the overarching guiding principles and the variety of functions that a CyberPort should serve. These principles form the framework with which alternative CyberPort Concept Models are developed in Section IV.

Introduction

The need for a new way of thinking about the international trade-flow process in the United States has arisen from a number of significant developments in recent years. Since the ratification of NAFTA in 1993, the U.S. has experienced a dramatic increase in North American trade-flows. This increase in trade has stressed the limited capacity of port-of-entry and transportation infrastructure. More recent developments have resulted in a much greater need for security, both at the nation's border ports and throughout the trade-flow system. In addition, meeting the full mandates of NAFTA has had tremendous safety implications as the U.S. prepares to accommodate the free flow of commercial trucks from both Mexico and Canada.

Those states adjacent to the U.S.-Mexico and U.S.-Canada borders play a primary role in the processing, movement and distribution of NAFTA trade through their land-based border ports-of-entry. As a result, many of these states are leading the way in preparing for a future of greater trade flows throughout the Americas. Along the U.S.-Mexico border, the state of Arizona and the Governor's CANAMEX Task Force have commissioned the development of a new port concept, a CyberPort concept, for its primary port of Nogales, Arizona.

The development of the CyberPort concept is timely and unique in two very specific ways:

1 The CyberPort concept looks beyond technology and beyond the port compound to consider a holistic, system-wide approach to the development of the entire trade-flow process–from the point of origin to the point of destination, and
2 The CyberPort concept evaluates equally and simultaneously the considerations of safety, security and trade-flow efficiency.

The goal of the CyberPort concept is to achieve a coordinated, seamless, flexible and integrated system for the safe, secure, efficient and effective movement of trade. The definition of the CyberPort concept is developed from a number of sources: reviews of the literature, project advisory committees, stakeholder interviews, field visits and expert consultation both individually and in a workshop forum. Trade processing programs and initiatives from other states and agencies are also integrated into the development of the CyberPort concept. The development of the CyberPort concept model begins with the identification of the basic components of the trade-flow process as well as the overarching guiding principles.

Trade Flow Components and Guiding Principles

The nine components involved in the port-of-entry and trade-flow process are as follows:

1 Physical Infrastructure
2 Human Resources/Staffing
3 Processing
4 Systems Integration
5 Data Systems, Information and Communication
6 Security and Access Control
7 Planning
8 Technology
9 Legal and Regulatory Environment

The nine guiding principles are as follows:

1 Binational, interagency and public/private cooperation
2 Integrated/Harmonized procedures and systems
3 Incentivized pre-clearance, pre-inspection and compliance programs
4 Risk identification and management
5 Safety, security and efficiency through infrastructure design
6 Secure shared information
7 Application of new technology
8 Complete transparency/visibility of shipments
9 Development of performance standards and systems for measurement

The nine guiding principles are not mutually exclusive; many relate to and are dependent on one another. For example: Risk management comes through cooperation; cooperation involves shared information; and, shared information requires the use of new technology.

Binational Smart Border Action Plans

Each of the nine guiding principles works in support and agreement with the 22-point U.S.- Mexico Border Partnership Action Plan. Each principle advances a number of the initiatives identified in the binational smart border agreement. At the multi-national level, the nine guiding principles are also consistent in support of the 30-point U.S.-Canada Smart Border Action Plan. These binational plans focus on the secure movement of people, goods and information as well as secure border infrastructure.

The Function of a CyberPort

The following is a presentation of a variety of functions that a CyberPort should serve. The list is not all-inclusive, but provides a variety of examples representing CyberPort functions.

Binational, Interagency and Public/Private Cooperation (at the local, state, regional and federal level)

The CyberPort should:

- Maintain a system for binational port intelligence functions.
- Serve as a binational forum to address national and international issues.
- Administer joint training in security and intelligence.
- Be able to intercept terrorism prior to critical infrastructure through joint port intelligence functions.
- Incorporate binational emergency response plans and procedures to handle dangerous incidents.
- Provide a single point of contact to inform users of port-of-entry requirements.
- Maintain a management and operational structure that can accommodate changing standards on a real-time basis.
- Require and enforce standardized binational training of vehicle operators and personnel.
- Comply with best prevailing legislation on working conditions.
- Maintain a jointly coordinated and trained HAZMAT team to respond to issues on both sides of the border.
- Maintain a unified port management entity or agency.
- Administer joint certification and authorization between state and federal inspection agencies.
- Be responsive to adapting flexible and/or extended hours of operation.

- Have a clear understanding of expectations and requirements from state and federal agencies.
- Maintain a process to identify systems and responsibility overlap.
- Maintain a mechanism for addressing needs of the private sector involved in commerce.
- Maintain a mechanism for ongoing dialogue with citizen and industry stakeholders.
- Promote competition in hours and practices among customs brokers.
- Minimize all negative impacts to the local host community.

Harmonized Procedures and Systems

The CyberPort should:

- Maintain binational integrated information systems on a real-time basis.
- Maintain shared and harmonized lookout systems for critical infrastructure.
- Maintain predictable, harmonized hours of operation.
- Promote and encourage unified inspection procedures among countries and across ports.
- Be commensurate with procedures in regard to both inbound and outbound flows.
- Minimize error through common processes and training.
- Administer uniform import and export filings and revisions (e.g., bills of lading).
- Maintain an ongoing mechanism dedicated to work towards a harmonized regulatory environment.
- Accommodate duty payment after entry.
- Not necessitate a breakpoint between origin and destination.
- Eliminate intermediaries.

Incentivized Pre-Clearance, Pre-Inspection and Compliance Programs

The CyberPort should:

- Provide for origin compliance of agricultural products in primary growing regions.
- Provide for origin compliance of manufacturing products in primary manufacturing regions.
- Employ systems to help shippers and carriers ensure that freight and conveyance is free of contraband before reaching port.
- Maintain a certification process for safety-compliant carriers.
- Maintain a certification process for security-compliant carriers.
- Maintain a system that credentials each shipment with coherent data transfer along the entire trade route.
- Provide incentives for pre-compliance through offering dedicated infrastructure.
- Provide incentives for pre-compliance through offering alternative streamlined processing and inspection system.
- Strive to catch 100 percent of non-compliance.
- Provide dedicated infrastructure and/or processing procedures for expeditious processing of pre-approved commuter traffic (pedestrian and passenger vehicle).
- Promote ultimate perimeter clearance (pre-pay, pre-inspect, seal, certify).
- Provide time-cost and financial incentives to facilitate desired behaviors.

Risk Identification and Management

The CyberPort should:

- Employ methods to identify traffic that has high probability of non-compliance.
- Use secure, shared databases to administer compliance programs and identify low-risk movement.
- Be able to intercept terrorism prior to critical infrastructure through joint port intelligence functions.
- Employ clearly understood behavior and reporting responsibilities regarding the suspicion of a security risk.
- Identify high-risk and non-compliant crossers through the use of secure, shared databases.
- Maximize remote or automated technology to detect safety and security risks.
- Administer ongoing screening for public health issues.
- Maintain facilities and employ inspection procedures for high-risk shipments.

Safety, Security and Efficiency through Infrastructure Design

The CyberPort should:

- Support the physical separation of low- and high-risk traffic.
- Have the ability to divert suspicious or high-risk crossings to remote areas.
- Minimize safety and security risks for workers and users.
- Separate the processing of crossings by mode (pedestrian, passenger vehicle, commercial truck, rail).
- Have adequate staging areas.
- Ensure personal safety for inspection personnel.
- Maximize safety for the host community.
- Employ intelligent transportation systems (ITS).
- Consist of flexibility in design to accommodate alterations over time.
- Minimize negative physical impacts to the host community.

Secure Shared Information

The CyberPort should:

- Allow for direct, real-time communication between shipper and receiver for problem shipments.
- Maintain a single centralized information check-point that satisfies both sides of the border.
- Report accurate and timely crossing and wait-time information for users.
- Maintain a binational database identifying commodity flows by mode, state of origin, state of destination, volume and value.
- Employ internationally standardized units of measure and commodity classification.

Application of New Technology

The CyberPort should:

- Deploy rapid screening technology for hazards and contraband.
- Maximize use of non-intrusive inspection technology (NII).
- Extend appropriate technology to port users.
- Employ intelligent transportation systems (ITS).

Complete Transparency / Visibility of Shipments

The CyberPort should:

- Allow importers, exporters, shippers and customs brokers to access real-time status reports of individual shipments.
- Maximize the amount of status information regarding each shipment to be communicated from point of origin to point of destination.
- Allow all inspection agencies to access complete shipment status and freight content in the most rapid, effective and non-intrusive manner.
- Promote the use of conveyance (trailers and rail cars) that are designed to be quickly and easily accessed from multiple sides.

Performance Standards and Systems for Measurement

The CyberPort should:

- Establish benchmarking for system performance with feedback to users.
- Subject all major investments to cost/benefit analysis.
- Should be a holistic approach to port efficiency and effectiveness.
- Define measure of effectiveness and develop data collection to quantify.
- Employ flexibility in staffing necessary to meet variations in demand.
- Employ flexibility in design and use of infrastructure necessary to respond to variations in demand.
- Effectively accommodate predictable variations in foreseeable trade flows.
- Identify the trade-offs between security and trade-flow efficiency.

The objective of the Nogales CyberPort Project is to apply these principles specifically to the Nogales Mariposa commercial port-of-entry.

Four Alternate CyberPort Concept Models

This section presents four alternative CyberPort Concept Models. The models cover a spectrum from a completely centralized model with maximum consolidation of activities at a single unified port facility to a model based on maximum decentralization of border-crossing procedures and requirements.

The genesis for the concept models defined below includes the technical papers developed for the CyberPort project, reviews of the literature, project advisory committees, stakeholder interviews, field visits and expert consultation both individually and in a workshop forum.[3]

Development of Nogales CyberPort Concept Models

The following sections define four CyberPort Concept Models in terms of the intended vision for the nine trade flow components of: physical infrastructure; human resources/staffing; processing; systems integration; data systems, information and communication; security and access control; planning; technology; and, legal and regulatory environment.

The four CyberPort concept models defined are as follows:

- Concept Model 1: Maximum Consolidation of Activities at a Single Unified Port Facility
- Concept Model 2: Hybrid – Optimizing a Mix of Consolidation and Decentralization
- Concept Model 3: Maximum Decentralization of Border-Crossing Procedures and Requirements
- Concept Model 4: Least-Cost Model – Upgrades of the Existing Facility

The concept model selected will be a product of how each of the guiding principles defined in Section II can be specifically applied to the areas of security, safety, efficiency and effectiveness at the Nogales Mariposa commercial port facility. The guiding principles will also be further developed in reference to the nine previously identified components of the trade-flow process. The Nogales CyberPort concept model will focus on the application of the guiding principles not exclusively within the port-of-entry compound, but along the entire binational trade-flow process. The development of the CyberPort concept is such that it may have wide applicability to other U.S. border ports-of-entry, specifically to those along the U.S.-Mexico border.

Interestingly, as presented in the next section, the four CyberPort concept models have many elements in common, with the key differences occurring in physical infrastructure, human resources/staffing, and processing functions and procedures. This speaks well to the applicability of the CyberPort general principles.

CyberPort Concept Model Common Elements

The following common elements are consistent general principles that apply to the vision for each CyberPort concept model presented in later sections. Thus, each CyberPort concept model is defined based on its distinguishing features, with an understanding that the common elements presented below apply to each model.

3 A Port Expert Roundtable was conducted July 7-9, 2002 in Tubac, Arizona to identify the basic guiding principles and organizational framework for the ideal U.S.-Mexico port-of-the-future, a CyberPort. The roundtable workshop was attended by 12 project partners, in addition to the 12 invited Port Experts.

1 Physical Infrastructure

a Size of facility (booths, lanes, dock space, office space, etc.) at the border port-of-entry that can accommodate all necessary processing and inspection during peak flows without causing significant delay.

b Public/Private partnership in construction, ownership and/or operation of trade facilitation and inspection facilities.

c Shared joint-use facilities among government agencies and among countries.

d Port facilities with dedicated areas to inspect and contain hazardous materials.

e Separation of commercial and passenger vehicle traffic flows.

f Enough highway lane-miles to accommodate commercial truck and passenger car volumes without causing congestion.

g Enough mainline rail track to accommodate commercial and passenger train flows without causing congestion.

h Highways and rail lines that accommodate hazardous material movement should not transect urban centers.

i Provision of adequate staging areas at port-of-entry compounds for out-of-service vehicles.

j Location of commercial rail lines outside of downtown urban cores with significant pedestrian and retail activity.

k Exit facilities at port compounds to track the exit of people and vehicles.

- Turnstiles at pedestrian crossings.
- Passenger vehicle lanes equipped with machines to read electronic visas and vehicle license plates.
- Commercial vehicle lanes with raised booths to accept driver and vehicle identification. Staging area and dock space for trucks to accommodate any additional inspections required.

l Port-of-entry compound design to provide for direct re-entry of shipments that do not receive authorized clearance (avoid formal exit and re-entry into country of origin once problem shipments are identified).

m Provision of adequate parking for passenger vehicles at all ports-of-entry.

n Truck trailers and rail cars designed to be secure yet accessible from multiple sides. Also must accommodate refrigeration units.

o Diesel engines for trucks and locomotives that use low-sulfur, clean-burning fuels and are engineered to be as energy efficient as possible.

2 Human Resources/Staffing

a Adequate staffing levels of all government agency personnel at the border port-of-entry to accommodate all necessary processing and inspection during peak periods without causing significant delay.

b Binational agreement to perform federal inspections across border in neighboring NAFTA countries.

c Certification of state laboratories to conduct federally required tests of agricultural products.

d Binational joint-training of personnel with specific common responsibilities.

- Inspection
- Enforcement
- Processing

e National joint-training of personnel among local, state and federal agencies with specific common responsibilities.

- Inspection
- Enforcement
- Processing

f Employment of a staffing system and structure that is able to accommodate predictable daily, weekly and seasonal variation in needs.

g Accommodation of flexible hours of operation (e.g., limited hours/extended hours)

h Direct and synchronous coordination of hours of operation between port-of-entry compounds on both sides of the border.
i Direct coordination between hours of operation at ports-of-entry and the operation of the trade community (i.e., importers, exporters, freight-forwarders, shippers, carriers, customs brokers, warehouse and distribution, etc.).
j Employment of a random assignment system for daily placement of inspection personnel.

3 Processing Functions and Procedures

a All necessary permits issued electronically prior to shipment departure at origin.
b All pre-determined inspections needed for final shipment clearance determined prior to departure (e.g., agriculture).
c Shipments that undergo pre-primary inspections are sealed and certified by the respective agency and individual. Seals are not to be broken unless necessary. If necessary, seals must be re-sealed and re-certified by the respective agency and individual.
d Opportunity for electronic pre-payment of all fees and duties prior to departure.
e Issuance of necessary permits, registrations, and licenses at points of origin and/or other points prior to arrival at the border port-of-entry.
f Dedicated Rapid Enforcement Lanes at primary BPOE inspection where multiple agencies can verify and authorize commercial shipments in one stop.
g Specified hours in which hazardous materials and hazardous waste may be processed through ports-of-entry (applies to both rail and commercial vehicle shipments).

4 Systems Integration

a Use of the same commodity-code classification system (10-digit Harmonized Tariff System) between all NAFTA countries.
b Maintain a transnational inspection record for individual shipments that accounts for all agency inspections. This record travels with the shipment and records: (1) the purpose of the inspection; (2) the type of inspection; (3) the status of the inspection; (4) actions taken or alterations made to the shipment; and (5), the agent and agency that conducted/certified the inspection.
c Direct linkage and access to information for all licensed drivers in the U.S., Mexico and Canada. Ability to instantly verify the validity of all drivers licenses by any state or federal agency.
d Uniform readability of electronic biometric identification cards in the U.S., Mexico and Canada.
e Integration of criminal databases in the U.S., Mexico and Canada.
f Integration of truck-seal systems between carriers and inspection agencies.
g Integration of inspection and re-sealing procedures between inspection and law enforcement agencies in the U.S., Mexico and Canada.
h Integration between U.S. Customs Automated Commercial Environment (ACE) and the SAIAA-M3 customs broker interface system in Mexico.
i Integrate advance processing and inspection systems between points of origin/export facilitation centers and ports-of-entry.

5 Data Systems, Information and Communication

a Direct linkage and access to information for all licensed drivers in the U.S., Mexico and Canada. Ability to instantly verify the validity of all drivers licenses by any state or federal agency.
b Implementation of an international trade data system that identifies shipment characteristics such as place of origin, place of destination, port-of-entry, commodity type, value, gross weight, mode of shipment, etc.
c Shared entry and exit records between INS, State Department, FBI, CIA and their respective agencies in Mexico and Canada.
d Inform port users of real-time crossing information (wait times, etc.)
e Development of data to quantify and measure performance standards.

6 Security and Access Control

a Controlled access and security controls throughout the supply-chain for major manufacturers.
b Secure conveyance (commercial truck, trailer and rail car) to the fullest extent possible.
c Maximized use of risk management strategies by all inspection agencies.
d Secure infrastructure at all border ports-of-entry as well as all remote inspection facilities.

7 Planning

a Binational coordination and planning for border infrastructure and facilities.
b Binational coordination and planning for emergency preparedness and emergency response.
c Establishment of specific, measurable performance standards for port efficiency and effectiveness.
d Subject all major investments to a cost/benefit analysis.
e Work toward establishing a more common, general understanding of the entire supply chain process for public agencies and planning bodies.
f Harmonize data collection methods and metrics of measurement among NAFTA countries. Key data needed for infrastructure planning include: (1) a standard measure of gross weight for all goods; (2) synchronous and consistent time-series for data gathering; (3) identification of state and/or province of shipment origin and destination; and (4) common commodity code classifications/descriptions.
g Establishment of a formal mechanism among binational public agencies and industry for the ongoing harmonization of hours of operation between U.S. and Mexico port facilities.
h Examination of the role and impact of lines of credit on imports and exports of NAFTA trade.

8 Technology

a Machines in place at pedestrian, passenger vehicle and commercial truck crossings to read electronic biometric identification for people.
b Uniform biometric standard used for personal identification in the U.S., Mexico and Canada.
c Shipment transponder that provides real-time information on the tractor, trailer and freight and can be accessed remotely.
d Development of a "smart box/smart container" that is tamper-proof or tamper-indicating and is trackable. This technology should provide: (1) detection of contraband inserted into product container; (2) protection of product from theft; and (3), monitoring of product health.
e Application of information technology focused on the management, security and integrity of data generated and accessed by multiple users.
f Use of in-transit security technologies to secure shipment containers.
g Continued development and use of non-intrusive inspection technologies such as radiology scans and imaging as well as detection technologies for chemical/biological contraband and radiation.
h Continued coordination and development of Intelligent Transportation Systems (ITS) for Commercial Vehicle Operations (ITS/CVO) and Commercial Vehicle Information Systems and Networks (CVISN), specifically the Expedited Processing for International Border Crossing (EPIC 2) System.

9 Legal and Regulatory Environment

a Uniform and consistent enforcement of trade shipment regulations among all border ports-of-entry and within the interior of NAFTA countries.
b Uniform, harmonized import and export filing documents between NAFTA countries.
c Uniform bill of lading for use among importers, exporters, shippers, carriers and banks.
d Facilitation of lines of credit for imports and exports of NAFTA trade.
e Diplomatic and legislative authority to perform joint-inspections among NAFTA countries.

Concept Model 1: Maximum Consolidation of Activities at a Single Unified Port Facility

Summary

Concept Model 1: Maximum Consolidation of Activities at a Single Unified Port Facility is based on a single binational port facility that straddles the border. Both U.S. and Mexican officials would work out of the same facility.

"Cross-docking" would occur where Mexican trucks bring shipments into the facility and U.S. trucks pick the shipment up and deliver it into the U.S. No trucks or drivers would need to cross the border, thereby eliminating the need for much of the inspection process.

This model would make most current border region distribution facilities obsolete; however, it would also present opportunities for public-private partnership in facility design, finance, and operation.

Key Elements of Model:

– One comprehensive cross-border facility that eliminates upstream safety, security and trade-flow activities.
– All weighing, inspection, agricultural grading, driver certification, cargo detention and storage facilities done on site.
– U.S. and Mexican customs and immigration, transportation safety and agricultural inspection personnel housed in one facility.
– No requirement for secure conveyance due to transfer of cargo at single consolidated BPOE facility.

Distinguishing Features

1 Physical Infrastructure

a One comprehensive cross-border facility that eliminates upstream safety, security and trade-flow activities.
b All weighing, inspection, agricultural grading, driver certification, cargo detention and storage facilities done on site.
c "Cross-docking" facility adequate to handle trade volumes without significant delay.
d Public/Private partnership in construction , ownership and/or operation of cross-docking and inspection facilities.

2. Human Resources/Staffing

a U.S. and Mexican customs and immigration, transportation safety, and agricultural inspection personnel housed in one facility.

3 Processing Functions and Procedures

a Maximum provision of inspection and processing functions within the BPOE compound.
b "Cross-docking" would occur where Mexican trucks bring shipments into the facility and U.S. trucks pick the shipment up and deliver it into the U.S. No trucks or drivers would need to cross the border, thereby eliminating the need for much of the inspection process.
c Secure conveyance not a requirement due to transfer of cargo at single consolidated BPOE facility.
d All inspections conducted at cross-docking facility.

6 Security and Access Control

a 100 percent commodity transfer requirement ensures all cargo is available for inspection.

9 Legal and Regulatory Environment

a Legal/regulatory requirements for U.S. and Mexican customs and immigration, transportation safety and agricultural inspection personnel to be housed in one facility.

Concept Model 2: Hybrid-Optimizing a Mix of Consolidation and Decentralization

Summary

Concept Model 2: Hybrid-Optimizing a Mix of Consolidation and Decentralization is intended to build on the strengths of decentralization already occurring at the Mariposa BPOE (CAADES for example), while also maintaining those functions where there are efficiencies to centralization.

This model would offer a flexible range of responses to shifts in trade flows and leverages the advantages of existing infrastructure. It also builds on existing agency operational procedures and would be compatible with the increased development of inland ports.

Key Elements of Model:

- Reduced on site BPOE inspection, cargo detention and storage facilities.
- Customs and immigration personnel at BPOE, weighing and safety inspections at point of origin and CAADES.
- Secure packing warehouses both in the supply chain and at the shipment point of origin (gates, video monitoring, etc.).
- Off site agricultural consolidation and grading facility (CAADES).
- Secure conveyance (truck, rail, etc.) where possible.

Distinguishing Features

1 Physical Infrastructure

a Reduced on-site inspection, cargo and vehicle detention and storage facilities at BPOE.

b Dedicated infrastructure at the BPOE to facilitate a streamlined border-crossing for low-risk, compliant shipments and individuals (frequent crossers).

c Inland ports in country of destination located at intermodal distribution hubs along trade corridors. Inland ports would provide the logistical facilitation of the distribution of goods by air, rail and truck as well as provide all related trade services (financial, legal, etc.).

d Secure packing warehouses both in the supply chain and at the shipment point of origin (controlled access, monitoring, etc.). Infrastructure improvements to meet security standards established by the U.S. Customs Trade Partnership Against Terrorism (C-TPAT).

e Infrastructure at points of origin to administer pre-inspection, pre-clearance and compliance programs.

2 Human Resources/Staffing

a Redeploy staff to points outside the port compound as more border-crossing functions occur outside of the port compound.

b Some staffing of inspection and processing personnel at points of origin and other points prior to arrival at border ports-of-entry.

3 Processing Functions and Procedures

a Reduced but complete provision of inspection and processing functions within the border port-of-entry compound. Limited access to these services acts as an incentive to pre-inspect shipments and pre-process documents to the greatest extent possible.

Concept Model 3: Maximum Decentralization of Border-Crossing Procedures and Requirements

Summary

Concept Model 3: Maximum Decentralization of Border-Crossing Procedures and Requirements is intended to implement perimeter clearance as a long term strategy and to minimize congestion at the BPOE and surrounding local area.

This model provides maximum flexibility in utilizing inland ports as intermodal hubs and would be consistent with full implementation of NAFTA and the CyberPort concept.

This model would necessitate intensive relocation of inspection infrastructure and associated operational and human resource costs of dispersion.

Key Elements of Model:

- Export Facilitation Center located in agricultural growing regions and major manufacturing centers.
- U.S. and Mexican customs and immigration, transportation safety and agricultural inspection personnel located at point of origin inspection facilities.
- Secure packing warehouses both in the supply chain and at the shipment point of origin (gates, video monitoring, etc.).
- No on-site inspection, cargo detention and storage facilities at BPOE.
- Agricultural grading done within border zone.

Distinguishing Features

1 Physical Infrastructure

a Minimum on-site inspection, cargo and vehicle detention and storage facilities at BPOE.

b Export Facilitation Center located in agricultural growing regions and major manufacturing centers. Functions provided at point of origin:
- Customs valuation and duty verification
- Pre-payment of fees and duties
- Verification of weight – certified scales
- Commercial vehicle safety inspection – vehicle cleared and certified by inspector
- Drugs, weapons and illicit cargoes inspection – shipment sealed by inspector
- Agricultural inspections – shipment sealed by inspector
- Verification of all compliance documentation for specialized border processing under trade partnership programs such as C-TPAT, etc.

c Dedicated infrastructure at the BPOE to facilitate a streamlined border-crossing for low-risk, compliant shipments and individuals (frequent crossers).

d Inland ports in country of destination located at intermodal distribution hubs along trade corridors. Inland ports would provide the logistical facilitation of the distribution of goods by air, rail and truck as well as provide all related trade services (financial, legal, etc.).

e Secure packing warehouses both in the supply chain and at the shipment point of origin (controlled access, monitoring, etc.). Infrastructure improvements to meet security standards established by the U.S. Customs Trade Partnership Against Terrorism (C-TPAT).

f Infrastructure (such as export facilitation centers) at points of origin to administer pre-inspection, pre-clearance and compliance programs.

2 Human Resources/Staffing

a Redeploy staff to points outside the port compound as more border-crossing functions occur outside of the port compound.

b Maximum staffing of inspection and processing personnel at points of origin and other points prior to arrival at border ports-of-entry.

3 Processing Functions and Procedures

a Export Facilitation Centers located in agricultural growing regions and major manufacturing centers. Functions that can be provided at an Export Facilitation Center:
- Verify truck and cargo weight before departure – provision of weight scales. State and/or federal certification for meeting weight regulations in state and country of entry.
- Consolidation and/or redistribution of freight – provision of additional trucks, trailers, drivers and stevedores.
- Agricultural grading inspections.
- Agricultural plant health, disease, chemical and pest inspections.
- Truck and trailer safety inspections.
- Basic garage facilities and repair services.
- Port-of-entry trip fee payment, vehicle licensing and registration services.
- Verification of special-export compliance documentation (e.g., hazardous materials, etc.).
- Verification of compliance documentation for security and other preferential trade compliance programs (e.g., C-TPAT, etc.).
- Driver licensing, visa and border-crossing documentation services.
- Temporary cold storage facilities.
- Screened quarantine dock area for certain agricultural inspections.
- Inspections and screening for drugs and other illicit cargoes by federal agency inspectors.
- Shipment seal and inspector verification of cleared primary inspection.
- Customs valuation and duty verifications.
- Bonded warehouse storage facilities.
- Issuance and verification of insurance policies for long-haul foreign commercial truck shipments.

b Minimum but complete provision of inspection and processing functions within the BPOE compound. Limited access to these services acts as an incentive to pre-inspect shipments and pre-process documents to the greatest extent possible.

6 Security and Access Control

a Controlled access and security controls throughout the supply-chain for major manufacturers.

b Uniform/integrated security and access control at multiple dispersed facilities.

c Secure conveyance (commercial truck, trailer and rail car) to the fullest extent possible.

d Maximized use of risk management programs by inspection agencies.

Concept Model 4: Least-Cost Model–Upgrades of the Existing Facility

Summary

Concept Model 4: Least-Cost Model–Upgrades of the Existing Facility is based on the utilization of existing BPOE facilities with incremental investment for improvements in configuration and separation of traffic, etc. to improve efficiency. This is the least capital intensive model, the most predictable for system users and the least disruptive to the local community. This model is consistent with a range of economic futures from decline to moderate growth.

U.S. and Mexican customs and immigration, transportation safety and agricultural inspection personnel would remain in existing locations. Off site agricultural consolidation and grading facilities (such as CAADES) would continue to be an important component, with an increase in staffing.

Key Elements of Model:

- Existing BPOE facilities utilized with incremental investment for improvements in configuration, separation of traffic (maquiladora vs. agricultural.), etc.
- Increase in U.S. personnel at CAADES (agricultural inspection, transportation safety, agricultural grading).
- Mix of secure conveyance and POE inspected non-secure conveyances.

Distinguishing Features

1 Physical Infrastructure

a Existing BPOE facilities utilized with incremental investment for improvements in configuration, separation of traffic (maquiladora vs. agricultural.), etc.

b Dedicated infrastructure at the BPOE to facilitate a streamlined border-crossing for low-risk, compliant shipments and individuals (frequent crossers).

c Inland ports in country of destination located at intermodal distribution hubs along trade corridors. Inland ports would provide the logistical facilitation of the distribution of goods by air, rail and truck as well as provide all related trade services (financial, legal, etc.).

d Public/Private partnership in construction, ownership and/or operation of trade facilitation and inspection facilities (such as CAADES).

2 Human Resources/Staffing

a Increase in U.S. personnel at CAADES (agricultural inspection, transportation safety, agricultural grading).

b Mix of secure conveyance and POE inspected non-secure conveyances.

Concept Model Evaluation and Recommendations

This section presents an evaluation of the four CyberPort concept models defined in Section IV including:

- Concept model strengths, weaknesses and trade-offs.
- Concept model impacts on safety, security, throughput and logistics.
- Impact of legal recommendations on CyberPort concept models.
- Concept model appropriateness to alternate economic futures.
- Concept model areas of impact.

Preliminary recommendations are made regarding the viability of each CyberPort concept model as an alternative to the existing Mariposa BPOE.

Strengths, Weaknesses and Trade-Offs

The strengths, weaknesses, and trade-offs of each of the four CyberPort concept models are presented in Exhibit V-1.

Strengths of Concept Model 1: Maximum Consolidation of Activities at a Single Unified Port Facility are that it provides a single point for inspection and transfer of goods as well as economies of scale through consolidation of port functions. The cross-dock transfer offers transparent inspection of 100 percent of trade. Weaknesses include the major infrastructure investment required with no assurance of adequate capacity to meet peak trade demand. This model lacks flexibility to accommodate changes in trade flow volume and stands the risk of becoming a serious choke-point. The structure of this model is not consistent with full implementation of NAFTA and CyberPort concepts.

Concept Model 2: Hybrid–Optimizing a Mix of Consolidation and Decentralization has strengths related to its ability to be flexible to shifts in trade flows and that it can achieve benefits of both centralization and decentralization. This model leverages the advantages of existing infrastructure and builds upon existing agency operational procedures. The hybrid model would be compatible with the role of inland ports. Weaknesses of the model are that it involves fairly significant infrastructure and operational change and that it may not be able to impact macroeconomic factors affecting market share.

The primary strength of Concept Model 3: Maximum Decentralization of Border-Crossing Procedures and Requirements is that it implements perimeter clearance as a long term strategy. This model would minimize congestion at the BPOE and within the border community. The model provides maximum flexibility in utilizing inland ports as intermodal hubs and is consistent with full implementation of NAFTA and CyberPort concepts. Weaknesses of this model are that it is the most difficult to achieve in meeting political and legal requirements. It would involve cost intensive relocation of inspection infrastructure and personnel.

Concept Model 4: Least-Cost Model–Upgrades of the Existing Facility is the least demanding on financial resources and provides for an incremental rate of change with minimal disruption of operations and procedures. This model fits the range of economic futures from decline to moderate growth, is most predictable for system users and is least disruptive to the local community. Weaknesses of this model are that it will not support the high growth scenario and may result in further loss of market share. The model does not accommodate significant changes in safety and security procedures and does not widely implement CyberPort concepts.

Exhibit V-1: Concept Model Strengths, Weaknesses and Trade-offs

	Concept Model 1 Maximum Consolidation of Activities at a Single Unified Port Facility	Concept Model 2 Hybrid-Optimizing a Mix of Consolidation & Decentralization	Concept Model 3 Maximum Decentralization of Border-Crossing Procedures & Requirements	Concept Model 4 Least-Cost Model – Upgrades of the Existing Facility
Strengths	– Single point for inspection and transfer. – Economies of scale through consolidation. – Reduces need for cross border conveyance. – Cross dock transfer offers transparent inspection of 100 percent of trade. – Public-private partnership in facility design, finance and operation.	– Offers a flexible range of responses to shifts in trade flows. – Can achieve benefits of both centralization and decentralization. – Leverages advantage of existing infrastructure (e.g. BPOE preparation facility, etc.). – Builds on existing agency operational procedures. – Accommodates role of inland ports.	– Implements perimeter clearance as a long-term strategy. – Minimizes congestion at BPOE and border community. – Provides maximum flexibility in utilizing inland ports as intermodal hubs. – Consistent with full implementation of NAFTA and CyberPort concept.	– Is least demanding on financial resources. – Incremental rate of change with minimal disruption of operations and procedures. – Fits range of economic futures from decline to moderate growth. – Is most predictable for system users. – Least disruptive to the local community.
Weaknesses	– Requires major infrastructure investment with no assurance of adequate capacity. – Not flexible to accomodate changes in trade flow volume. – Serious risk of creating a choke-point. – Conflict with NAFTA "open border" principles.	– May not be able to impact macroeconomic factors affecting market share. – Involves fairly significant infrastructure investment and operational change. – Design directions of this model are less obvious than other models and must be negotiated.	– Most difficult to achieve in meeting political and legal requirements. – Cost intensive relocation of inspection infrastructure. – Operational and human resource costs of displacement and dispersion.	– Does not support high growth scenario. – May result in further loss of market share. – Does not accommodate significant changes in safety and security procedures. – Does not widely implement CyberPort concepts.
Trade-offs	– Makes current border region distribution facilities obsolete.	– Model offers flexibility but detailed design requires negotiation and compromise.	– May displace BPOE related economic activities from border community.	– Impedes improvements in efficiency and effectiveness in favor of the status quo.

Impacts on Safety, Security, Throughput and Logistics

The impacts on safety, security, throughput and logistics of each of the four CyberPort concept models are presented in Exhibit V-2. The following scale is used to gauge the impacts on efficiency and effectiveness (relative to the other CyberPort concept models):

1 = **Minimal** efficiency and effectiveness
2 = **Low** efficiency and effectiveness
3 = **Somewhat** efficient and effective
4 = **High** efficiency and effectiveness
5 = **Maximum** efficiency and effectiveness

Concept Model 1: Maximum Consolidation of Activities at a Single Unified Port Facility is effective from a safety standpoint since it eliminates the need for binational truck safety standards and enforcement but is inefficient due to the 100 percent commodity transfer requirement. Security is highly effective with this model since the process ensures that all cargoes are available for inspection; however, maximum consolidation of infrastructure also increases vulnerability. No use of risk management makes this model less efficient from a security standpoint. This model is less effective and efficient in terms of throughput and logistics because of the transfer of all cargo. Concept Model 1 lacks logistical effectiveness because it is unresponsive to improvements in supply chain logistics.

Concept Model 2: Hybrid–Optimizing a Mix of Consolidation and Decentralization has high safety effectiveness and efficiency through the use of pre-clearance and inspection compliance programs. Security is also efficient and effective due to the flexibility in selecting the best location for each activity and the intensive application of risk management. Throughput with this model is effective because activities are located in appropriate locations; however, increased resource requirements to perform functions at multiple locations may be significant. Concept Model 2 is highly efficient and effective in terms of logistics because of its dispersion of activities to appropriate locations and responsiveness of procedures to user needs.

Concept Model 3: Maximum Decentralization of Border-Crossing Procedures and Requirements is somewhat effective in terms of safety due to the fact that it is difficult to ensure uniformity of standards at widely dispersed locations. It is more safety efficient because it focuses on pre-clearance, which minimizes the level of BPOE inspection. This model has high security efficiency due to the intensive application of risk management principles. The model receives maximum effectiveness for throughput as it facilitates the NAFTA goal of continental free trade; however, the increased resource requirements to perform functions at multiple dispersed locations will be considerable. Concept Model 3 is the most effective model in terms of logistical effectiveness as it is most responsive to supply chain management and user needs.

Concept Model 4: Least-Cost Model–Upgrades of the Existing Facility is effective and efficient in terms of safety and security as it maintains current safety standards and the current structure can accommodate improved procedures. The model is less efficient and effective from a throughput and logistics perspective since it is limited by inherent constraints of the existing facility. Limited capacity at the existing facility may divert discretionary traffic.

Exhibit V-2: Concept Model Impacts on Safety, Security, Throughput and Logistics

	Concept Model 1 Maximum Consolidation of Activities at a Single Unified Port Facility	Concept Model 2 Hybrid-Optimizing a Mix of Consolidation & Decentralization	Concept Model 3 Maximum Decentralization of Border-Crossing Procedures & Requirements	Concept Model 4 Least-Cost Model – Upgrades of the Existing Facility
Safety	**Effectiveness:** 5 – Eliminates need for bi-national truck safety standards and enforcement. **Efficiency:** 1–100% commodity transfer requirement.	**Effectiveness:** 4 – Through pre-inspection and compliance programs. **Efficiency:** 4 – Requires definition of where inspections would take place.	**Effectiveness:** 3 – Difficult to ensure uniformity of standards at widely dispersed locations. **Efficiency:** 4 – Focus on pre-clearance minimizes required level of POE inspection.	**Effectiveness:** 3 – Maintains current safety standards. **Efficiency:** 3 – Current structure can accommodate improved procedures.
Security	**Effectiveness:** 5 – Process ensures all cargoes are available for inspection. 2 – Maximum consolidation of infrastructure results in increased vulnerability. **Efficiency:** 1 – No use of risk management principles.	**Effectiveness:** 4 – Flexibility in selected best location for each activity. **Efficiency:** 4 – Intensive application of risk management principles.	**Effectiveness:** 3 – Difficult to ensure consistency of inspection at widely dispersed locations. **Efficiency:** 4 – Intensive application of risk management principles.	**Effectiveness:** 3 – Maintains current security standards. **Efficiency:** 3 – Current structure optimizes use of existing resources.
Throughput	**Effectiveness:** 1 – Enforced transfer contrary to concept of throughput. **Efficiency:** 3 – At least one transfer required for international cargo.	**Effectiveness:** 4 – Performance of functions at most appropriate locations. **Efficiency:** 3 – Increased resource requirements to perform functions at multiple locations.	**Effectiveness:** 5 – Facilitates NAFTA goal of continental free trade. **Efficiency:** 3 – Increased resource requirements to perform functions at multiple locations.	**Effectiveness:** 3 – Limited by inherent constraints of existing facility. **Efficiency:** 3 – Operational procedures are well tested but limited by efficiency and capacity constraints of existing facility.
Logistics	**Effectiveness:** 1 – Concept is unresponsive to improvements in supply chain logistics. **Efficiency:** 3 – At least one transfer required for international cargo.	**Effectiveness:** 4 – Performance of functions at most appropriate locations. **Efficiency:** 4 – Development of procedures and requirements that respond to user needs.	**Effectiveness:** 5 – Most responsive to supply chain management and user needs. **Efficiency:** 3 – Increased resource requirements to perform functions at multiple locations.	**Effectiveness:** 3 – Limited capacity may divert discretionary traffic. **Efficiency:** 3 – Sub-optimal use of system logistics.

Impact of Legal Recommendations

The evaluation of legal issues relative to each of the four concept models is presented in Exhibit V-3. The analysis evaluates the recommendations presented in the Assessment of Legal Issues Technical Report prepared by the National Law Center for Inter-American Free Trade.

Each model is evaluated in terms of: (a) support of the recommendations put forward by the National Law Center for Inter-American Free Trade; and (b) the necessity for significant legal and/or regulatory modification. The legal recommendations are classified as short-term (up to five years), medium-term (5 to 10 years) and long-term (more than 10 years) and focus on five areas:

- Joint inspections;
- Pre-entry certifications;
- Information exchange;
- Standard and electronic documents; and
- Privatization of functions.

The analysis shows that, for the most part, each CyberPort concept model is consistent with implementation of the legal recommendations presented in the National Law Center for Inter-American Free Trade report. It is notable that Concept Model 4: Least-Cost Model – Upgrades of the Existing Facility fails to implement a total of six of the medium-term and long-term recommendations. This follows from the fact that the model is intended to maintain the existing infrastructure and regulatory environment without major changes.

Exhibit V-3: Impact of Legal Recommendations on CyberPort Concept Models

	Concept Model 1		Concept Model 2		Concept Model 3		Concept Model 4	
	Maximum Consolidation of Activities at a Single Unified Port Facility		Hybrid-Optimizing a Mix of Consolidation & Decentralization		Maximum Decentralization of Border-Crossing Procedures & Requirements		Least-Cost Model – Upgrades of the Existing Facility	
	Model Supports Recommendation	**Legal Change Necessary**	**Model Supports Recommendation**	**Legal Change Necessary**	**Model Supports Recommendation**	**Legal Change Necessary**	**Model Supports Recommendation**	**Legal Change Necessary**
Joint Inspections								
Short-term	Yes	Minor	Yes	Minor	Yes	Minor	Yes	Minor
Medium-term	Yes	Major	Yes	Major	Yes	Major	No	N/A
Long-term	Yes	N/A	Yes	Major	Yes	Major	No	N/A
Pre-Entry Certifications								
Short-term	Yes	Minor	Yes	Minor	Yes	Minor	Yes	Minor
Medium-term	Yes	Minor	Yes	Minor	Yes	Minor	Yes	Minor
Long-term	Yes	Minor	Yes	Minor	Yes	Minor	Yes	Minor
Information Exchange								
Short-term	Yes	Minor	Yes	Minor	Yes	Minor	Yes	Minor
Medium-term	Yes	Major	Yes	Major	Yes	Major	Yes	Major
Long-term	Yes	Major	Yes	Major	Yes	Major	No	N/A
Standard & Electronic Docs.								
Short-term	Yes	Minor	Yes	Minor	Yes	Minor	Yes	Minor
Medium-term	Yes	Minor	Yes	Minor	Yes	Minor	Yes	Minor
Long-term	Yes	Major	Yes	Major	Yes	Major	No	N/A
Privatization of Functions								
Short-term	Yes	Minor	Yes	Minor	Yes	Minor	Yes	Minor
Medium-term	Yes	Major	Yes	Minor	Yes	Minor	No	N/A
Long-term	Yes	N/A	Yes	Major	Yes	Major	No	N/A

Appropriateness to Alternate Economic Futures

CyberPort Concept Model appropriateness to alternate economic futures is evaluated in Exhibit V-4. The economic futures include:

- Decline–WSA "low" forecast scenario
- Low Growth–baseline Reebie Associates forecast
- High Growth–WSA "high" forecast scenario

The appropriateness of each model to the various economic futures is gauged using the following scale:

1 = **Least** appropriate
2 = **Low** appropriateness
3 = **Somewhat** appropriate
4 = **Highly** appropriate
5 = **Most** appropriate

Exhibit V-4: Concept Model Appropriateness to Alternate Economic Futures

	Concept Model 1 Maximum Consolidation of Activities at a Single Unified Port Facility	Concept Model 2 Hybrid-Optimizing a Mix of Consolidation & Decentralization	Concept Model 3 Maximum Decentralization of Border-Crossing Procedures & Requirements	Concept Model 4 Least-Cost Model – Upgrades of the Existing Facility
Decline – WSA "low" forecast	1 – High infrastructure investment.	3 – Involves fairly significant infrastructure investment and operational change.	2 – Cost intensive relocation of inspection infrastructure.	5 – Is least demanding on financial resources.
Low Growth – base Reebie forecast	2 – High infrastructure investment.	4 – Offers a flexible range of responses to shifts in trade flows.	3 – Cost intensive relocation of inspection infrastructure.	5 – Is least demanding on financial resources.
High Growth – WSA "high" forecast	3 – Requires major infrastructure investment with no assurance of adequate capacity.	4 – Offers flexible range of responses to shifts in trade flows.	5 – Most responsive to supply chain management and user needs.	2 – Limited by inherent constraints of existing facility.

Concept Model 1: *Maximum Consolidation of Activities at a Single Unified Port Facility* is the least appropriate model under the decline and low growth forecasts due to high infrastructure investment. It is only somewhat appropriate under the high growth scenario since there is no assurance that the facility would have adequate capacity.

Concept Model 2: *Hybrid–Optimizing a Mix of Consolidation and Decentralization* is only somewhat appropriate under the decline forecast scenario since it involves fairly significant infrastructure investment and operational change. It is highly appropriate under the low growth and high growth scenarios since it offers a flexible range of responses to shifts in trade flows.

Concept Model 3: *Maximum Decentralization of Border-Crossing Procedures and Requirements* has less appropriateness under the decline and low growth forecasts since it involves cost intensive relocation of inspection infrastructure. It is the most appropriate model under the high growth scenario since it is most responsive to supply chain management and user needs.

Concept Model 4: *Least-Cost Model–Upgrades of the Existing Facility* is the most appropriate under the decline and low growth forecast scenarios as it is the least demanding on financial resources. It has low appropriateness under the high growth scenario since it is limited by the inherent constraints of the existing facility.

Areas of Impact

The impacts that each of the four CyberPort concept models is expected to have on five levels of scale is presented in Exhibit V-5. The positive and negative impacts on each area of impact are assessed. The five areas of impact are:

- The **local** area
- The **border region** (within 100 kilometers of the BPOE)
- The **State of Arizona**
- The **CANAMEX Region**
- **NAFTA Region** (United States, Canada and Mexico)

Concept Model 1: Maximum Consolidation of Activities at a Single Unified Port Facility would provide stimulus to the local economy through concentration of transportation transfer and distribution activities; however it would tend to make the existing warehouse structure obsolete and may cause an increase in traffic and delay. This model does not support the development of inland ports and forces the location of distribution centers at the border community. There is potential to the State of Arizona for value-added activity due to concentration of commodities and services at one facility; however, there may be a possible restriction of trade flow due to finite capacity of a single facility. This model is expected to have minor impacts on the CANAMEX region and appears to be at odds with NAFTA principles.

Concept Model 2: Hybrid–Optimizing a Mix of Consolidation and Decentralization builds on local strengths unique to the Nogales BPOE but may fail to impact factors causing decline in market share. The model raises the potential for increased activity at inland ports and supports the development of business services related to trade. There is potential to the State of Arizona for value-added activity due to concentration of commodities and services at inland ports. Trade related activities could disperse throughout the CANAMEX region. This model supports NAFTA principles.

Concept Model 3: Maximum Decentralization of Border-Crossing Procedures and Requirements would reduce congestion and border delay but result in the greatest loss of local trade related activity. The model would distribute the impacts of border related activity broadly throughout the border region but may displace trade related economic activity beyond the border region. This model runs the risk of locating trade related economic activity outside the State of Arizona. The CANAMEX region could gain trade related economic activity through dispersion of functions. This model strongly supports NAFTA principles and involves bi-national cooperation; however, the model also presents security and sovereignty issues.

Concept Model 4: Least-Cost Model–Upgrades of the Existing Facility optimizes the use of existing local warehouse inventory and maintains and strengthens current economic relationships; however, it minimizes upside potential of investments in major port improvements and offers little relief for congestion as the port reaches capacity. This is the most financially feasible model for the State of Arizona but it offers no significant expansion in capacity. The remaining bottleneck at Nogales BPOE does not support development of the CANAMEX corridor and this model fails to accommodate full NAFTA implementation and projected growth.

Exhibit V-5: Concept Model Areas of Impact

	Concept Model 1 Maximum Consolidation of Activities at a Single Unified Port Facility	Concept Model 2 Hybrid-Optimizing a Mix of Consolidation & Decentralization	Concept Model 3 Maximum Decentralization of Border-Crossing Procedures & Requirements	Concept Model 4 Least-Cost Model – Upgrades of the Existing Facility
Local	**Positive:** Economic stimulus through concentration of transportation transfer and distribution activities. **Negative:** Makes existing warehouse structure obsolete. Increase in traffic congestion and delay.	**Positive:** Builds on strengths unique to Nogales BPOE. Utilizes existing human resources. **Negative:** May fail to impact factors causing decrease in market share.	**Positive:** Reduced congestion and border delay. **Negative:** Greatest loss of local trade related economic activity.	**Positive:** Optimizes use of existing warehouse inventory. Maintains and strengthens current economic relationships. **Negative:** Minimizes upside potential of investments in major port improvements. Offers little relief for congestion as port reaches capacity.
Border Region (100 km)	**Positive:** General economic integration of border region. **Negative:** Does not support development of inland ports. Forces location of distribution centers at border community. Possible restriction of trade flow due to finite capacity of single facility.	**Positive:** Potential for increased intermodal activity at inland ports. Supports development of specialized business services related to trade. **Negative:** Certain trade activities restricted to the local POE area.	**Positive:** Distributes impact of border related activity broadly through region. Promotes economic integration of border region with surrounding areas. **Negative:** May displace trade related economic activity beyond border region.	**Positive:** Assures continuity of services and procedures. **Negative:** Adds little to trade related capacity in region.
State of Arizona	**Positive:** Potential for value-added activity due to concentration of commodities and services at one facility. Enhances potential for public-private joint investment in infrastructure. **Negative:** Does not support development of inland ports. Possible restriction of trade flow due to finite capacity of single facility.	**Positive:** Potential for value-added activity due to concentration of commodities and services at inland ports. Enhances potential for public-private joint investment in infrastructure. **Negative:** Detailed design is not obvious and would require negotiation.	**Positive:** Greater flexibility in locating border related functions. Reduces highly localized stress on public infrastructure. **Negative:** Risks locating trade related economic activity outside the state.	**Positive:** Most financially feasible. **Negative:** No significant expansion in port capacity
CANAMEX Region	**Positive:** Minor. **Negative:** Minor.	**Positive:** Trade related economic activities could disperse throughout the CANAMEX region. **Negative:** Minor.	**Positive:** Could gain trade related economic activity through dispersion of functions. **Negative:** None	**Positive:** None. **Negative:** Remaining bottleneck at Nogales POE does not support development of CANAMEX corridor.
NAFTA Region	**Positive:** Single transfer point. Requirement for high level bi-national cooperation. **Negative:** Appears to be at odds with NAFTA principles.	**Positive:** Supports NAFTA principles; involves binational cooperation. **Negative:** Minor.	**Positive:** Strongly supports NAFTA principles; involves binational cooperation. **Negative:** Raises security and sovereignty issues.	**Positive:** Maintains current capacity. **Negative:** Fails to accommodate full NAFTA implementation and projected growth.

Preliminary Recommendations

The model evaluation undertaken in this section provides insight into some preliminary recommendations regarding the appropriate CyberPort concept model for the Mariposa BPOE.

The following preliminary recommendations are offered to provide guidance as the CyberPort concept model selection process moves forward:

- Recommendation 1: The next step should be to evaluate exactly what each CyberPort concept model would mean to the Mariposa BPOE in terms of costs, benefits and impacts.
- Recommendation 2: Given the potential that loss of market share at the Mariposa BPOE may be the result of macroeconomic, logistical and supply chain shifts that are beyond the port's control, it is recommended that investment in a CyberPort concept be prudent and incremental.
- Recommendation 3: The Least-Cost Model–Upgrades of the Existing Facility (Model 4) and Hybrid – Optimizing a Mix of Consolidation and Decentralization (Model 2) should be considered above the others if policy makers are averse to risks associated with uncertain economic future scenarios.
- Recommendation 4: The Maximum Decentralization of Border-Crossing Procedures and Requirements (Model 3) should be considered above the others if policy makers desire to fully implement the open intercontinental trade goals of NAFTA and the CyberPort concept principles.

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