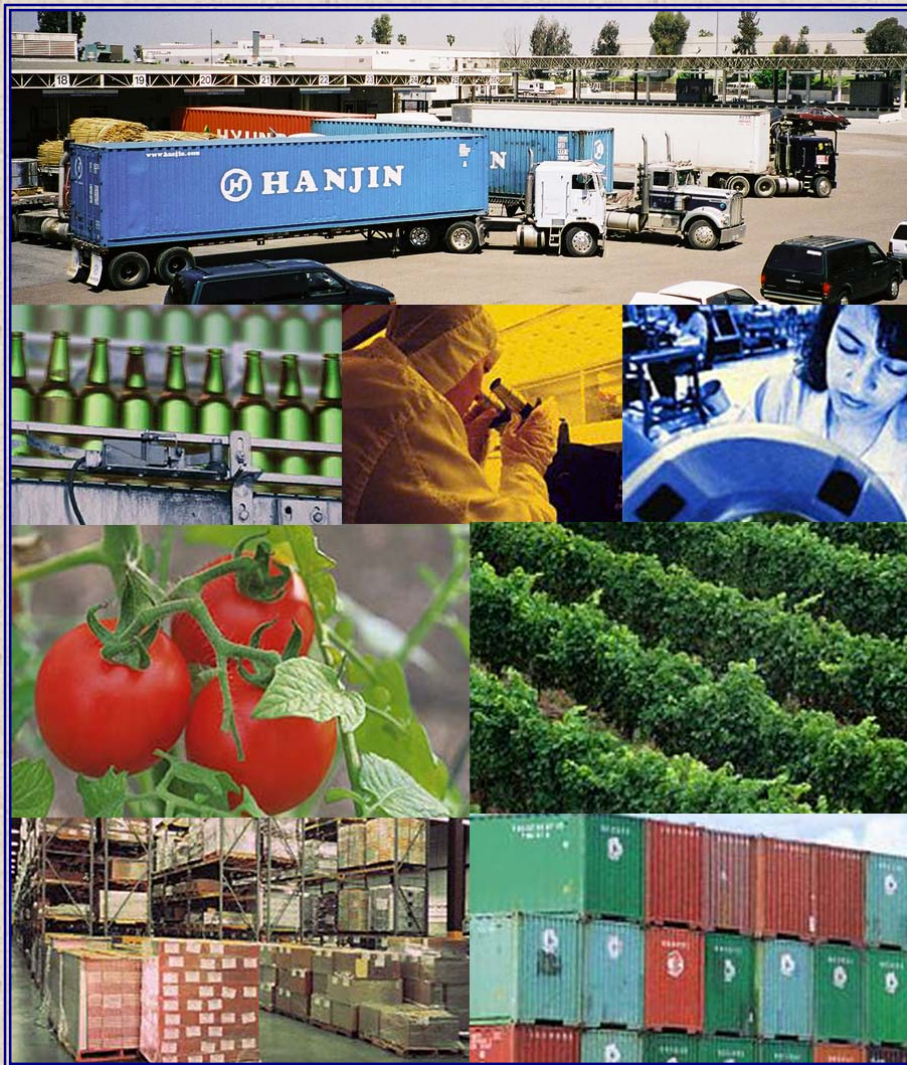


# SURVEY AND ANALYSIS OF TRADE AND GOODS MOVEMENT BETWEEN CALIFORNIA AND BAJA CALIFORNIA, MEXICO



**FINAL REPORT**  
**JUNE 2003**



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**FINAL REPORT  
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*Asociación de la Industria Maquiladora de Mexicali*

*Confederación de Asociaciones de Agentes Aduanales de la República Mexicana*

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## EXECUTIVE SUMMARY

The California/Baja California international border is one of the most dynamic regions in the world. Tens of thousands of people cross the border each day to go to school, shop or go to work. Thousands of trucks pass daily through the commercial crossings at Tecate, Otay Mesa, and Calexico headed for points across the nation. California's border crossings with Baja California have become among the most traveled and the most congested of those along the U.S./Mexico border.

Since the terrorist acts of September 11, 2001, the country's ports of entry (POEs) have come under increasing scrutiny as to their ability to protect the nation from the illegal entry of people and contraband, particularly those posing terrorist threats. These new circumstances have made the traditional act of balancing trade flow with adequate inspection even more challenging.

Over the years, a number of government agencies, non-profit organizations and academic institutions have studied the California/Mexico border in an attempt to document delays and border inefficiencies. This information plays a part in seeking solutions to border problems.

The Survey and Analysis of Trade and Goods Movement Between California and Baja California, Mexico, sponsored by the California Department of Transportation (Caltrans), was undertaken to shed new light on the commercial border crossing issues of the region and to collect valuable information not previously available. This unprecedented project was designed to assess cross-border shipping patterns among the key private sector stakeholders in binational commerce: maquiladoras (assembly only); maquiladoras (manufacturers); customs brokers; non-agricultural shippers (definitive importers); agricultural shippers (produce importers/exporters); and transportation companies. The goal of the study was to survey these sectors to determine their experience and concerns regarding border-crossing delays at Otay Mesa, Calexico, and Tecate, and to develop a reliable source of data to be used in supporting recommendations for improvements to border transportation infrastructure or federal inspection procedures. It was hoped that the data collected might help decision makers develop workable incentives or measures that would encourage shippers to alter the times that they ship, hence reducing congestion.

In August 2002, Science Applications International Corporation (SAIC) was selected to perform the study. The SAIC Project Team was composed of cross-border experts in the areas of import-export, economics/statistics, transportation and cross-border planning. From October 2002 to December 2002, 120 companies distributed among the six categories listed above were interviewed in the cities of Tijuana/San Diego, Tecate, Mexicali, and Ensenada. A three-person team completed the surveys with a combination of contacts made in person, by fax, and by phone. Companies who shipped a minimum of five times per week were considered relevant for the purposes of the study.

The 27-question survey instrument was composed of three key sections: inbound shipments; outbound shipments; and a management section designed to capture general comments and concerns regarding border crossing delays and infrastructure improvements. "Inbound" and "outbound" shipments refer to shipments to and from a given facility. While in many cases, these terms can be interchangeable with "northbound" and "southbound," this is not always the case. The survey was therefore structured as inbound and outbound to facilitate responses.

The survey was designed to measure data such as types of products shipped, frequency of shipments, the border crossing most frequently used, and the types of vehicles used to transport products.

The survey results constitute the bulk of this report. The findings are presented in the form of graphs and charts, supported in many cases by text. For the most part, summaries are provided only for the questions that received sufficient responses to be meaningful. Among the key findings from the inbound and outbound segments of the survey are:

- The majority of the goods crossing the border that are received inbound to facilities in Mexico are shipped by trailer, as opposed to containers or other types;
- Of the groups surveyed, customs brokers handle the largest volume of daily inbound shipments (almost 80 per day on average);
- 34 percent of outbound shipments head to destinations in Southern California, which is the top destination for these shipments; and
- Customs brokers handle the greatest number of outbound shipments per day (over 50).

Regarding the general management section of the survey, some interesting observations can be made:

- The majority of companies ship at times dictated by the schedules of their customers or their own production schedule, rather than for minimization of travel time or port congestion;
- The majority of respondents (63%) have learned to operate satisfactorily with the current hours of operation at all three commercial ports between California and Baja California;
- Most companies surveyed stated that it takes an average of two to three hours to cross the border at the port of entry most frequently used; and that anything beyond one hour is considered an “excessive wait;”
- Infrastructure improvements are needed to facilitate border crossing, particularly at the Otay Mesa Port of Entry; and
- Nearly two-thirds of all respondents said that they would not make any changes in the way they operate if delays continue or worsen. However, 45% of the respondents grouped as “shippers” indicated they would change their operational procedures if delays continue or worsen. The top three responses for addressing further delays were: (1) Change hours of operation; (2) Switch to a different border crossing; (3) Change shipping schedules.

## **Recommendations**

Based on the analysis conducted of all survey elements, combined with direct observations and experiences of the study team members, the following recommendations can be made:

*Performance Monitoring.* Most border inspection agencies measure traffic volume, entries processed, inspections performed, and inspection results. Few measure processing times and associated waiting times for drivers and cargo. Strategic goals of the Border and Transportation Security Directorate include improving border security, while at the same time facilitating the unimpeded and reliable flow of commerce and people through the ports of entry. Without appropriate performance measures, agencies have no way of knowing how well they are moving safe and legal vehicles, drivers, and cargo and are unable to identify opportunities for improvement. Currently available technologies can be used to implement

performance measures for traffic flows without compromising either proprietary data (for shippers) or sensitive law enforcement information (for inspection agencies). ***Inspection agencies and transportation agencies should develop and implement effective performance measures and standards for these measures, as well as monitor and report results on a regular basis.*** These performance measures should include:

- Total time to cross the border from the time the vehicle enters the first processing queue on one side of the border until it is released on the other side of the border (stratified by type of process – e.g., Border Release Advanced Screening and Selectivity [BRASS], formal, agricultural, informal, empty truck, HAZMAT) so that border agencies and shippers monitor processing time performance and transportation agencies can identify where delays are occurring and allocate resources appropriately to make needed improvements.
- Numbers of vehicles processed by location, type of process, and hour of day so that both shippers and inspection agencies know when processing volumes are greatest and inspection agencies can tailor hours of operation to accommodate changing demand patterns. At the same time, this will enable shippers, brokers and transportation companies to modify their shipping schedules to take advantage of less congested crossing times.
- Number of primary gates operating by hour of day and day of week so that agencies and shippers have a better understanding of how border crossing times are affected by the way agencies allocate staff resources.

Performance measures reported to shippers and other private sector entities should not include any information about inspection times, inspection rates, inspection selection criteria, inspection methods, or levels of compliance. All of this information is considered law enforcement sensitive and should be treated accordingly.

***Road Infrastructure Improvements.*** Studies have been conducted to investigate the specific needs for road improvements on both sides of the border, with particular emphasis on highways and roads leading to the border crossings. Road improvements are particularly needed at Otay Mesa (both sides of the border) due to the high and growing volume of commercial cargo traffic and the high value cargo crossing the border at that location. The challenge for government authorities on both sides of the border will be to secure the necessary funding to make improvements. Coupled with enhancements to operating policies, ***a more balanced investment in road infrastructure could improve the cross border flow of commercial cargo.***

***Dedicated Lanes for Expedited Processes.*** In most ports of entry, inspection agencies have established dedicated primary gates for empty trucks and for entries participating in an expedited processing program (e.g., BRASS). Through BRASS and similar programs, the former U.S. Customs developed and implemented means for expediting movement of low risk cargo into the U.S. with minimum delay. However, in most cases, the lanes leading to primary gates where expedited processing occurs are not controlled nor is there any way to separate empty trucks that participate in the expedited system from the rest of the vehicles. Unfortunately, during periods of peak congestion, the vehicles that participate in an expedited processing program experience significant waiting because of the long lines prior to primary processing. ***Whenever possible, local, state, and federal agencies should find ways to provide dedicated lanes of sufficient length to allow empty and expedited processing cargo to move quickly to the dedicated primary processing gates without***



***waiting behind formal and informal entries that will need more time at primary and in the cargo compound.*** Implementation of this process may require significant traffic management using either technology or personnel (but not necessarily inspectors) to ensure that drivers remain in designated lanes. In addition, the expedited processing programs should be expanded to increase the number of firms enrolled.

***Increased Inspection Agency Staffing and Resource Management, Including the Use of Technology.*** With current concerns about homeland security, inspection agency personnel have an enormous responsibility to protect the U.S. from terrorists that would bring weapons of mass destruction (WMD) into the U.S. hidden in trucks, shipping containers, or cargo entering the U.S. through seaports, airports, and land border crossings. Because of this situation, state and federal inspection agency personnel are stretched to their limits inspecting more trucks and cargo. Inspection agencies have done a remarkable job fulfilling these responsibilities. In some cases, this increased inspection activity reduces staff available for regular cargo processing activities. ***Inspection agencies need adequate personnel to staff as many primary gates as necessary to keep trucks and cargo moving efficiently across the border and to process entries (document review, research, and inspection) inside the cargo compounds on both sides of the border.***

Along with this increase in staffing, agency managers need better tools to manage resources so that they know how best to allocate available personnel to optimize their use in primary gate processing and cargo inspection activities to ensure effective cargo review and inspection and efficient flow of vehicles and cargo to, into, and through the compound. Tools do exist to track real time workload movement, such as PASS (Primary Access Security System) developed in El Paso, which through the use of pass cards, enables inspectors to monitor the overall status of the compound. ***Real-time resource allocation tools should be developed to allow a more efficient allocation of inspectors and technology where they are needed most as dictated by workload requirements.***

***Longer and More Flexible Operating Hours.*** While most (63%) of brokers, shippers, and transportation companies have adapted to current operating hours, 37% expressed a desire for either different or longer operating hours. Of the 37%, 13% want 24/7 operations so that they can reduce their border crossing delays by taking advantage of less congested periods. ***Inspection agencies and other entities involved in border crossing processes (financial institutions, brokers, and shippers) should consider expanding hours of operation or modifying time of day restrictions on the types of vehicles and entries allowed into cargo compounds to provide greater flexibility to shippers and transportation companies*** that must move cargo across the border. These time of day restrictions are on a port-by-port basis and are determined by port directors in consultation with others. Restrictions depend on resources, demand, facilities, etc., and are negotiated or determined based on overall needs and capabilities. In the case of Otay Mesa, for example, from 6:00 am to 7:00 am, only empty vehicles are processed. BRASS and informal/formal entries (as well as empties) are processed later throughout the day. Changes in operating hours will necessarily affect personnel and other resource requirements so this recommendation must be considered along with recommended increases in staffing and technology for inspection agencies.

*Bi-National, Interagency Cooperation.* At many border-crossing locations, Customs officials on both sides of the border have excellent working relationships and keep each other informed of events or activities that will affect border-crossing traffic. For example, Customs officials from both sides of the border at Otay Mesa meet monthly to address issues. However, this coordination and cooperation is largely *ad hoc* and depends on relationships among agency managers. ***Border management can be improved if this interaction were institutionalized so that border agencies had greater information about approaching traffic and planned events that may affect traffic flow.*** This can be accomplished through technology (e.g., shared traffic data, television cameras), routine communications, and other techniques designed to keep agencies informed and allow them to coordinate activities. This coordination activity should be extended to state and federal agencies on both sides of the border.

*Cost of Delay.* The primary problem encountered at the border is the amount of time needed to cross the border. While the most common response to the survey question of what delay would be considered excessive was one hour, the mean time required to complete all of the transactions necessary to cross the border, including traffic delays at or near the border and waiting times at the port of entry was approximately two hours. One can therefore conclude that respondents consider current processing times to be excessive. While most companies surveyed were unable to provide details on the financial impacts that border delays have on their bottom line, the delays at the border clearly do have financial costs because, in addition to delaying cargo movement, they tie up vehicles and drivers, both of which are costly resources to shippers and transportation providers. ***Regional entities with interests in economic development and productivity should identify the economic impacts and costs of delay to justify investments that reduce or eliminate delays to shippers and promote efficient use of physical infrastructure and agency resources.***

## 1. INTRODUCTION

The California/Baja California border is one of the most dynamic regions in the world. Tens of thousands of people cross the border each day to go to school, shop or go to work. Thousands of trucks pass each day through the commercial crossings at Tecate, Otay Mesa, and Calexico headed for points across the nation. California's border crossings with Mexico have become among the most traveled and the most congested of those along the U.S./Mexico border.

Since the terrorist acts of September 11, 2001, the country's ports of entry have come under increasing scrutiny as to their ability to protect the nation from the illegal entry of people and contraband, particularly those posing terrorist threats. The new Office of Homeland Security was created in part to address these issues, and to centralize the management of the nation's ports of entry. These new circumstances have made the traditional act of balancing trade flow with adequate inspection even more challenging.

Over the years, a number of government agencies, non-profit organizations and academic institutions have studied the California/Mexico border in an attempt to document delays and border inefficiencies. This information plays a part in seeking solutions to border problems.

This unprecedented Survey and Analysis of Trade and Goods Movement Between California and Baja California, Mexico, sponsored by the California Department of Transportation, was designed to assess cross-border shipping patterns and collect information previously not available from the key private sector stakeholders in binational commerce:

- maquiladoras (assembly only);
- maquiladoras (manufacturers);
- customs brokers;
- non-agricultural shippers (definitive importers);
- agricultural shippers (produce importers/exporters); and
- transportation companies.

The goal of the study was to survey the key sectors mentioned above to determine their concerns regarding border crossing delays at Otay Mesa, Calexico, and Tecate, to collect experience and information on shipping practices, and to develop a reliable source of data to be used in supporting recommendations for improvements to border transportation infrastructure or federal inspection facilities, as well as proposing incentives or measures that would encourage shippers to alter the times that they ship.

In August 2002, Science Applications International Corporation (SAIC) was selected to perform the study. The SAIC Project Team was composed of cross-border experts in the areas of import-export, economics/statistics, transportation and cross-border planning. From October 2002 to December 2002, 120 companies distributed among the six categories were interviewed in the cities of Tijuana/San Diego, Tecate, Mexicali, and Ensenada.

The following sections of this report define the methodology employed by the SAIC team in conducting the 120 surveys, and provide an analysis of the results obtained. Based on these results, as well as the experience of team members, the SAIC team developed recommendations for improving delays at the three border crossings.

## 2. METHODOLOGY

This section addresses the methodology employed by the SAIC Project Team to prepare the survey instrument and conduct the data collection phase of the project.

### 2.1. Survey Design

In collaboration with managers from Caltrans and the San Diego Association of Governments (SANDAG), the SAIC Project Team developed a draft survey questionnaire to be utilized in the data collection phase of the project. The team based the draft questionnaire on a survey template that had initially been drafted by Caltrans and SANDAG to guide in the development of the project scope. The goal was to create a single instrument that could be answered by all of the key stakeholder segments in cross-border shipping. The major stakeholders selected were: (1) Maquiladoras (non-manufacturers); (2) Maquiladoras (manufacturers); (3) Customs Brokers; (4) Agricultural Shippers; (5) Non-agricultural shippers (definitive importers); and (6) Transportation companies. The draft survey included questions regarding inbound shipments, outbound shipments (to and from facilities), and general opinions of border crossing issues. The Project Team reviewed each question, and after two drafts, developed a final questionnaire that met the project objectives. The questionnaire was created in both English and Spanish, included on the same form to facilitate completion by respondents.

### 2.2. Survey Pre-test

Once the survey design was finalized, a pre-test of ten representative companies from all six stakeholder groups was conducted to determine the viability of the instrument, and whether its length (31 questions) was conducive to participation. The companies were randomly selected from the database as described in Section 2.3. To expedite the pre-test, all ten companies were located in the San Diego/Tijuana area. Selected companies were initially contacted by phone, then provided the questionnaire by fax and visited by the survey manager in person. An introductory letter in Spanish signed by the directors of SANDAG and Caltrans was also faxed in advance.

The pre-test, as expected, proved to be a critical step in developing a workable survey instrument. The pre-test provided important feedback as to the content of the survey, and the process undertaken for its administration. In terms of content, the pre-test results revealed that some of the open-ended questions were long and confusing, truck types varied beyond those in the instrument, and some of the questions as worded generated no responses. One such question related to the total annual Customs value of shipments.

The pre-test also confirmed the expectations of the Project Team that surveying people in the import/export business would not be an easy task, given the many pressures they face and the limited time available. During peak hours, a visit to a busy customs brokerage is akin to taking a survey on the floor of the New York Stock Exchange. On average, it took 40 minutes to administer the survey pre-test. However, in most cases, it took three to four days to secure a completed survey, which often required a combination of follow-up phone calls and visits. In an attempt to determine whether sending the survey by fax in advance of the meeting was a deterrent, some appointments were attempted with just a phone call and the Caltrans/SANDAG cover letter. This change in approach made no difference. Clearly, diplomatic persistence on the part of the survey team proved to be the key to completing the pre-test, and would also hold true during the administration of the survey.

Upon completion of the pre-test, the SAIC Project Team presented the results to SANDAG and Caltrans. Necessary adjustments were made to the survey instrument and a final document was created (Appendix A). The key revisions to the survey instrument included:

- Adding truck size options (53 feet as well as 48 feet);
- Reorganizing and reducing the number of open-ended questions;
- Reducing the overall size of the survey (from 31 to 27 questions);
- Condensing the format, which reduced number of pages to be faxed; and
- Providing dollar range options for the Customs Value question.

No modifications were proposed to the process of survey administration. However, during the pre-test in-person interviews, the survey manager attempted to enter survey responses directly into the database on his laptop computer. This proved to be cumbersome and time consuming, and so it was determined that interviews in the regular survey would be conducted using a hard copy of the survey instrument.

### 2.3. Sample Size Creation

One of the biggest challenges facing the survey team was the determination of the population size upon which to base the sample size for the survey. There are a number of sources for information on cross-border manufacturing and trade. Manufacturing directories are available from commercial sources, and academic institutions and government agencies also produce information. The difficulty with many of the off-the-shelf directories is that in most cases, the information is obsolete by the time it is produced. This is due in great measure to the volatile nature of the cross-border manufacturing industry, with companies going in and out of business on a daily basis.

The SAIC Project Team relied on the latest company information provided by the Mexican Federal Government for information about stakeholder segments. The survey manager initially collected company lists from the *Secretaría de Economía (the Ministry of the Economy, SECON)*. This source was believed to have the most current data, because it has regulatory and permitting functions. This inquiry led to a total population size of 1,964 companies.

The next step was to sort out those companies that might only be start-ups or who do not have any commercial significance. It was decided to stratify the data set not only by type of entity, but also by a minimum threshold to determine the relevant number of entities in each category. Stratification is a sampling technique in which sampling is done separately for separate parts of the population. Stratification is often used to ensure that one has an adequate number of sampling units with relatively rare characteristics. Given that the survey attempts to capture the experiences of those who are frequent users of the border crossings between California and Baja California, the determining factor was the frequency of import/export shipments. Companies who ship a minimum of four times per week were considered “relevant” for purposes of the study, because they are frequent users of the ports of entry and are better informed to respond to questions regarding border congestion and opportunities for streamlining. Frequency of shipments was chosen over the number of employees, because the number of employees of a firm does not necessarily correlate with the number of shipments it makes. This filtering, performed by SECON, contributed to the eventual identification of 751 “relevant companies”.

To further qualify the database, the survey manager contacted *la Secretaría de Salubridad y Asistencia (Ministry of Health, SSA)*. SSA provided information regarding the agricultural importers and exporters, as well as those companies who ship seafood. SECON provided more accurate descriptions of the maquiladoras and definitive importers. The *Confederación de*

*Asociaciones de Agentes Aduanales de la República Mexicana (The Confederation of National Customs Brokers Associations)* was contacted to help consolidate the information from all data sources. The Tijuana chapter assisted the survey manager in compiling the different sources of companies and confirming those that met the minimum number of weekly crossings. To further filter the number of relevant companies, a minimum threshold of five shipments per week was applied to the database. This procedure yielded a more refined set of 225 relevant companies from which to select 120 for the survey.

Before finalizing the database, company information was compared to listings secured from two key industrial associations: *La Asociación de Industriales de la Mesa de Otay (The Otay Mesa Industrial Association)* and *La Asociación de Maquiladoras de Mexicali*. This comparison was done to verify, to the extent possible, the accuracy of the information collected.

Table 2-1 provides a breakdown of the totals per type of entity, the corresponding relevant companies and the resulting sample size.

**Table 2-1: Total and Relevant Population Numbers and Required Sample Size**

Type of Entity	Total	Relevant (4 x per week)	Sample Size
Customs Brokers	71	40	15
Agricultural Shippers (Produce Importer/Exporters)	68	37	10
Non-Agricultural Shippers (Definitive Importers)	327	175	20
Maquiladoras (Non-Manufacturer)	976	199	30
Maquiladoras (Manufacturer)	445	273	30
Transportation Companies	77	27	15
<b>TOTALS</b>	<b>1,964</b>	<b>751</b>	<b>120</b>

In developing a statistically sound survey, the end use of the data dictates in large part, the sample size required. However, there is no simple rule for sample size that can be used for all surveys. Often a moderate sample size is sufficient statistically and operationally. The required sample size for statistically relevant results does not grow linearly with increased population size. Also, the sample size for each of the categories was determined to provide the most meaningful results for the entire spectrum of questions and companies. The survey questions vary between those that aim to estimate a proportion and those that try to estimate a sample mean. Each requires a different analytical approach in general and specifically requires different calculations to determine sample size. Our approach ensured adequate representation of each type of entity and location while maintaining statistically meaningful results.

In terms of the identification of companies to be surveyed, a random sample was taken of the relevant companies by entity. The confidence interval calculation assumes a genuine random sample of the relevant population. If the sample is not truly random, one cannot rely on the confidence interval. Non-random samples usually result from some flaw in the sampling procedure that introduces a bias. An example of such bias would be a survey that selects entities based on their willingness to participate, e.g., in this case sending out requests to the entire population of maquiladoras and conducting interviews with the first 30 respondents. It was decided that a better approach would be to use a simple random number generator in Microsoft Excel, assigning random numbers to each of the relevant companies in the population, and picking those with the lowest numbers as the sample. However, additional companies were included on the list in anticipation of a certain non-participation rate.



As previously mentioned, the survey had to be conducted in different cities. Table 2-2 identifies the breakdown of companies by geographic region. Due to its agricultural importance, San Quintin was also targeted for inclusion in the survey. Given the larger number of entities crossing the border at Tijuana, the geographic distribution of companies to be surveyed is weighted toward Tijuana.

**Table 2-2: Original Geographic Distribution of Companies to be Surveyed <sup>1</sup>**

Type of Entity	Sample Size	Tijuana (49%)	Tecate (13%)	Ensenada (9%)	Mexicali (27%)	San Quintin (2%)
Customs Brokers	15	8	2	1	4	0
Agricultural Shippers (Produce Importer/Exporters)	10	3	0	1	4	2
Non-Agricultural Shippers (Definitive Importers)	20	10	2	2	6	0
Maquiladoras (Non Manufacturer)	30	15	5	3	7	0
Maquiladoras (Manufacturer)	30	15	5	3	7	0
Transportation companies	15	8	2	1	4	0
<b>TOTALS</b>	<b>120</b>	<b>59</b>	<b>16</b>	<b>11</b>	<b>32</b>	<b>2</b>

## 2.4. Survey Implementation

The survey manager entered the relevant companies in a Microsoft Access database created specifically for this project. The Access template was a mirror image of the survey instrument shown in Appendix A. Using the Excel randomizer, the survey manager assigned identification numbers and selected companies to be surveyed.

The survey management team was composed of the survey manager, and two assistants. All three have extensive professional experience in the import/export business. Phone contacts to targeted companies were made initially by the survey manager to determine the appropriate person within the company to complete the survey, after which the survey and project cover letter were faxed to respondents, with a follow-up appointment made to complete the survey by team members. Traffic managers were the first point of contact, because they would be able to answer the majority of the questions.

In some cases, traffic managers were also able to answer the management questions. However, in many cases it was necessary to pose these questions to senior management at the facility. In most cases, a combination of telephone contacts, faxes and in-person visits and/or interviews was required to secure a completed survey. Given the fast-paced environment in which these companies operate, the survey team had to demonstrate great flexibility.

In the course of conducting the survey, the survey manager sought the assistance of the *La Asociación de Industriales de la Mesa de Otoy* and *La Asociación de Maquiladoras de Mexicali*. Both of these groups assisted in securing completed surveys from key companies affiliated with them. The survey and the motives for its creation were very well received by these organizations. Their validation of the survey lent even more credibility to the survey administration in Mexico.

<sup>1</sup> The final city distribution of companies by sector actually surveyed varied by one between the shipper non-agricultural/agricultural category, and one company between the maquiladora manufacturing and non-manufacturing categories. These slight variances, had no impact on the validity of the sample and are listed in Appendix B.

After researching companies and trade patterns, it was necessary to make adjustments to the original survey geographical breakdown. It was determined that the best way to secure information regarding the agricultural shipments from San Quintin was to interview the customs brokers in Tijuana who handle their shipments. Calls to San Quintin directly revealed that only production takes place there, and the survey team was referred back to Tijuana. Also, after many attempts, the survey manager determined that there were no definitive importers of any significance operating in Tecate, so two additional definitive import companies in the Tijuana area who serve Tecate were added to the list to be surveyed.

## **2.5. Participation Rates**

Generally speaking, respondents participated in this project with great enthusiasm. Most were very generous with their time and interested in making a difference in flow of goods between California and Baja California. 152 companies were contacted from the project database to secure 120 completed surveys. 13 companies declined to participate outright, and five did not return surveys. However, despite all of the initial efforts to filter them out, 14 companies contacted were no longer in business, or were in the process of closing operations. This may be an indication of the cyclical nature of the cross border manufacturing economy, as well as the challenges facing government agencies in maintaining current rosters.

### 3. SURVEY DEFINITIONS

The following definitions are provided for the company types surveyed and for survey terms used:

#### **(1) Maquiladora (Non-Manufacturer)**

The Maquiladora Non-manufacturer is a plant that engages in assembly operations only, whereby inputs are received and assembled, and assembled products returned to the country of origin.

#### **(2) Maquiladoras (Manufacturer)**

The Maquiladora (Manufacturing) applies to plants that engage in manufacturing operations to support assembly operations.

#### **(3) Customs Brokers**

Customs Brokers are authorized by their government to prepare import and export documentation for their clients. Some of these may also serve as authorized freight forwarders.

#### **(4) Shipper (Non-Agricultural)**

Shippers Non-Agricultural applies to companies who import consumable goods from abroad and distribute to destinations within Mexico. In this survey, these companies were those that handled non-perishable goods. These companies were also referred to throughout the course of the project as definitive importers.

#### **(5) Shipper (Agricultural)**

For this survey, these companies shipped fruits and vegetables and other perishables from Mexico to the U.S. Exports from the U.S. to Mexico were not analyzed.

#### **(6) Transportation Companies**

These companies are contracted by the other categories to transport their product to its intermediate or final destination.

#### **(7) Inbound/Outbound Shipments**

The survey asked companies to describe inbound and outbound shipments to and from their facility. The survey was structured this way to facilitate responses. However, this concept may create confusion for the reader. In many cases, "in-bound" can also refer to southbound shipments from the U.S. to Mexico and "out-bound" can refer to shipments leaving Mexico for the United States. This is particularly true for the maquiladoras. However, this is not applicable in all cases. In the case of definitive importers, for example, these definitions do not apply because "out-bound" usually means another destination within the Republic of Mexico.

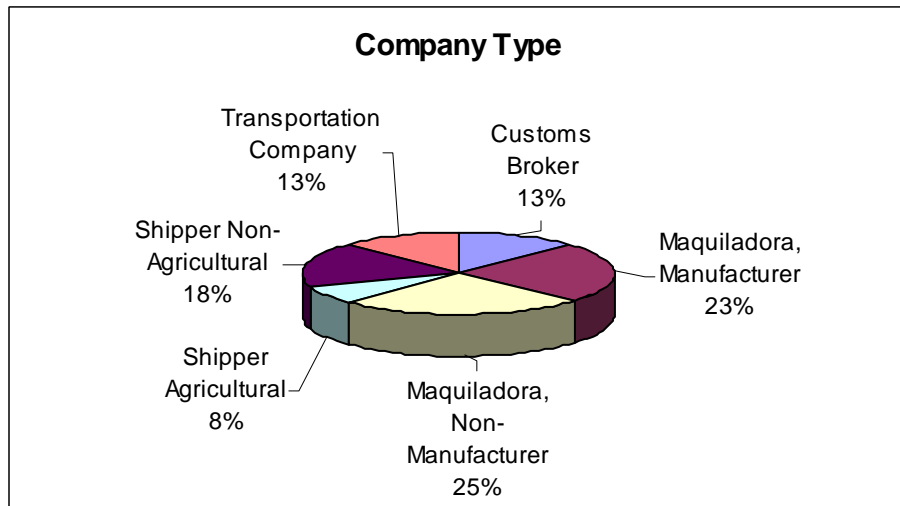
## 4. SURVEY RESULTS

This section describes the numerical results of Part I of the Trade and Goods Movement Survey, which includes general company information as well as information about their inbound and outbound shipments. The data obtained is summarized for the individual questions asked. Section 5 will analyze the data obtained in Part II of the survey, provide correlations between various data elements, and explain the underlying reasons for the results leading up to the recommendations provided in Section 6. The detailed data and associated statistical analysis are provided in Appendix B. This section provides summary data in the form of graphs for the majority of the questions posed by the survey.

### 4.1. Survey Data

For this survey, 120 companies of six different types were interviewed. The breakdown among the companies is described in Section 2.3. Figure 4-1 below shows the percentage breakdown of companies interviewed for the survey. A description of the different types of companies is provided in Section 3 above.

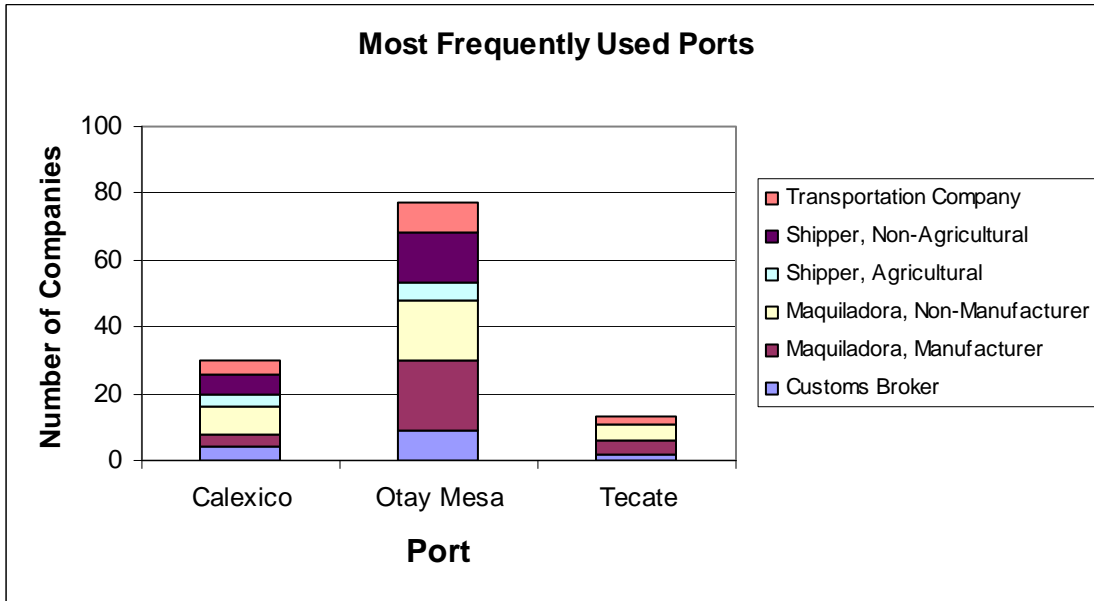
**Figure 4-1: Breakdown of Company Types in Survey**



**Questions 1-3** of the survey were general identifier questions, with question 3 establishing the company type.

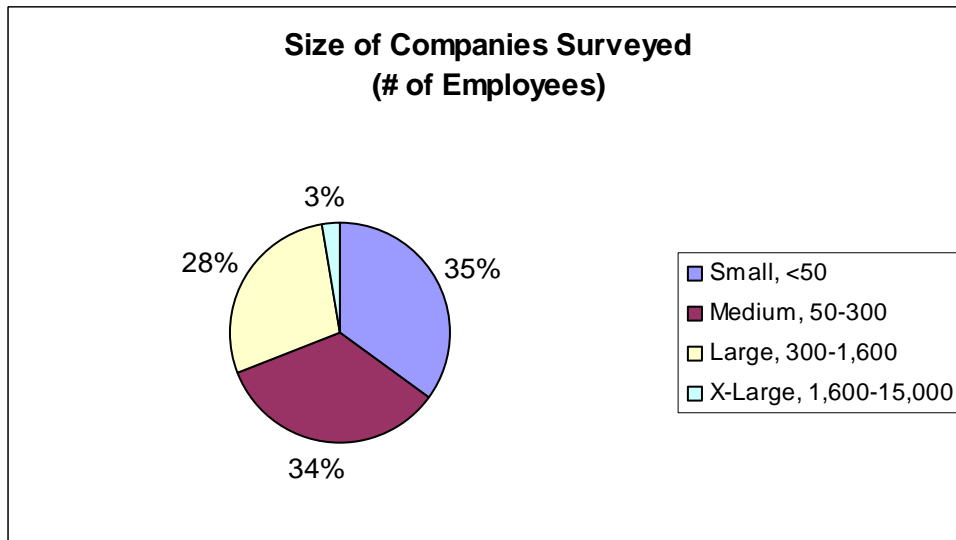
**Question 4** of the survey asked that respondents identify the ports of entry most frequently used. Not surprisingly, the port at Otay Mesa accounts for the majority in this category, followed by Calexico. These results are in line with expectations, as Otay Mesa processes more than two-thirds of the truck traffic, as measured by value, between California and Baja California, while Calexico accounts for roughly one-quarter and Tecate for less than 5%. Figure 4-2 shows the number of companies in each category as related to usage at each of the three ports of entry. The percentage breakdown among the categories is similar for the ports. There is no indication that there is a correlation between the type of company and the port most frequently used.

Figure 4-2: Most Frequently Used Ports



Question 5 identified the size of the company interviewed. The survey selection did not stratify for company size. The results show that the brokers and transportation companies that were surveyed tended to be smaller companies, less than 100 employees total. The initiators of shipments, i.e., maquiladoras and shippers, vary in size from small companies to very large entities with more than 5,000 employees. Figure 4-3 shows the percentage distribution between small, medium, large, and very large companies based on number of employees in the survey.

Figure 4-3: Company Size Based on Number of Employees



The analysis conducted does not indicate any correlation between the size of the company and either behavior regarding shipments or opinions on possible improvements at the border (the latter as described in Section 5).

**Question 6** ascertained the type of product the company handles, manufactures, or ships. For the purpose of the analysis, six broad categories of products were created to capture the different types of products. These categories are:

- Consumer Electronics (distribution to retailers)
- Other Consumer Goods
- Perishables
- Components (for further assembly such auto/electric parts)
- Industrial Products (equipment, oil)
- Other

While it is inherent in the nature of the product, mainly agricultural, that perishables are time sensitive, the component category is specifically time sensitive as well. Many of these components are part of lean supply chains of larger manufacturing processes such as automobile assembly or assembly of electronics. The most efficient supply chains eliminate almost all inventory, and parts go directly from the truck to the assembly line. Delays at the border and inconsistencies in crossing times can force manufacturers to maintain a buffer stock which introduces additional costs and limits the attractiveness of cross border sub-assembly. Figure 4-4 shows the distribution of product to the different categories for the companies surveyed. For comparison purposes, Figure 4-5 shows the most frequently imported commodities at Otay Mesa in FY 2001 based on value. The results of the survey are generally consistent with annual data provided by the Bureau of Transportation Statistics (BTS) Transborder Surface Freight Data Web Site.<sup>2</sup> The latter is compiled by value, while the survey data shows number of shipments. Nevertheless, both show that the majority of cross border commerce is made up of consumer goods (mainly electronics), components for industrial production (mainly auto parts), and a small portion of agricultural products. This is consistent with most of the ports along the U.S./Mexico border with the exception of a few ports, e.g., Nogales which is dominated by produce and commodities, such as petroleum products.

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<sup>2</sup> California Exports to Mexico by All Surface Modes and Top Ten Commodity, 2001,  
[http://www.bts.gov/ntda/tbscd/reports/annual01/stcomm/tomex\\_val\\_wt\\_2001ca\\_ten.html](http://www.bts.gov/ntda/tbscd/reports/annual01/stcomm/tomex_val_wt_2001ca_ten.html)



Figure 4-4: Distribution of Product Categories

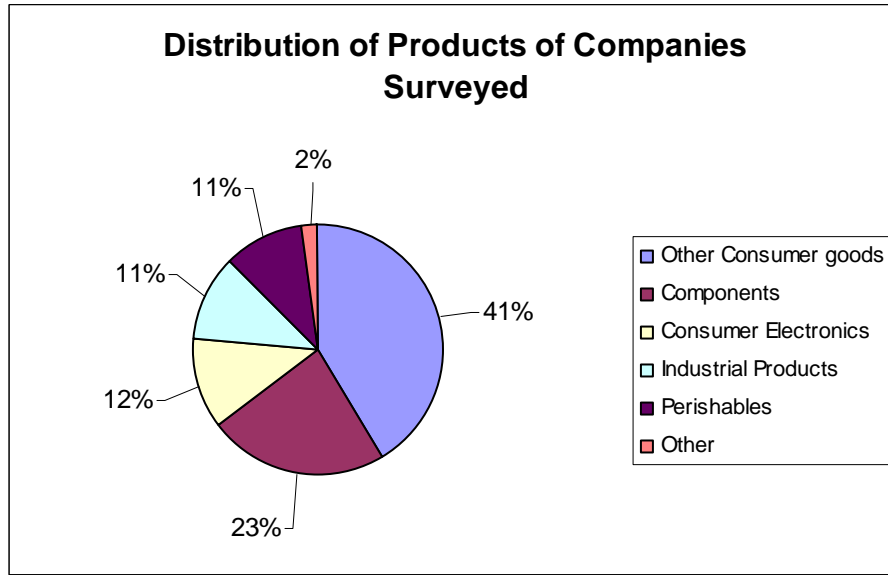


Table 4-1: Most Commonly Imported Commodities at Otay Mesa by Value <sup>3</sup>

Rank	Commodity Code	Commodity Description	Value \$	Metric Ton
California Imports from Mexico by All Surface Modes and All Commodities, 2001			18,654,301,739	4,421,505.06
1	85	Electrical machinery and equipment and parts thereof; Sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles	6,221,587,547	776,824.38
2	84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof	3,337,726,022	339,257.15
3	62	Articles of apparel and clothing accessories, not knitted or crocheted	1,029,127,355	77,126.80
4	90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; Parts and accessories thereof	988,177,491	65,451.08
5	98	Special classification provisions	896,323,446	127,208.91
6	61	Articles of apparel and clothing accessories, knitted or crocheted	876,907,139	69,322.57
7	87	Vehicles, other than railway or tramway rolling stock, and parts and accessories thereof	712,932,399	184,177.31
8	94	Furniture; Bedding, mattress supports, cushions and similar stuffed furnishings; Lamps and lighting fittings, not elsewhere specified or included; Illuminated signs, illuminated nameplates and the like; Prefabricated buildings	624,624,241	232,931.68
9	7	Edible vegetables and certain roots and tubers	614,169,644	713,756.76
10	95	Toys, games and sports equipment; Parts and accessories thereof	474,049,255	96,592.75

**Question 7** addressed the type of vehicle, i.e., containers, flatbeds, trailers or others, by which the companies receive inbound raw materials. Due to the nature of the companies interviewed and the potential for overlap or double counting in this question, i.e., a shipment destined to a maquiladora may be facilitated by a broker and executed by a transportation provider, the data is presented separately for each of the categories of companies rather than in the aggregate. The data shows that the majority of shippers utilize trailers with moderate use of containers, mainly by the maquiladoras.

<sup>3</sup> California Imports from Mexico by All Surface Modes and Top Ten Commodities, 2001, [http://www.bts.gov/ntda/tbscd/reports/annual01/stcomm/frommex\\_val\\_wt\\_2001ca\\_ten.htm](http://www.bts.gov/ntda/tbscd/reports/annual01/stcomm/frommex_val_wt_2001ca_ten.htm)

Figure 4-6: Average Raw Material Shipment Method for Brokers

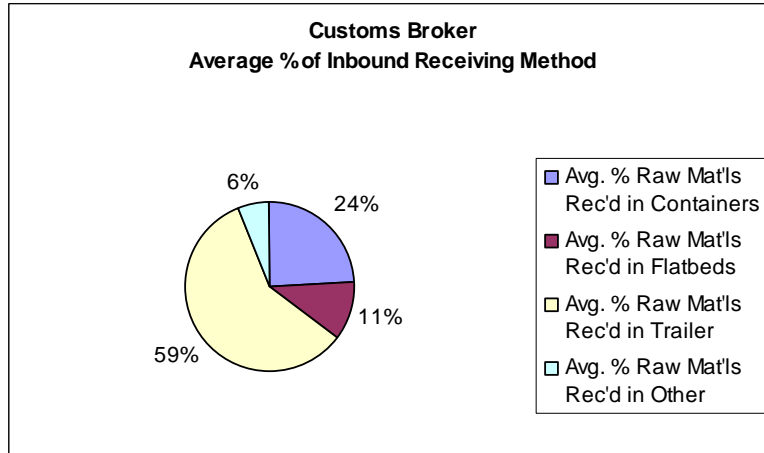


Figure 4-7: Average Raw Material Shipment Method for Maquiladora (Manufacturers)

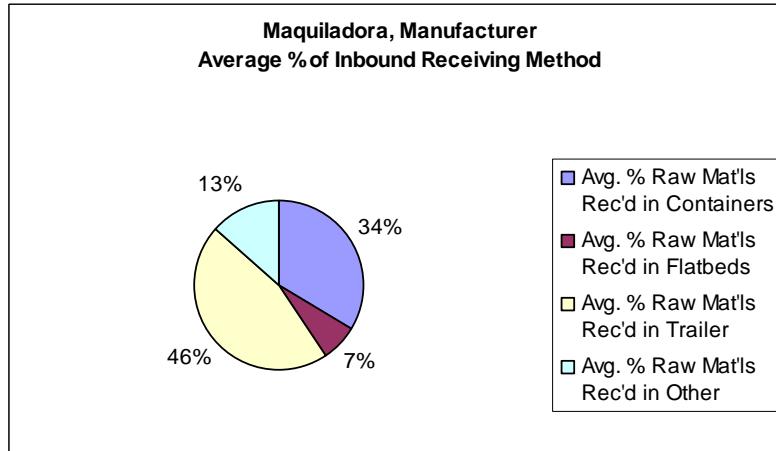


Figure 4-8: Average Raw Material Shipment Method for Maquiladora (Non-Manufacturers)

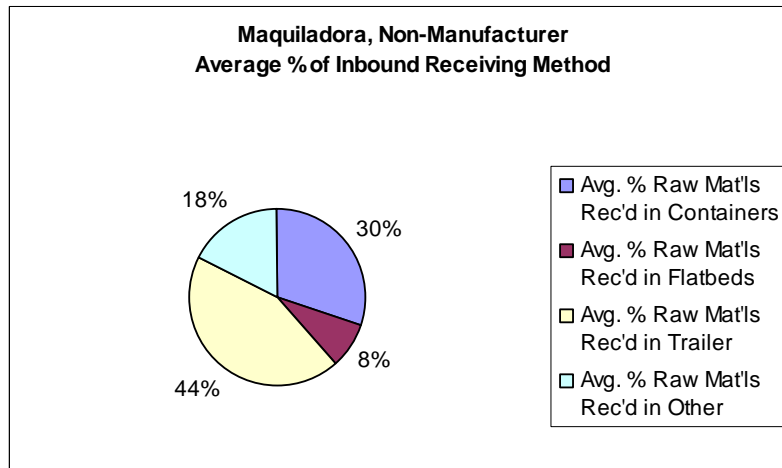


Figure 4-9: Average Raw Material Shipment Method for Shippers (Agricultural)

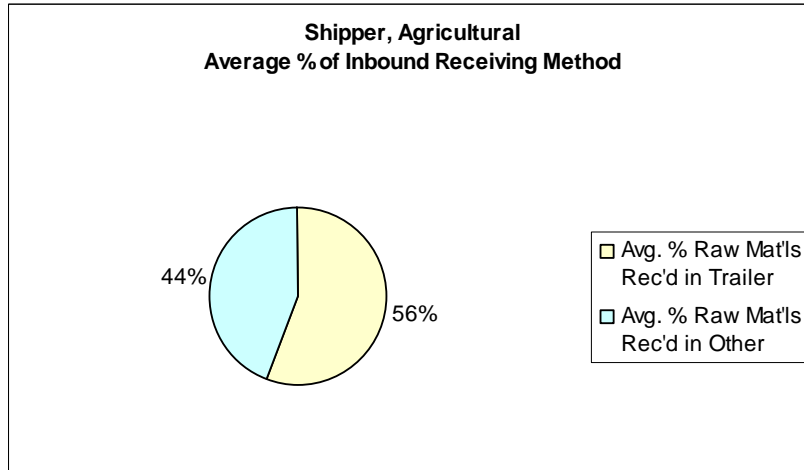


Figure 4-10: Average Raw Material Shipment Method for Shippers (Non-Agricultural)

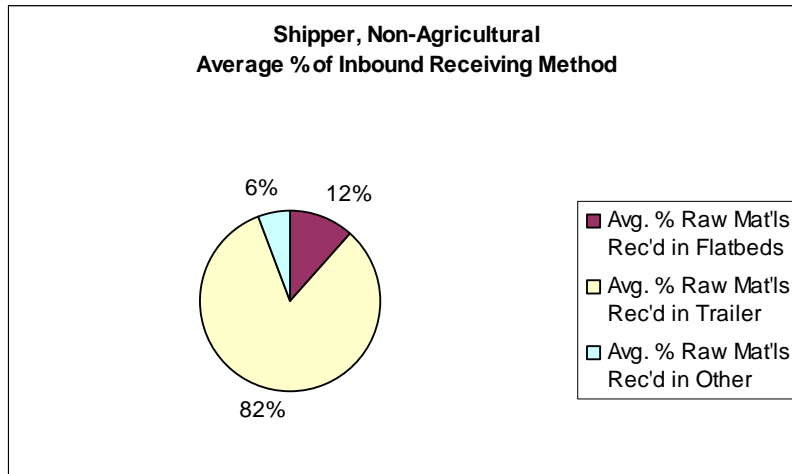
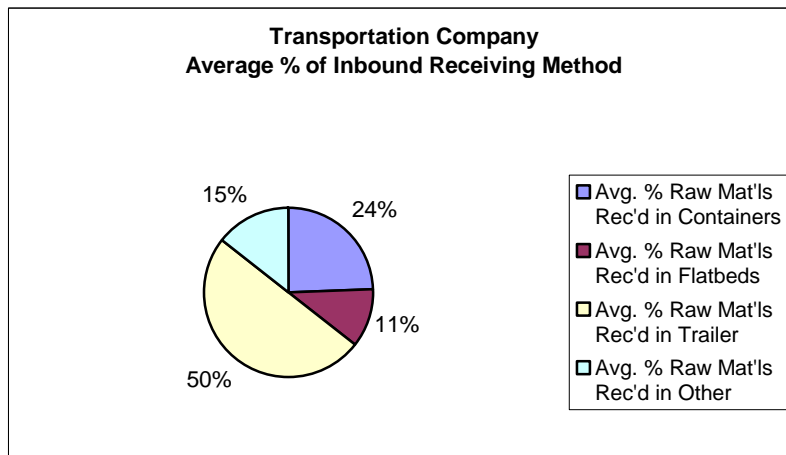
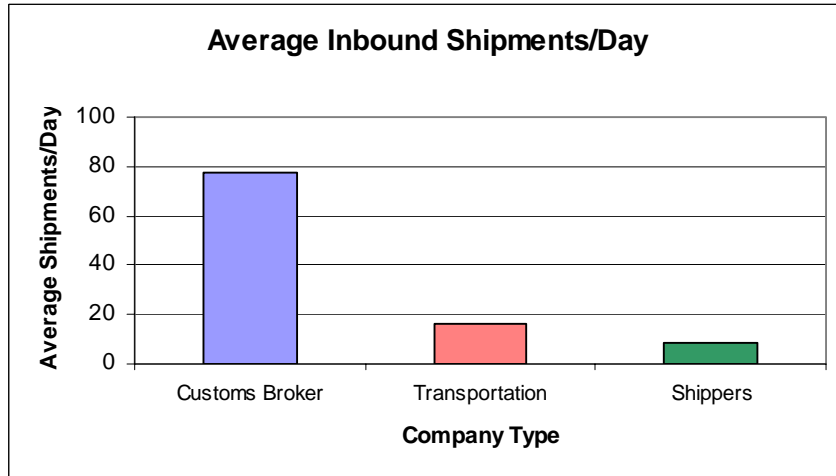


Figure 4-11: Average Raw Material Shipment Method for Transportation Companies



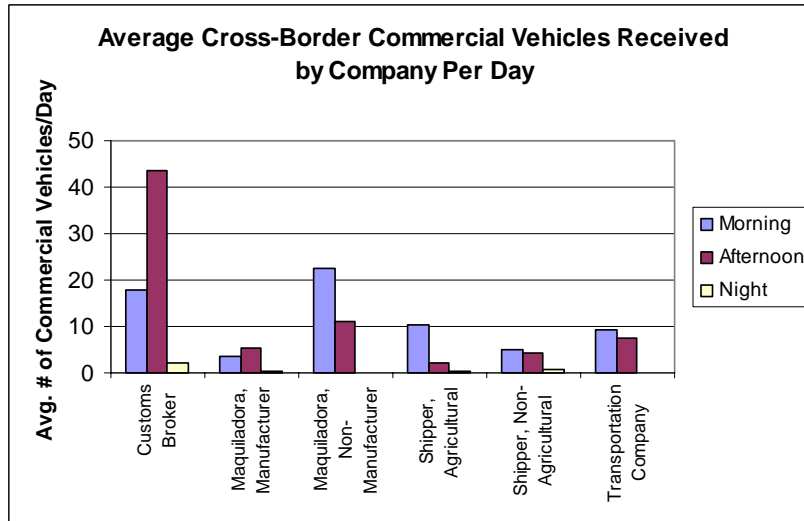
**Question 8** addressed the number of inbound shipments received per day. Again, due to the nature of the activity, double counting is a possibility and hence no aggregation was done for all company types. For the number of shipments, the originators of shipments, i.e., maquiladoras and agricultural and non-agricultural shippers, were aggregated into a new category titled 'shippers' and compared to transportation providers and customs brokers. Figure 4-12 shows that brokers are involved in significantly more transactions per day than are facilitated by the transportation providers or are initiated by the shippers.

**Figure 4-12: Average Inbound Shipments Per Day by Type of Company**



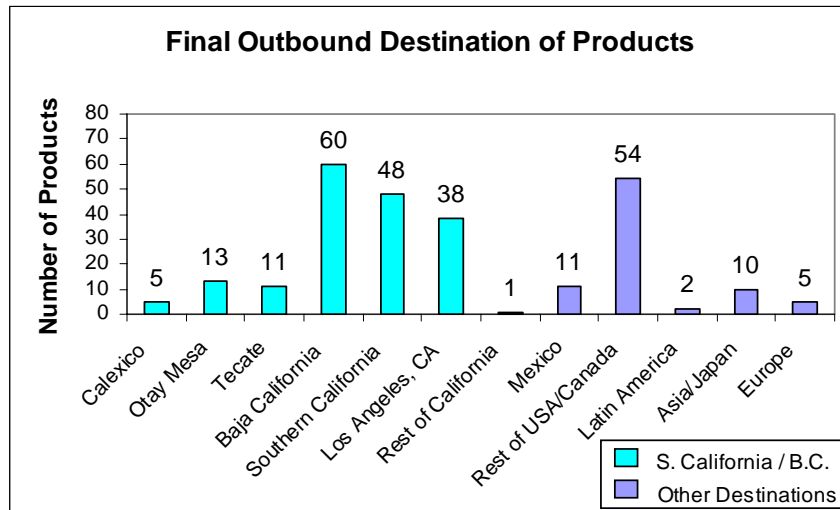
**Question 9** obtained information on the number of cross-border commercial vehicles received by the various companies per day and the time of day that they arrive. *Morning* is defined as 6:00 am to 12:00 pm, *Afternoon* is 12:00 pm to 6:00 pm, and *Evening* is 6:00 pm to 6:00 am. Again, no aggregation across company types was performed. Figure 4-13 shows the average number of cross-border commercial vehicles received in each category. This question differs from Question 8 in that it was designed to track all cross-border vehicles, not just those that deliver inbound shipments. As can be observed, with the exception of customs brokers, most sectors surveyed tend to receive more of their inbound shipments in the morning as compared to other times of the day.

Figure 4-13: Average Number of Cross-Border Commercial Vehicles Received Per Day



Question 10 addressed the destinations of the products shipped by the companies interviewed. Nearly all respondents indicated an initial destination in southern California or Baja California with the majority naming a destination directly at the border, i.e., Otay, Calexico, Tijuana, Mexicali, etc., as the first point of shipment. The final destinations of the products are still overwhelmingly in the states adjacent to the border. More than two-thirds of the answers for the final destination were southern California or Baja California. The remainder was widely distributed among destinations across the U.S. and Mexico as well as overseas. Figure 4-14 shows the distribution of final destinations. The results are in line with the BTS Transborder Surface Freight Data that shows that the majority of truck traffic going through the ports on the California-Mexico border is local traffic, e.g., in 2001 \$8.8 million of the \$13.2 million of exports from California to Mexico went to Baja California.<sup>4</sup>

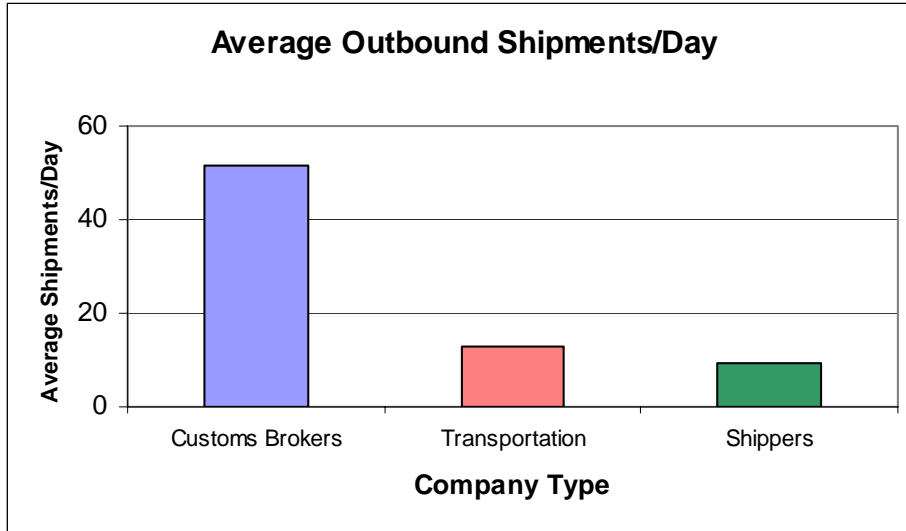
Figure 4-14: Distribution of Final Destinations of Products



<sup>4</sup> Individual State to State Flows Merchandise Trade from California to Mexican State of Destination by Truck of Transportation, 2001, [http://www.bts.gov/ntda/tbscd/reports/annual01/state/mex\\_CA2001trk.html](http://www.bts.gov/ntda/tbscd/reports/annual01/state/mex_CA2001trk.html)

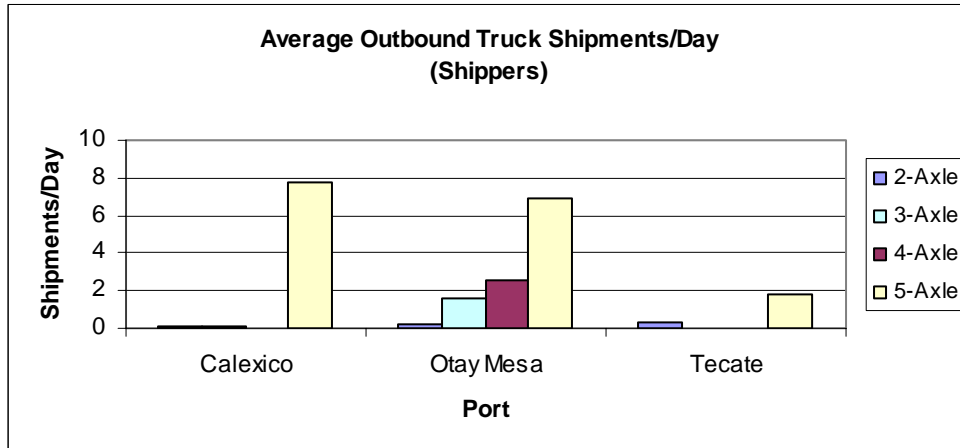
**Question 11** was designed to collect information on the number of outbound shipments per day. For the same reasoning as given in the questions dealing with the inbound shipments, no aggregation across company types was done. Also, the results are similar to the inbound shipments in so far as brokers handle significantly more shipments per day than the companies involved in the physical aspect of the shipment, i.e., the shippers and transportation companies. Figure 4-15 shows the average number of outbound cross-border shipments by company type.

**Figure 4-15: Average Outbound Shipments Per Day by Company Type**



**Question 11** also addressed the type of truck, in terms of number of axles, used to transport the outbound shipment. To avoid double counting, the number of trucks crossing the border was measured by counting only the initiators of the shipments, i.e., maquiladoras, agricultural shippers and non-agricultural shippers. Using the numbers from the survey one can extrapolate the total volume from these categories based on the size of the universe relative to the sample size. Figure 4-16 shows the mean average daily volume of trucks per shipper by number of axles for the three ports based on activity reported by the surveyed maquiladoras and shippers. For all ports, the majority of shipments are handled by large, 5 axle trucks. In addition, Otay Mesa has a moderate level of smaller truck traffic, indicating to smaller operations at this port.

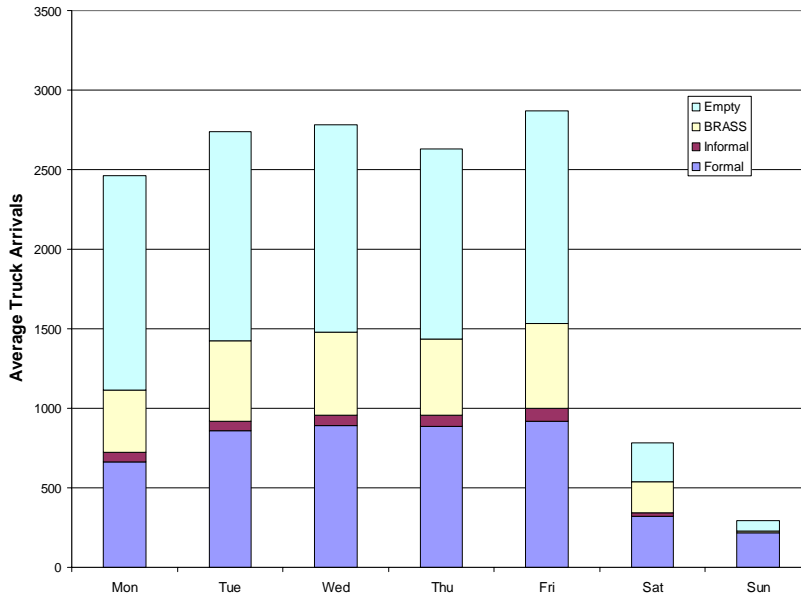
**Figure 4-16: Average Daily Outbound Shipments by Truck Size (Axles)**





Publicly available truck count data from Caltrans is generally consistent with the survey results.<sup>5</sup> For Otay Mesa and Calexico, the closest point available is on a road slightly beyond the crossing. Both show lower values for number of trucks, on routes 905 in San Diego County and 98 in Imperial County, respectively, due to the fact that many trucks enter warehouses or distribution centers located directly at the border. As shown in Figure 4-17, data on total truck arrival northbound at Otay Mesa obtained from a previous study shows an average arrival truck volume of roughly 2,700, which is similar to the total obtained from extrapolating the survey data (~3,000). Figure 4-17 shows the average number of daily truck arrivals broken down by empties, BRASS, informal, and formal for the time period of March – June, 2002. The consistency of the numbers supports the validity of the survey and the selection process.<sup>6</sup>

**Figure 4-17: Average Daily Truck Arrivals at Otay Mesa Port\***



\* Prepared in cooperation with the U.S. Department of Transportation, Federal Highway Administration, DECEMBER 2002

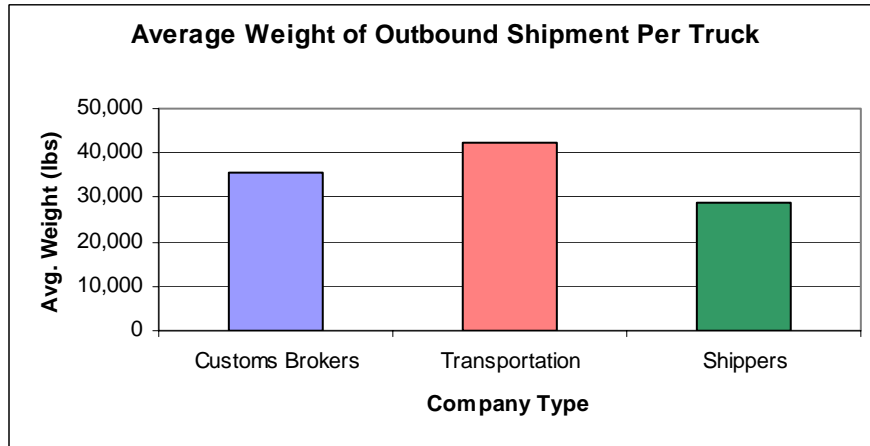
**Question 13** addressed the average weight of shipments per truck. Results are presented in three groups, separated by initiators of shipments, i.e., shippers (maquiladoras and shippers), brokers, and transportation providers. Transportation companies report a higher vehicle shipment weight than brokers or maquiladora/shippers as shown in Figure 4-18. The reason for the higher weight for the transportation companies could be the result of the consolidation of smaller shipments into larger ones by the transportation companies.

<sup>5</sup> 2001 Annual Average Daily Truck Traffic on the California State Highway System

Compiled by Traffic and Vehicle Data Systems, State of California, Business, Transportation and Housing Agency, Department of Transportation

<sup>6</sup> Generally, shipments over \$1,250 in value imported for commercial purposes are considered “formal entries” and must be secured by a bond; those below \$1,250 in value are considered “informal entries”. The BRASS program (Border Release Advanced Screening and Selectivity) allows Customs officials to expedite the release of high-volume, highly-compliant cargo shipments. BRASS features procedural and technological improvements over its predecessor, the Line Release cargo processing system.

Figure 4-18: Average Weight of Outbound Shipments per Truck by Company Type



Question 14 addressed the classifications of trucks used by the various company types. Figure 4-19 through Figure 4-24 show that the majority of transports are done by trailer for all of the company types. The greatest use of containers occurs for maquiladora manufacturers.

Figure 4-19: Average Outbound Shipment Method for Customs Brokers

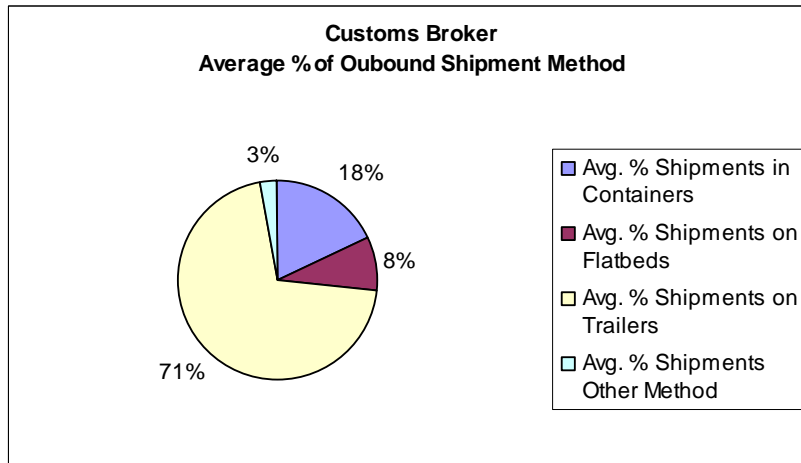


Figure 4-20: Average Outbound Shipment Method for Maquiladora (Manufacturer)

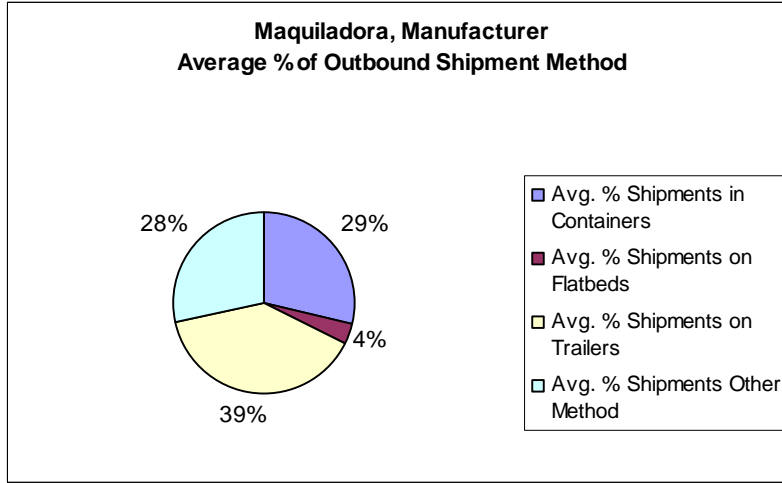


Figure 4-21: Average Outbound Shipment Method for Maquiladora (Non-Manufacturer)

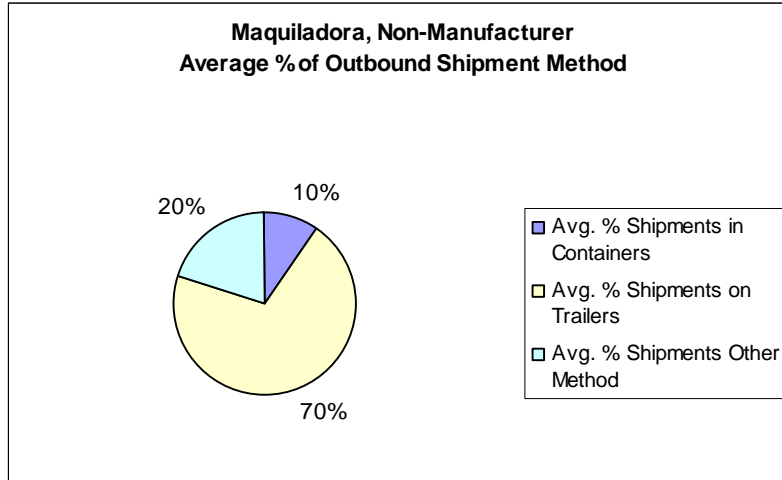


Figure 4-22: Average Outbound Shipment Method for Shipper (Agricultural)

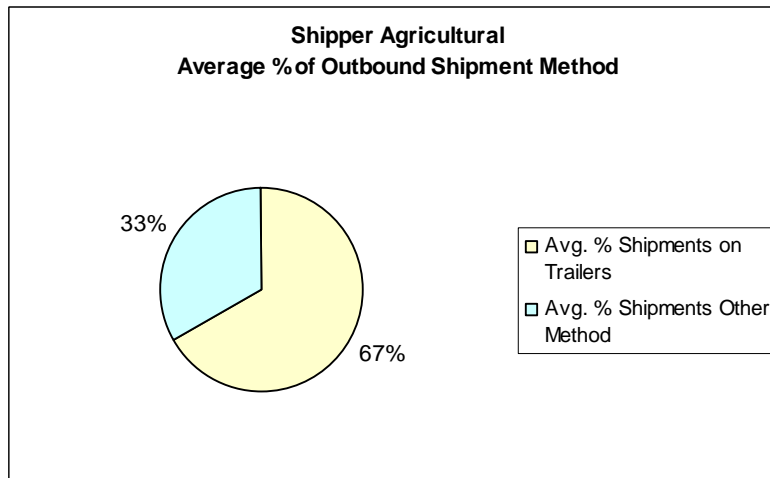


Figure 4-23: Average Outbound Shipment Method for Shipper (Non-Agricultural)

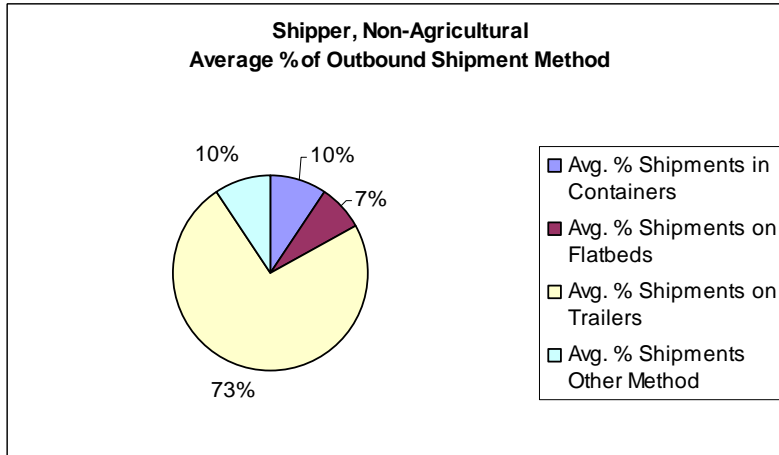
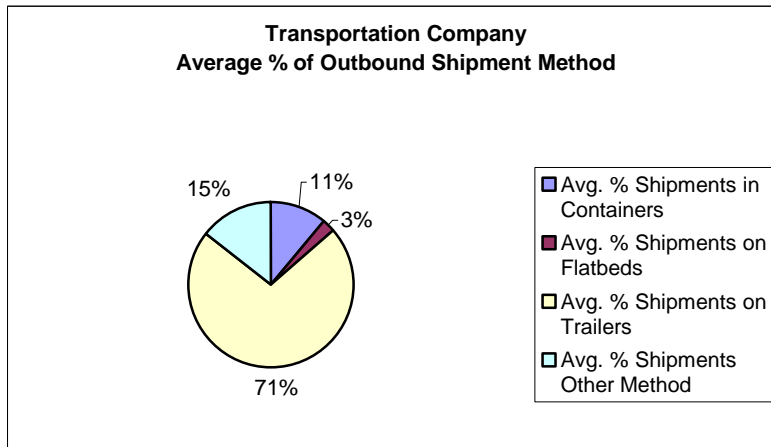
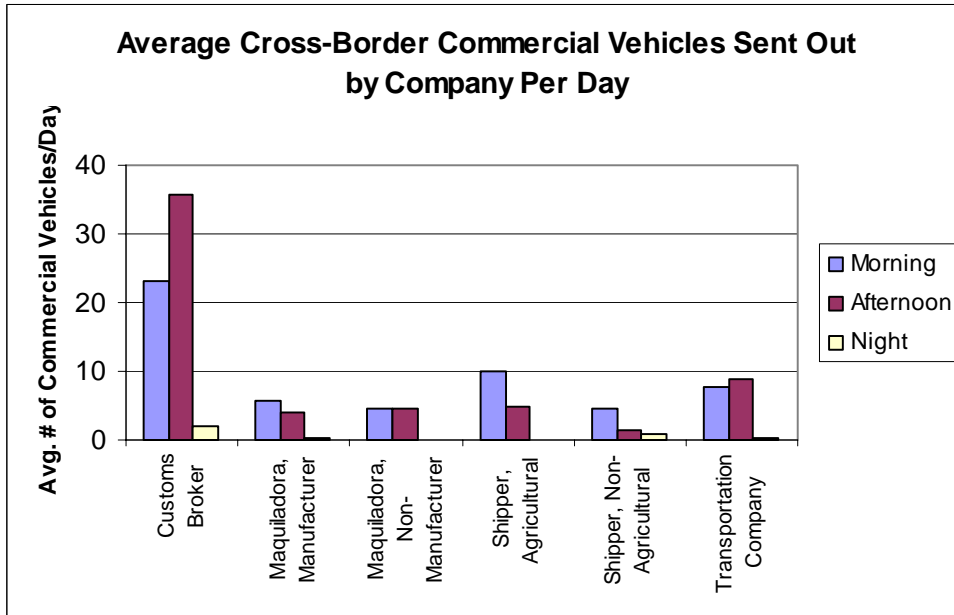


Figure 4-24: Average Outbound Shipment Method for Transportation Companies



The last question of Part I of the survey, **Question 16**, addressed the number of commercial vehicles dispatched by the companies. Consistent with question 9, customs brokers sent out a significantly higher number of commercial vehicles than the companies in the other categories, as shown in Figure 4-25.

Figure 4-25: Average Number of Commercial Vehicles Sent Out Daily



In summary, this section provided an overview of the statistical make-up of the companies surveyed, the level of activity generated by these companies at the ports along the California/Mexico border, and how the results relate back to the population at large. The intent was to gain an understanding of the level and type of activity that the ports of entry handle from the various companies in the region that are engaged in cross-border trade. The data collected is consistent with other publicly available data such as the BTS Transborder Surface Freight Data and provides additional operational insights into issues such as the types of trucks used by the different companies. Section 5 discusses the results of the open-ended questions contained in the management section of the survey and draws inferences from the data.

## 5. ISSUES AND CONCERNS

Part II of the Trade and Goods Movement Survey was designed to elicit the experience and concerns of the responding brokers, shippers and transportation companies. These questions specifically address transportation infrastructure, border operations, and potential improvements that would eliminate unnecessary delays and reduce the time required to carry out legitimate inspection processes. Part II of the survey included a total of 11 questions.

Generally speaking, this section includes two types of questions: (1) questions that ask respondents to characterize or estimate their experiences in moving goods across the border, and (2) questions that ask respondents for suggestions about how the process can be improved. This section is organized around those categories of questions.

### 5.1 The Border Crossing Experience

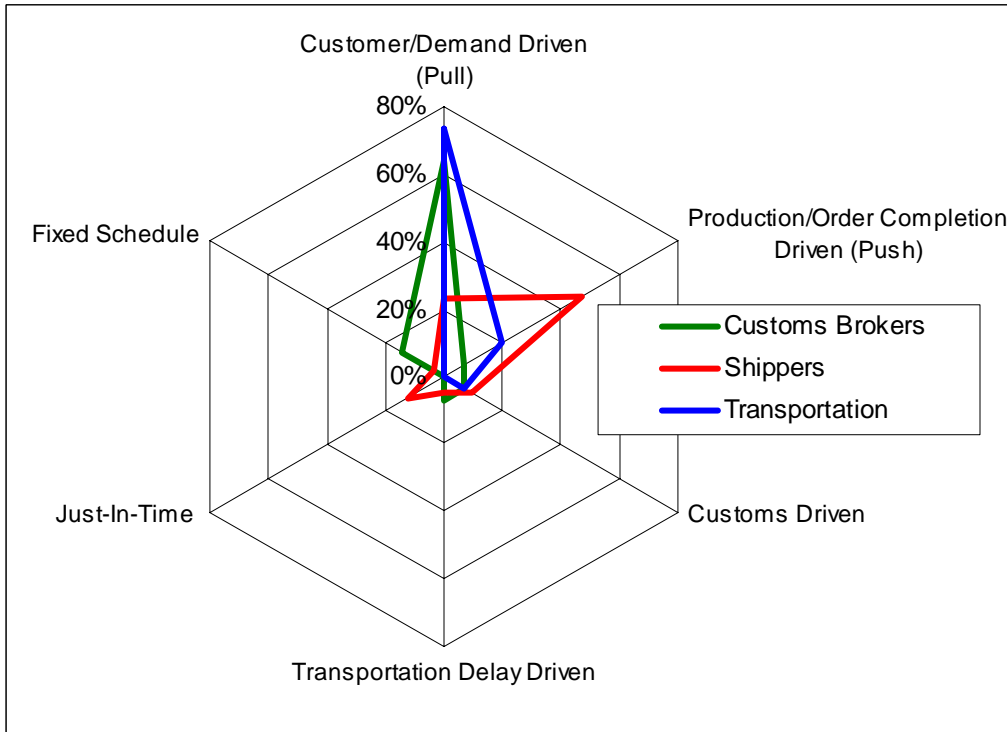
Respondents were asked what determined the time of day they moved products across the border, how long it took, and how much cost they incurred due to border delays. Additionally, they were asked whether or not they were satisfied with the current hours of operation of border agencies and the time required to move goods across the border. Finally, they were asked their views on the main problems causing commercial traffic congestion at the border.

The time of day businesses move goods across the border tends to depend on the respondent's type of business. In general, shippers schedule goods movement based on production schedules. That is, as goods are produced, they are packaged, loaded into trucks and driven to destinations. Maquiladora plants may manufacture or assemble products that are transported across the border throughout the day. Their border crossing times are determined by production schedules. Brokers and transportation companies, however, move goods across the border in response to their customers' needs, many of whom are the shippers whose production schedules determine delivery times. Figure 5-1 shows that over two-thirds of the brokers and transportation companies schedule border crossings based on customer needs while the majority of shippers schedule border crossing based on production schedules. Interestingly, only a few respondents indicated that border crossing schedules are influenced by either transportation delays or U.S. or Mexican Customs operations.<sup>7</sup>

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<sup>7</sup> This figure and several additional figures use spider or radar charts to display summarized results of open-ended questions. Responses to these open-ended questions were grouped into clusters of similar responses with each cluster represented by a labeled ray extending from the center of the spider chart. Since different groups of respondents (shippers, transporters, brokers) had different responses, their group responses are shown separately on the charts. For example, in Figure 5-1, about 75% of the transportation companies (blue line) schedule their border crossing times based on customer/demand driven factors and about 20% based on production/order completion factors. About 50% of the shippers (red line) schedule border crossings based on production/order completion factors and about 10% based on Customs driven operating schedules and another 10% based on just-in-time delivery schedules.

Figure 5-1: Drivers for Times of Shipment by Category



Respondents were asked whether or not they were satisfied with current hours of operation in effect at the border crossing location they use most frequently. Since many entities are involved in border crossing processes, responses to this question must be viewed in light of all of the entities involved: U.S. and Mexican Customs agencies, financial institutions, state inspection agencies, brokerage firms, and consignee facilities. However, most respondents answered this question focusing primarily on the state and federal inspection facilities that must be operating for any commercial cargo to move across the border.

In each of the locations and business types considered, one-half to three-fourths of the respondents have adapted to the current hours of operation, with an overall response of about two-thirds being satisfied with current hours of operation. About one-fifth of the brokers and transportation companies indicated that they would like to see 24/7 operation of the commercial cargo processing facilities while only about 10% of the shippers indicated an interest in 24/7 operations. This could reflect the fact that, for the most part, brokers and transportation companies are smaller firms, such that longer operating hours might be more possible for them, compared to larger shippers. The aggregate result is shown in Figure 5-2. The port-specific data show variances among the ports, as evident from Figure 5-3 through Figure 5-5. As can be seen, the Port of Calexico has the highest percentage of users satisfied with the hours of operation at 70%.

Figure 5-2: Acceptance of Hours of Operation at Port of Entry

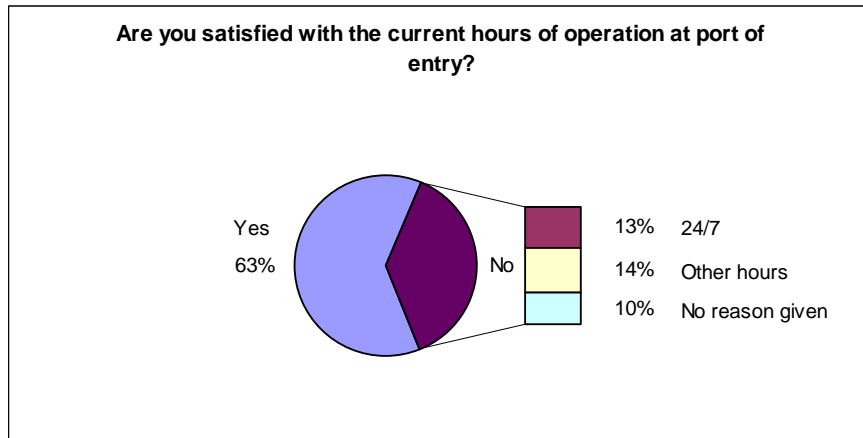


Figure 5-3: Acceptance of Hours of Operation at Port of Otay Mesa

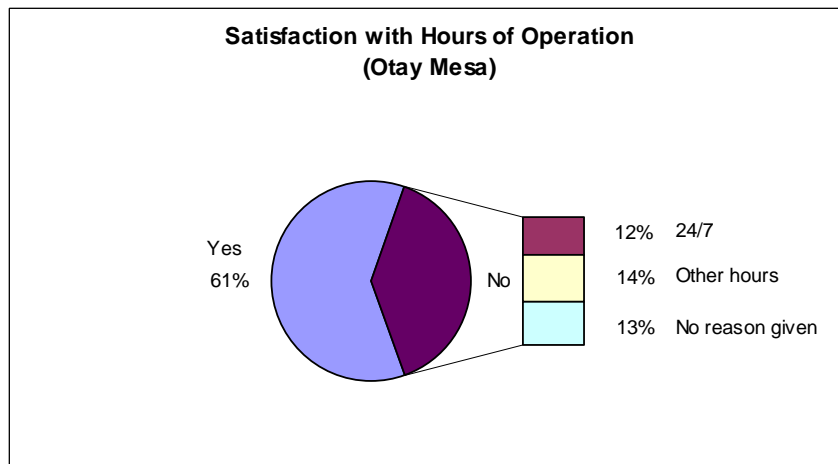


Figure 5-4: Acceptance of Hours of Operation at Port of Calexico

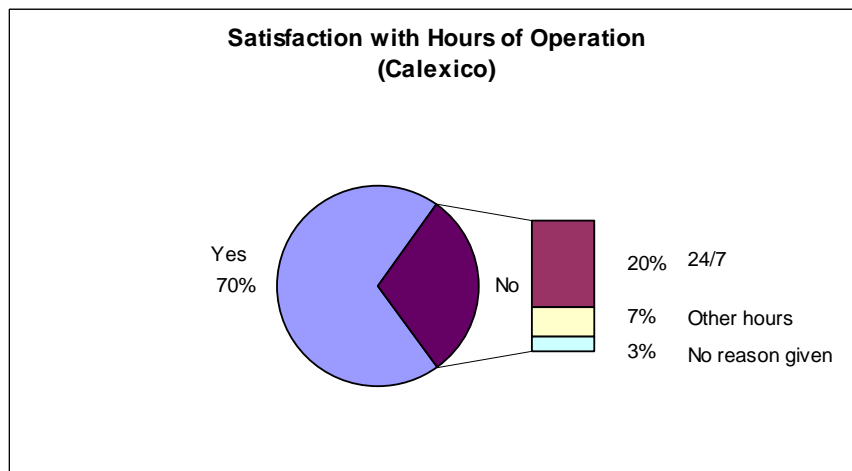
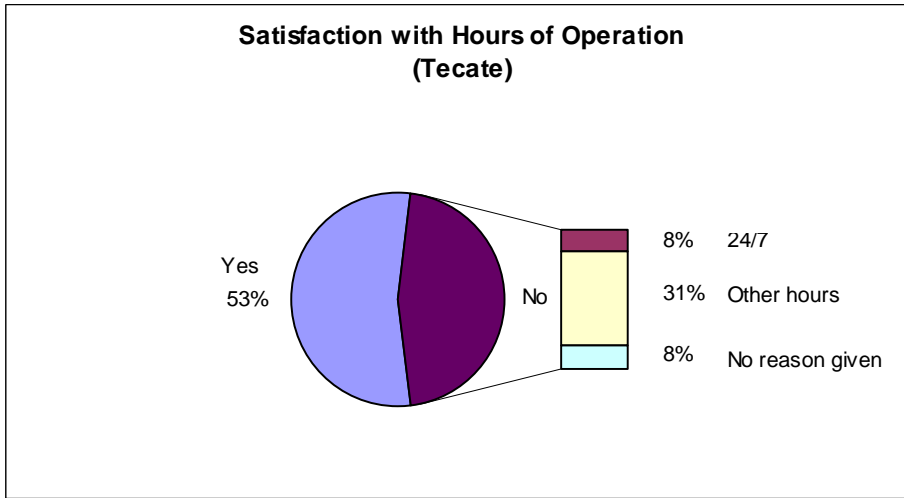




Figure 5-5: Acceptance of Hours of Operation at Port of Tecate



Respondents were asked to estimate how long it takes for trucks to cross the port of entry. The estimated time includes all processing and waiting time from when a truck arrives at one side of the border, completes the export process, crosses the border, and completes the import process and any other inspections required to enter the country. It may include multiple waiting lines prior to exiting and before entering the U.S. and Mexico on both sides of the border. Many respondents provided a range rather than a single estimate but, in general, responses ranged from less than an hour to as much as six hours (one response) with an average of about two hours. In the response distribution shown in Figure 5-6, most responses fell between two to three hours. The aggregate results for all three ports are shown in Figure 5-6. Times at the individual ports vary, with Calexico showing the shortest time to cross the border. There is also a difference in time to cross the border indicated by the different types of companies as shown in Figure 5-7. One would expect there would be little or no difference in the time to cross the border experienced by the companies in the different categories, other than shippers of agricultural goods that undergo specific additional inspections. As mentioned in Section 4, companies in all categories could be part of the same movement, i.e., a shipment destined to or from a maquiladora may be facilitated by a broker and executed by a transportation provider. The difference could be caused by different impressions depending on the type of company and the level of direct involvement in the actual crossing of the border.

Figure 5-6: Estimated Average Time Needed to Cross the Border

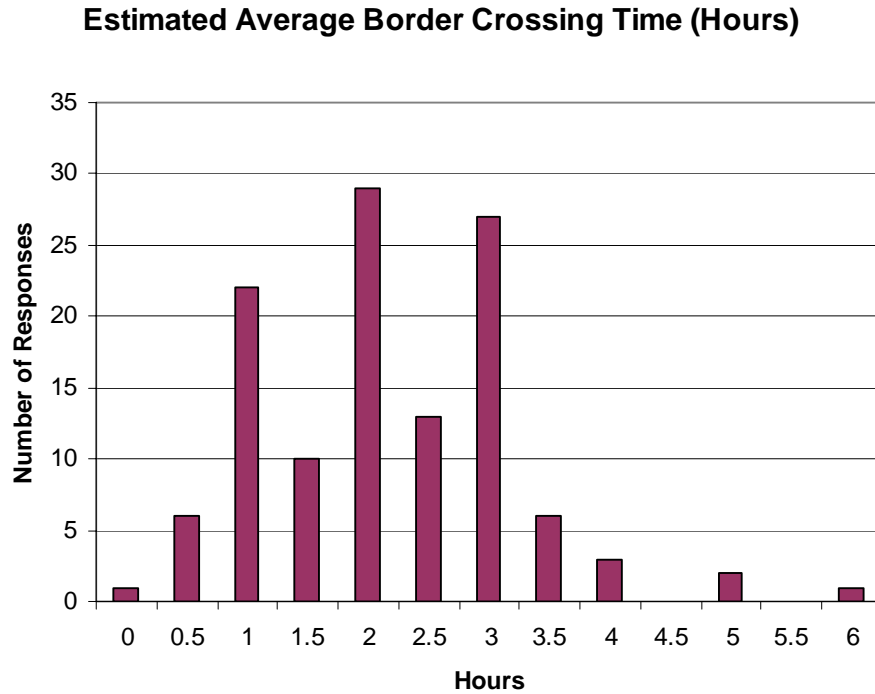
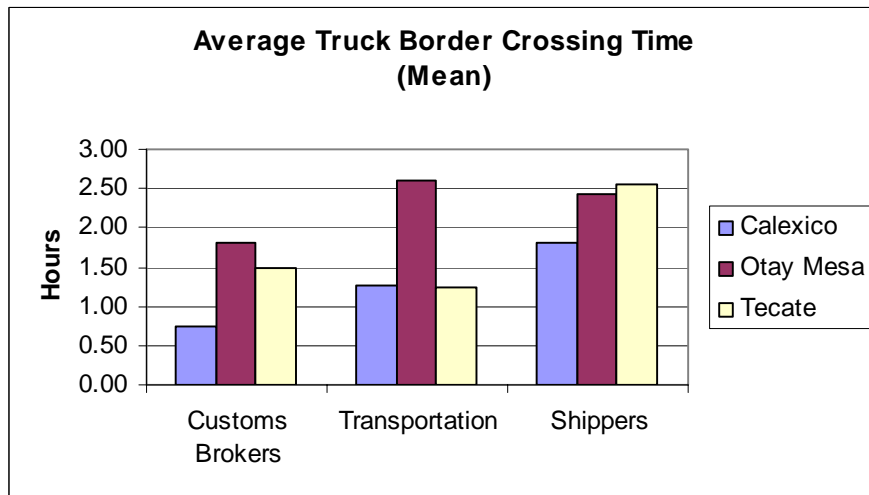
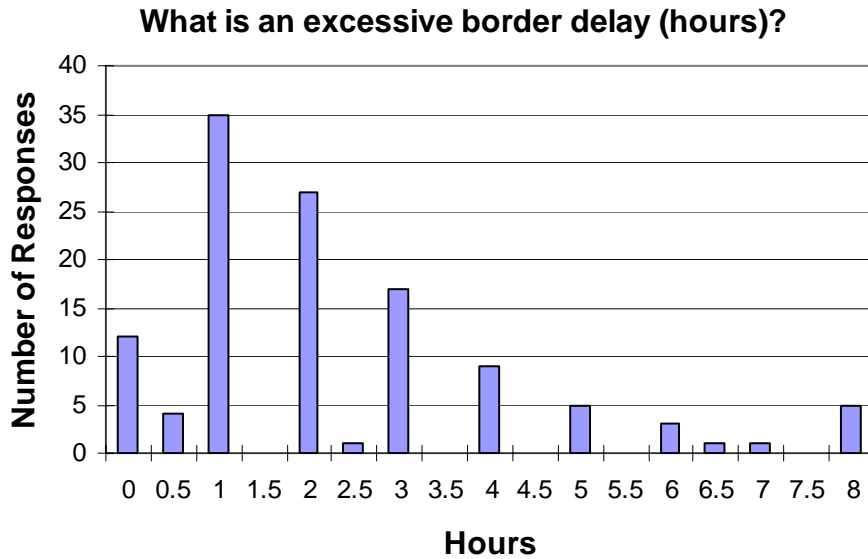


Figure 5-7: Average Time Needed to Cross the Border by Port and Category of Company



Respondents were then asked what they considered to be an excessive time required to cross the border. The average response was slightly greater than two hours but responses ranged from “0” (any delay is excessive) up to eight hours. What is not known is whether respondents meant that an eight hour delay which they had experienced was excessive or if they considered any delays less than eight hours not to be excessive. The most common response was one hour, indicating that many respondents consider current processing times to be excessive. The results for all respondents are shown in Figure 5-8 below.

Figure 5-8: What Amount of Time Constitutes an Excessive Border Delay?



Respondents were asked to provide their opinions for the traffic congestion at the ports. The aggregate data provides little useful information, but a look at the port-specific answers can provide insight into particular issues at each port. The overall majority of respondents points to operational issues such as hours of operation and lack of inspectors as the reason for congestion at the port. However, a closer look at the results provided in Figure 5-9 through Figure 5-11 shows that port infrastructure is a major concern at Tecate and somewhat of a concern at Calexico and Otay Mesa. Further, Otay Mesa is the only port that has a significant number of respondents pointing to road infrastructure leading to/from the port as a reason for congestion. This further underscores the need for these types of improvements also demonstrated by answers provided in Section 5.2 .

Figure 5-9: Perceived Causes of Traffic Congestion at Otay Mesa

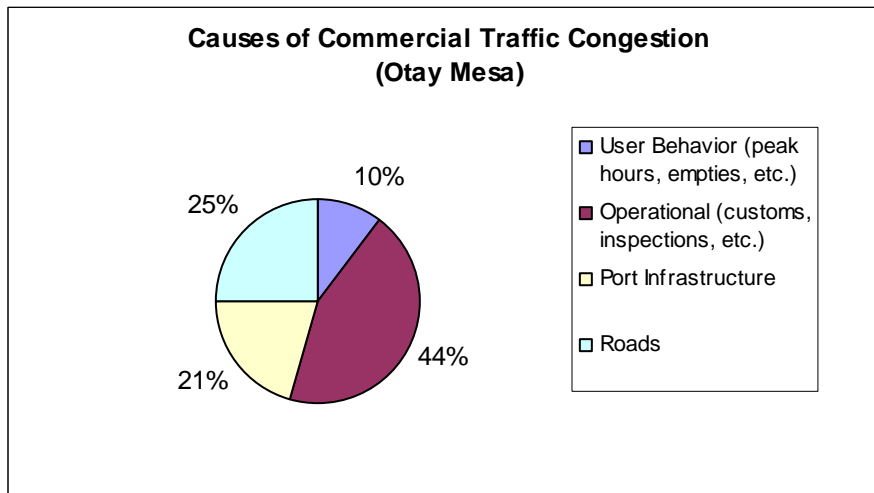


Figure 5-10: Perceived Causes of Traffic Congestion at Calexico

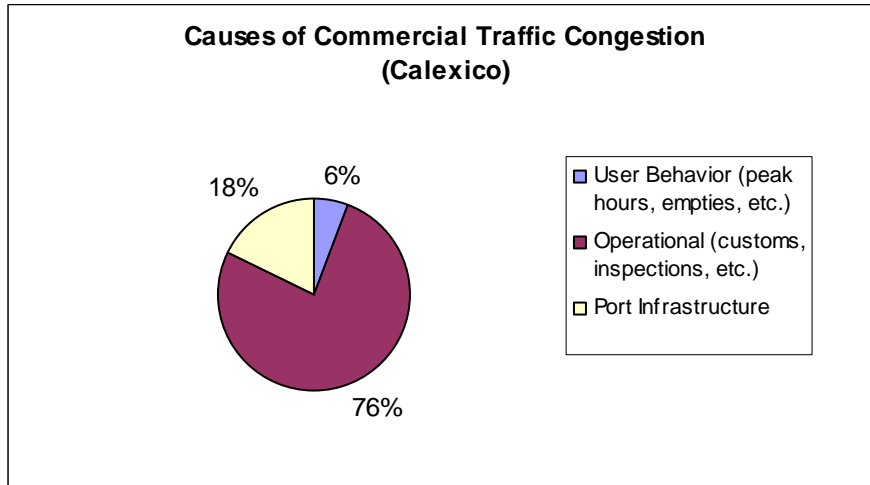
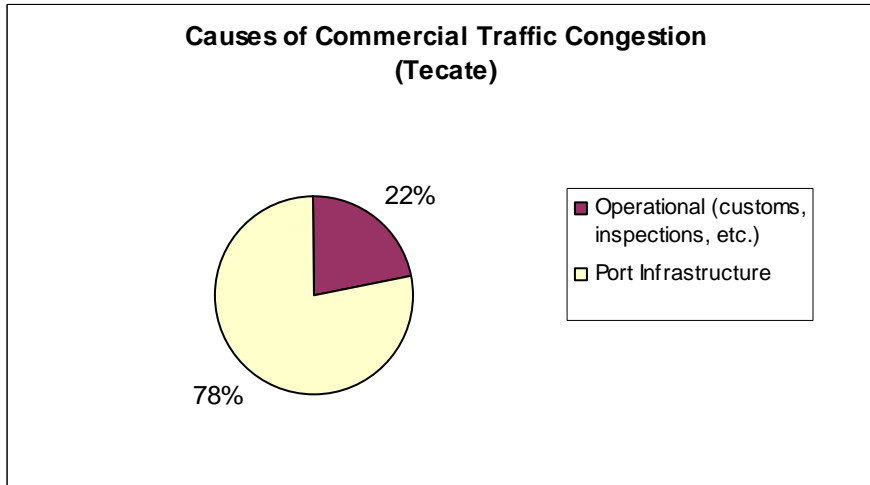


Figure 5-11: Perceived Causes of Traffic Congestion at Tecate



One can expect that delays at the Tecate Port of Entry will improve as the result of the expansion of the Tecate Border Station being carried out by the General Services Administration. This will include a new Vehicle Inspections Building built with support features, including a new canopy; a new Commercial Truck Inspection Operation facility; expansion of the original 2-acre site into a 14-acre site to accommodate the added inspection requirements; new two lane Primary and six lane Secondary spaces, as well as three-bay commercial truck inspection dock; and routing of the North and Southbound commercial traffic from SR-188 to and from the commercial lot.

Respondents were asked to estimate the cost in dollars associated with border delays but most were unable to provide a realistic estimate of these costs. Additionally, shippers and brokers may not consider this part of their cost because the transportation companies actually incur the delays, even though the transport cost is ultimately recovered in transportation charges. The few respondents that did estimate the cost of delay gave responses ranging from no cost to tens of thousands of dollars per month. Further, some respondents indicated that the cost actually comes in the form of lost clients or lost business.

When asked if they would make changes in the way they operate if delays continue or increase at the border, nearly two-thirds said they would not make any significant changes. However, while few (less than 15%) brokers and transportation companies indicated they would change operations, nearly half of the shippers (about 45%) said they would change their operations if delays persist or increase. A few shippers said that they could not (or would not) make any changes – they feel they are efficient and do not see any need for change; a few felt that increased delays could result in loss of business that would eventually lead to business failure. The shippers that did indicate that they would make changes (about 45%) identified changes in one of three areas:

- (1) Changes in hours of operations and production schedules so that truck loading and border crossing times occur during less busy, less congested times of the day;
- (2) Crossing the border at a less congested Port of Entry; or
- (3) Changes in shipping schedules (without changing hours of operation) so that trucks arrive at the border during less busy times (e.g., delaying border crossing until first thing the next morning).

The most common changes proposed fell into this third category, which suggest that increasing delays could result in a leveling of demand throughout the day, leading eventually to the need for state and federal agencies on both sides of the border to reallocate resources to accommodate changes in traffic flow. At some point, border agencies may need to change hours of operation to accommodate this changing demand pattern.

In summary, respondents see current border crossing times as nearing what they consider to be excessive and, if delays increase, some shippers would consider changing where they cross the border or would change production and/or shipping schedules to take advantage of less congested times of day at the border. Some respondents would take advantage of longer operating hours at border crossings so that they could cross during less congested periods. Most respondents have not tracked the cost associated with border delays but those that have, estimate the monthly cost to be hundreds to thousands of dollars.

## **5.2 Suggested Improvements**

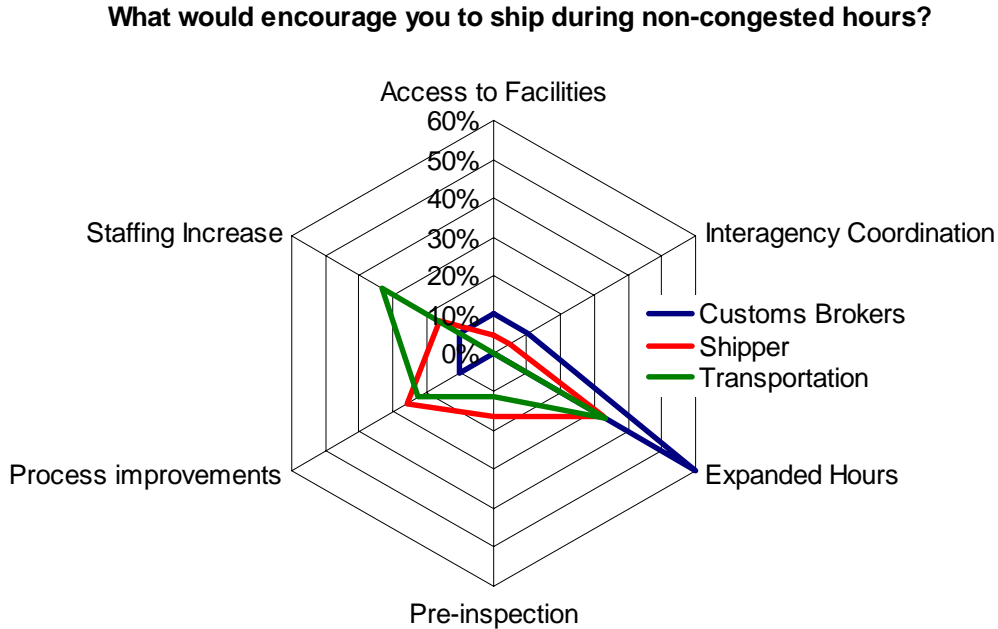
In addition to answering questions about their experience at the border, respondents were asked to suggest specific ways that the border crossing process could be improved. These potential improvements involve changes in border agency operations, transportation infrastructure improvements, and other border processes.

Respondents were asked what changes or improvements would encourage them to adjust the time of day that they cross the border so that they arrive during less congested periods.

In Figure 5-12, the radar chart reflects specific suggestions from 52% of the 120 companies surveyed. Of the respondents who offered suggestions, the most frequent responses indicated that companies would ship during less congested hours if border agencies offered longer hours of operation. However, many respondents (48%) did not offer any suggestions in response to this question and, as discussed in the previous section, most respondents have adapted to border agencies' current hours of operation. Other than longer hours, respondents suggested that improvements in processing speed and increasing the number of inspectors available might encourage them to cross the border during periods of less congestion. Several agricultural shippers suggested that inspection of agricultural products before they cross the border (pre-

inspection) would encourage them to cross during less congested times. The chart also shows that access to facilities and interagency coordination are not of major concern. The results broken down by category are shown in Figure 5-12.

Figure 5-12: Suggested Improvements



Respondents were then asked to suggest infrastructure changes leading to or from the port of entry that would facilitate their shipping. Some respondents felt no changes are needed; several others felt that changes are needed but did not offer specific suggestions. The radar chart in figure 5-13 reflects specific suggestions from 47% of the 120 companies surveyed. Of those that made specific suggestions, improvements in the road infrastructure, particularly on the Mexican side of the border, was by far the most common suggestion. The radar chart shows the responses by company type. Over half of the suggestions from each of the company types addressed the need for improvements in the roads leading to the border crossing. Others suggested more dock space at Customs facilities (capacity), more lines or lanes leading to Customs compounds (including dedicated lanes for empty trucks), and better traffic management and enforcement (more police) to manage traffic traveling to the border crossing facilities. A few respondents reiterated their desire for longer operating hours, better interagency coordination, and increased staffing for border agencies. The results broken down by category are shown in Figure 5-13 below. Port specific suggestions on infrastructure improvements are shown in Figure 5-14 through Figure 5-16. It can be seen that Calexico has the smallest percentage of suggestions for changes, or the highest level of satisfaction with the status quo. Otay Mesa experiences the highest percentage of suggestions for improvements to the road infrastructure, indicating a specific problem in this area at this port. The survey results are not specific to the location of the need for improvements.

Figure 5-13: Infrastructure Improvements Needed

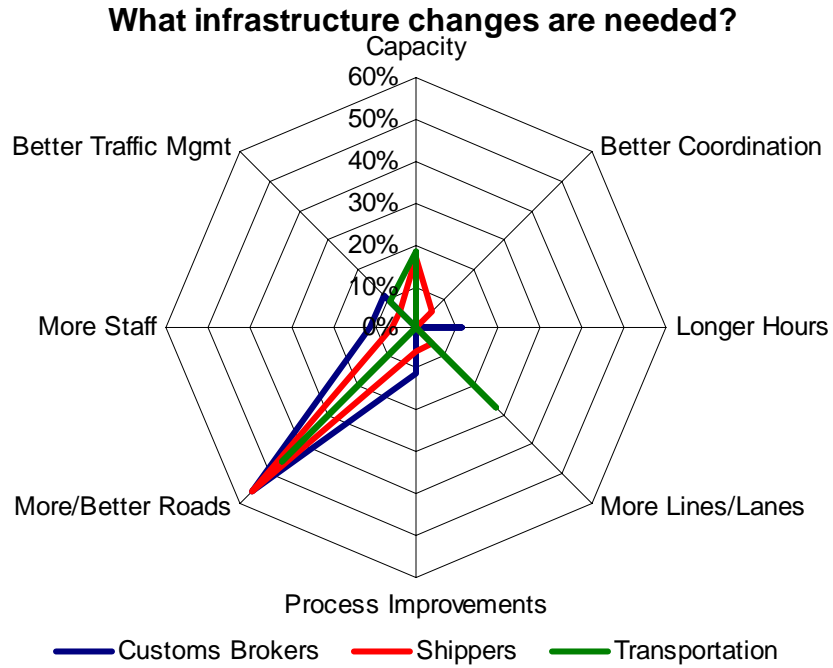


Figure 5-14: Suggestions for Infrastructure Improvements at Otay Mesa

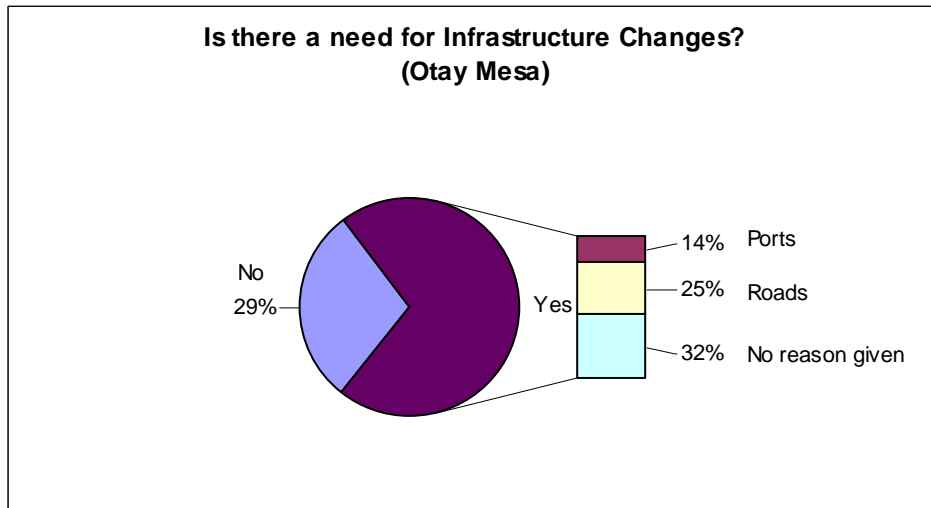


Figure 5-15: Suggestions for Infrastructure Improvements at Calexico

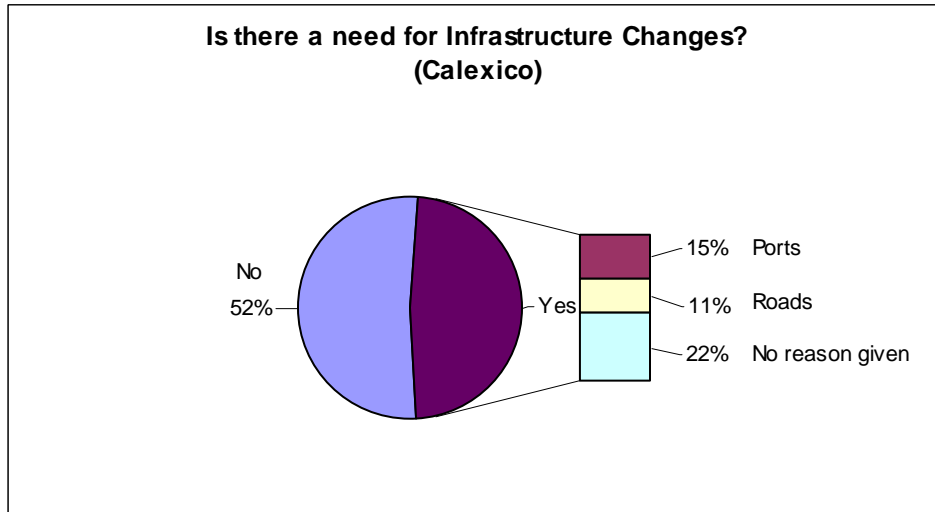
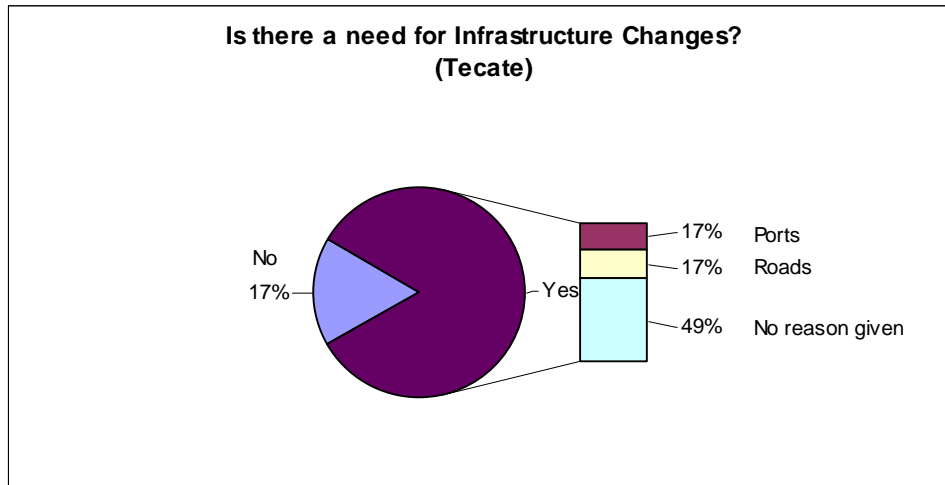


Figure 5-16: Suggestions for Infrastructure Improvements at Tecate



A few respondents requested that inspection agency personnel treat them more courteously and with greater respect. These respondents felt that inspection agency staff were arrogant and do not always process cargo as quickly as possible. Many respondents feel that the border crossing processes work reasonably well. As seen in the graphs presented in this section, most agree that current hours of operation are adequate but would appreciate longer hours so that they could plan border crossings for less congested times. Many felt that road improvements and better traffic management on roads approaching the border, would improve the border crossing process.



## 6. RECOMMENDATIONS

A survey of this nature identifies many possible improvements, including changes in processes and operating policies and improvements in the road infrastructure. Some of these suggestions reflect the ideas and experience of some brokers, shippers (maquiladoras, shippers non agricultural, and agricultural), or transportation companies; others are more widely supported across locations, and company types and sizes. The recommendations offered below reflect these suggestions along with the direct observations and experience of the study team members, who can combine the results of this survey with many days of observation of and interaction with members of the trade community and with state and federal border inspection agencies.

With the creation of the Department of Homeland Security, and the reorganization of the U.S. Customs Service under the Bureau of Customs and Border Protection (CBP), it is difficult to tell at this point how the reorganization will impact commercial border crossing traffic at California's ports of entry. The agency is presently formulating its approach to border security and it is early to say what will change.

The recently implemented 24-hour rule<sup>\*</sup> applies to sea containers at present. CBP currently has programs that give processing advantages to low risk commercial carriers and shippers and give Customs inspectors adequate time to review manifest and entry documents prior to the arrival of commercial cargo. The Carrier Initiative Program (CIP) identifies low risk commercial motor carriers and their drivers that meet certain criteria; shippers that pre-file entry in advance of arrival<sup>#</sup> or participate in BRASS avoid some processing delays at the border. However, none of these programs was specifically designed to address issues that the 24-hour rule addresses, i.e., the threat of weapons of mass destruction (WMD) in cargo. CBP will likely develop and implement procedures similar to the 24-hour rule to enhance border security at land border crossings. The challenge will be for the trade community to work with CBP to ensure that new requirements are implemented in ways that allow safe and legal cargo to cross the border efficiently. Based on the responses received from surveyed companies, any improvements made in processes, operating policies or infrastructure needed to address current deficiencies or new requirements would be welcome.

An additional consideration is the future implementation of the Customs-Exit-Control (Section 110 of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996), which requires the establishment of a data control system by the end of 2004 for people entering and exiting the U.S., including commercial vehicles drivers.

The following are specific recommendations to improve the flow of goods through the California/Baja California ports of entry:

**L** **Performance Monitoring.** Most border inspection agencies measure traffic volume, entries processed, inspections performed, and inspection results. Few measure processing times and associated waiting times for drivers and cargo. Strategic goals of the Border and Transportation Security Directorate include improving border security,

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<sup>\*</sup> The 24-hour rule requires U.S. Customs receive manifest information concerning containers to be shipped by sea at least 24 hours prior to loading so that Customs has the opportunity to review for possible further inspection before the vessel departs for a U.S. port.

<sup>#</sup> Prefiling may occur anytime from one to several days in advance of the arrival of the cargo at the border. The primary purpose of prefiling is to provide the Customs Document Control Unit (DCU) time to review the entry and other information about the shipper, cargo, and consignee to determine whether or not it should be selected for further action, including intensive inspection. This review addresses trade compliance issues, contraband interdiction, and other commercial cargo issues. It was not designed specifically to identify cargo associated with WMD or terrorist activity but can contribute to that effort.

while at the same time facilitating the unimpeded and reliable flow of commerce and people through the ports of entry. Without appropriate performance measures, agencies have no way of knowing how well they are moving safe and legal vehicles, drivers, and cargo, and are unable to identify opportunities for improvement. Currently available technologies can be used to implement performance measures for traffic flows without compromising either proprietary data (for shippers) or sensitive law enforcement information (for inspection agencies). ***Inspection agencies and transportation agencies should develop and implement effective performance measures and standards for these measures, as well as monitor and report results on a regular basis.*** These performance measures should include:

- Total time to cross the border from the time the vehicle enters the first processing queue on one side of the border until it is released on the other side of the border (stratified by type of process – e.g., BRASS, formal, agricultural, informal, empty truck, HAZMAT) so that border agencies and shippers monitor processing time performance and transportation agencies can identify where delays are occurring and allocate resources appropriately to make needed improvements.
- Numbers of vehicles processed by location, type of process, and hour of day so that both shippers and inspection agencies know when processing volumes are greatest and inspection agencies can tailor hours of operation to accommodate changing demand patterns. At the same time, this will enable shippers, brokers and transportation companies to modify in their shipping schedules to take advantage of less congested crossing times.
- Number of primary gates operating by hour of day and day of week so that agencies and shippers have a better understanding of how border crossing times are affected by the way agencies allocate staff resources.

Performance measures reported to shippers and other private sector entities should not include any information about inspection times, inspection rates, inspection selection criteria, inspection methods, or levels of compliance. All of this information is considered law enforcement sensitive and should be treated accordingly.

**L** ***Road Infrastructure Improvements.*** Studies have been conducted to investigate the specific needs for road improvements on both sides of the border, with particular emphasis on highways and roads leading to the border crossings. Road improvements are particularly needed at Otay Mesa (both sides of the border) due to the high and growing volume of commercial cargo traffic and the high value cargo crossing the border at that location. The challenge for government authorities on both sides of the border will be to secure the necessary funding to make improvements. Coupled with enhancements to operating policies, ***a more balanced investment in road infrastructure could improve the cross border flow of commercial cargo.***

**L** ***Dedicated Lanes for Expedited Processes.*** In most ports of entry, inspection agencies have established dedicated primary gates for empty trucks and for entries participating in an expedited processing program (e.g., BRASS). Through BRASS and similar programs, the former U.S. Customs developed and implemented means for expediting movement of low risk cargo into the U.S. with minimum delay. However, in most cases, the lanes leading to primary gates where expedited processing occurs are not controlled nor is there any way to separate empty trucks that participate in the

expedited system from the rest of the vehicles. Unfortunately, during periods of peak congestion, the vehicles that participate in an expedited processing program experience significant waiting because of the long lines prior to primary processing. ***Whenever possible, local, state, and federal agencies should find ways to provide dedicated lanes of sufficient length to allow empty and expedited processing cargo to move quickly to the dedicated primary processing gates without waiting behind formal and informal entries that will need more time at primary and in the cargo compound.*** Implementation of this process may require significant traffic management using either technology or personnel (but not necessarily inspectors) to ensure that drivers remain in designated lanes. In addition, the expedited processing programs should be expanded to increase the number of firms enrolled.

**L** ***Increased Inspection Agency Staffing and Resource Management, Including the Use of Technology.*** With current concerns about homeland security, inspection agency personnel have an enormous responsibility to protect the U.S. from terrorists that would bring weapons of mass destruction (WMD) into the U.S. hidden in trucks, shipping containers, or cargo entering the U.S. through seaports, airports, and land border crossings. Because of this situation, state and federal inspection agency personnel are stretched to their limits inspecting more trucks and cargo. Inspection agencies have done a remarkable job fulfilling these responsibilities. In some cases, this increased inspection activity reduces staff available for regular cargo processing activities. ***Inspection agencies need adequate personnel to staff as many primary gates as necessary to keep trucks and cargo moving efficiently across the border and to process entries (document review, research, and inspection) inside the cargo compounds on both sides of the border.***

Along with this increase in staffing, agency managers need better tools to manage resources so that they know how best to allocate available personnel to optimize their use in primary gate processing and cargo inspection activities to ensure effective cargo review and inspection and efficient flow of vehicles and cargo to, into, and through the compound. Tools do exist to track real time workload movement, such as PASS (Primary Access Security System), developed in El Paso, which, through the use of pass cards, enables inspectors to monitor the overall status of the compound. ***Real-time resource allocation tools should be developed to allow a more efficient allocation of inspectors and technology where they are needed most as dictated by workload requirements.***

**L** ***Longer and More Flexible Operating Hours.*** While most (63%) of brokers, shippers, and transportation companies have adapted to current operating hours, 37% expressed a desire for either different or longer operating hours. Of the 37%, 13% want 24/7 operations so that so that they can reduce their border crossing delays by taking advantage of less congested periods. ***Inspection agencies and other entities involved in border crossing processes (financial institutions, brokers, and shippers) should consider expanding hours of operation or modifying time of day restrictions on the types of vehicles and entries allowed into cargo compounds to provide greater flexibility to shippers and transportation companies*** that must move cargo across the border. These time of day restrictions are on a port-by-port basis and are determined by port directors in consultation with others. Restrictions depend on resources, demand, facilities, etc., and are negotiated or determined based on overall needs and capabilities. In the case of Otay Mesa, for example, from 6:00 am to 7:00 am, only empty vehicles are processed. BRASS and informal/formal entries (as well as

empties) are processed later throughout the day. Changes in operating hours will necessarily affect personnel and other resource requirements so this recommendation must be considered along with recommended increases in staffing and technology for inspection agencies.

**L** ***Bi-National, Interagency Cooperation.*** At many border-crossing locations, Customs officials on both sides of the border have excellent working relationships and keep each other informed of events or activities that will affect border-crossing traffic. For example, Customs officials from both sides of the border at Otay Mesa meet monthly to address issues. However, generally speaking, this coordination and cooperation is largely *ad hoc* and depends on relationships among agency managers. ***Border management can be improved if this interaction were institutionalized so that border agencies had greater information about approaching traffic and planned events that may affect traffic flow.*** This can be accomplished through technology (e.g., shared traffic data, television cameras), routine communications, and other techniques designed to keep agencies informed and allow them to coordinate activities. This coordination activity should be extended to state and federal agencies on both sides of the border.

**L** ***Cost of Delays.*** The primary problem encountered at the border is the amount of time needed to cross the border. While the most common response to the survey question of what delay would be considered excessive was one hour, the mean time required to complete all of the transactions necessary to cross the border, including traffic delays at or near the border and waiting times at the port of entry was approximately two hours. One can therefore conclude that respondents consider current processing times to be excessive. While most companies surveyed were unable to provide details on the financial impacts that border delays have on their bottom line, the delays at the border clearly do have financial costs because, in addition to delaying cargo movement, they tie up vehicles and drivers, both of which are costly resources to shippers and transportation providers. ***Regional entities with interests in economic development and productivity should identify the economic impacts and costs of delay to justify investments that reduce or eliminate delays to shippers and promote efficient use of physical infrastructure and agency resources.***

## Conclusion

Results of the border trade survey presented in this report indicate several areas where investments can improve the way the border works for both the trade community and the federal, state, and local agencies with border responsibilities. Infrastructure improvements, changes in operating policies, and deployment of enabling technologies would all improve the performance of the border and reduce its negative impact on the supply chain.

The survey data indicate that companies that use the land ports along the California-Mexico border adapt to the conditions they encounter when crossing the border, despite sometimes experiencing substantial delays or constraints on when they can cross the border.

In addressing deficiencies at the border, respondents were concerned about the infrastructure approaching and leaving the ports of entry both northbound and southbound on both sides of the border. Road improvements in particular were mentioned as one of the main needs at the Otay Mesa border crossing. The lack of adequate infrastructure is a contributing factor to delays, particularly as this relates to congestion in the border queues prior to entering the border complex.

It is also interesting to note that while few (less than 15%) brokers and transportation companies indicated they would change operations if delays persist, nearly half of the shippers (about 45%) said they would change their operations if delays persist or increase. The changes they would consider are changes in shipping schedules (without changing hours of operation) so that trucks arrive at the border during less busy times (e.g., delaying border crossing until first thing the next morning). As the border is already under capacity constraint, no real demand leveling can be expected. The early hours are dominated by empties with a steady rise of BRASS, formal and informal entries during the morning hours until demand levels throughout the afternoon. Delaying shipments from the afternoon to the next morning could lead to an increase in congestion in the morning; leading to an earlier build-up of longer queues, i.e., changes in shipping patterns cannot be expected to eliminate congestion at the border. Furthermore, the survey also shows that shippers schedule goods movement based on production schedules and prevailing conditions. Since brokers and transportation companies respond to the needs of shippers, changes in shippers' transportation preferences or requirements would naturally lead to changes in the way brokers and transportation companies operate, considering the possibility of extended hours of operation.

As mentioned, the survey shows that shippers schedule goods movement based on production schedules. That is, as goods are produced, they are packaged, loaded into trucks and driven to destinations. Maquiladora plants may manufacture or assemble products that are transported across the border throughout the day. Hence, changing their shipping patterns in response to the delays will likely adversely impact their operation as they will increase the inventory at either the production facility or the assembly or distribution point in response to the changed shipping schedule. Further, if increasing delays result in a leveling of demand throughout the day, this would eventually create the need for state and federal agencies on both sides of the border to reallocate resources to accommodate changes in traffic flow. At some point, border agencies may need to change hours of operation to accommodate this changing demand pattern. Other than longer hours, respondents suggested that improvements in processing speed and increasing the number of inspectors available might encourage them to cross the border during periods of less congestion.

In summary, changes should be made in an integrated fashion such as addressing infrastructure in conjunction with providing extended dedicated lanes for empty trucks and for entries participating in an expanded processing program. This would ease overall congestion by moving these trucks out of the general queue. Finally, measuring the activity at the port and the performance more closely will allow for better analyses of trends in the future.

## APPENDICES

# **Appendix A**

## **Survey Instrument**



**Office use only-Solo para uso interno**

Fecha /Date \_\_\_\_\_

In person \_\_\_ Fax \_\_\_ Phone \_\_\_

**Parte I / Part I**

**Datos Generales / General Information**

1. Nombre de la empresa  
*Name of the Company* \_\_\_\_\_

2a. Dirección de la planta (Ciudad, Estado, País, Colonia, si aplica)  
*Facility/Plant address (street, city, state, country, colonia, if applicable)* \_\_\_\_\_

2b. Dirección Corporativa de casa matriz (si es diferente)  
*Headquarters address (if different)* \_\_\_\_\_

3. ¿Cómo describiría a su empresa?  
*Which best describes your company?*

\_\_\_\_\_ Agente aduanal \_\_\_\_\_ U.S. \_\_\_\_\_ México  
*Customs Broker*

\_\_\_\_\_ Exportador/ Importador No-agricultor  
*Shipper Non-agricultural*

\_\_\_\_\_ Exportador/ Importador Agricultor  
*Shipper Agricultural*

\_\_\_\_\_ Maquiladora Ensambladora  
*Maquiladora Non-manufacturer*



**Survey and Analysis of Trade and Goods Movement Between California and Baja California, Mexico**

- \_\_\_\_\_ Maquiladora Fabricante  
*Maquiladora Manufacturer*
- \_\_\_\_\_ Transportista  
*Transportation Company*
- \_\_\_\_\_ Otro (especifique) \_\_\_\_\_  
*Other (specify)*

4. ¿Qué puerto de entrada utiliza más frecuentemente para transportar su(s) producto(s)?  
*Which port of entry do you use most frequently for trans-border shipments?* \_\_\_\_\_ Otay Mesa \_\_\_\_\_ Tecate \_\_\_\_\_ Calexico

¿Usa usted algún otro puerto de entrada? Si su respuesta es sí, ¿cuál?  
*Do you use other crossings as well? If yes, which?*

\_\_\_\_\_ No \_\_\_\_\_ Sí \_\_\_\_\_  
\_\_\_\_\_ Yes \_\_\_\_\_

¿Cuál puerto?  
*Which port?* \_\_\_\_\_

5. Número de empleados en esta dirección  
*Number of employees at this site*

	Tiempo Completo <i>Full Time</i>	Tiempo Medio <i>Part Time</i>	Temporal <i>Temporary</i>
Turno de Mañana <i>Morning Shift</i>	_____	_____	_____
Turno de Tarde <i>Afternoon Shift</i>	_____	_____	_____
Turno de Noche <i>Night Shift</i>	_____	_____	_____
No. Total de empleados <i>Total employees</i>	_____	_____	_____

**Survey and Analysis of Trade and Goods Movement Between California and Baja California, Mexico**

6. ¿Cuáles son los productos principales de su empresa?  
*What are your company's main products?*

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

**Importaciones / Inbound Shipments**

7. Qué porcentaje de materia prima es recibido en:  
*What percentage of raw material shipments is delivered to you in:*

\_\_\_\_\_ % Contenedores    \_\_\_\_\_ % Plataformas    \_\_\_\_\_ % Trailer    \_\_\_\_\_ % Otros    \_\_\_\_\_ No aplica  
*Containers                      Flat Beds                      Box Trailers                      Others                      Not applicable*

8. ¿Qué tipo de materia(s) prima(s) usa?  
*What raw materials do you use?*

Frecuencia, modo de transporte (camión, tren, barco, etc.) tamaño de contenedor y clase (contenedor, trailer o plataforma)  
*How often, by what mode (truck, train, ship, etc.), what size container and what type (container, trailer, flat bed)*

<i>Materia Material</i>	<i>País y Estado de Origen Country and State of Origin</i>	<i>Embarques por día Shipments per day</i>	<i>Modo Mode</i>	<i>Tamaño Size</i>	<i>Clase Type</i>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

**Survey and Analysis of Trade and Goods Movement Between California and Baja California, Mexico**

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9. ¿Cuántos vehículos comerciales que cruzan la frontera recibe su empresa por día?  
*How many cross-border commercial vehicles does your company receive each day?* \_\_\_\_\_

De Mañana (6:00 am a 12:00 pm)  
*Morning* \_\_\_\_\_

De Tarde (12:00 pm a 6:00 pm)  
*Afternoon* \_\_\_\_\_

De Noche (6:00 pm a 6:00 am)  
*Night* \_\_\_\_\_

**Embarcaciones / Outbound Shipments**

10. ¿Cuáles son los destinos más frecuentes de su(s) producto(s)? (Incluya ciudad, estado y país. Si su(s) destino(s) es(son) en el Sur de California, incluya dirección, calle más cercana y código postal.)

*What are the most frequent destination(s) of your product(s)? (Include city, state, and country. If in Southern California, include address, cross street and zip code.)*

<i>Producto Product</i>	<i>Primer Destino First Destination</i>	<i>Próximo Next</i>	<i>Próximo Next</i>	<i>Ultimo Destino Ultimate Destination</i>
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

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11. ¿Qué tipo de transporte usa para embarcar su(s) producto(s), y con cuánta frecuencia embarca?  
*What type of transportation do you use to ship your product(s), and how often do you ship?*

Producto <i>Product</i>	Camión <i>Truck</i>	# de Ejes # of Axles <i>(incluyendo tractores/ including tractors)</i>	Tren <i>Train</i>	Barco <i>Ship</i>	Otro <i>Other</i>	Frecuencia (Embarques por ____) <i>Frequency (Shipments per ____)</i>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

12. Qué porcentaje de camiones que salen de su planta van:  
*What percentage of trucks you send out, go out:*

\_\_\_\_\_ % Vacíos                      \_\_\_\_\_ % Parcialmente vacíos                      \_\_\_\_\_ No aplica  
*Empty*                                      *Partially empty*                                      *Not applicable*

13. ¿Cuál es el peso promedio de sus embarcaciones por camión? \_\_\_\_\_ (Indique libras, kilogramos o toneladas)  
*What is the average weight of your products per truck? \_\_\_\_\_ (Indicate pounds, kilograms or tons)*

14. Qué porcentaje de sus producto(s) envía usted en:  
*What percentage of your shipments do you send out in:*

\_\_\_\_\_ % Contenedores                      \_\_\_\_\_ % Plataformas                      \_\_\_\_\_ % Trailers                      \_\_\_\_\_ Otros  
*Containers*                                      *Flat Beds*                                      *Box Trailers*                                      *Others*

15. De los contenedores que embarca, qué porcentaje son de:  
*Of the containers you ship, what percentage are:*

48 pies/ft.                      53 pies/ft.                      Otro (especifique)  
*Other (specify)*

\_\_\_\_\_ %                      \_\_\_\_\_ %                      \_\_\_\_\_

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16. ¿Cuántos vehículos comerciales embarca su empresa diariamente, independientemente del propietario?  
*How many commercial vehicles regardless of ownership does your company send out each day?*

De Mañana  
*Morning* \_\_\_\_\_

De Tarde  
*Afternoon* \_\_\_\_\_

De Noche  
*Night* \_\_\_\_\_

**Parte II – Para Alta Gerencia / Part II – For Senior Management**

Favor de reconfirmar el Puerto de entrada que utiliza su empresa con más frecuencia:  
*Please reconfirm which port of entry is the most frequently used:* \_\_\_\_\_ Otay \_\_\_\_\_ Tecate \_\_\_\_\_ Calexico

1. ¿Cuáles son los factores más importantes que determinan la(s) hora(s) de embarque de su(s) producto(s)?  
*What are the most important factors that determine the time of day you ship your products?*

2. ¿Está usted satisfecho con las horas de operación del puerto de entrada que utiliza usted más frecuentemente?  
*Are you satisfied with the hours of operation in effect at the port of entry you use most frequently?*

Sí \_\_\_\_\_ No \_\_\_\_\_ Si no, ¿qué horario preferiría? \_\_\_\_\_  
*If not, what hours would you prefer?*

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3. ¿Existe algún cambio que se pueda hacer o algún servicio adicional que pueda ser ofrecido por las agencias estatales y federales de inspección, agentes aduanales o bancos que le motive a embarcar su(s) producto(s) en horas no-congestionadas?  
*Are there some changes that could be made, or additional services that could be offered by state and federal inspection agencies, customs brokers, or banks that would encourage you to ship during non-congested hours?*
4. ¿Hay necesidad de cambios en la infraestructura urbana conduciendo al, o saliendo del puerto de entrada que facilitara sus embarques?  
*Are there any infrastructure changes needed leading to or from the port of entry you use most frequently that would facilitate your shipping?*
5. ¿Cuál es el problema principal en el congestionamiento del puerto comercial que utiliza más frecuentemente y cómo se puede mejorar?  
*What do you see as the main problem that causes commercial traffic congestion at the port of entry and how could it be fixed?*
6. En promedio, ¿cuánto tiempo tardan sus camiones en cruzar la línea?  
*On average, how long does it take your trucks to cross the border?*
7. En número de horas, ¿cómo definiría ud. una demora excesiva en la frontera?  
*In number of hours, what do you consider to be an excessive border delay?*
8. ¿Puede decirnos cuánto dinero le cuestan las demoras de cruce a su empresa, por mes o por año?  
*Can you estimate how much money border waits cost your business, per month or per year?*
- \_\_\_\_\_ Mes/Month \_\_\_\_\_ Año/year

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9. Si las demoras persisten o se incrementan, ¿consideraría su empresa hacer cambios?  
*If delays persist or increase, would your firm consider making changes?*
10. Si su respuesta es sí, ¿que tipo de cambios?  
*If so, what sorts of changes?*
11. ¿Cuál fue el valor aduanal aproximado de sus embarques en el 2001? (indique el rango que se aplica)  
*What was the approximate total Customs value of the products you shipped during 2001? (pick the range that applies)*

(En millones/In millions)

- \$1-5            \_\_\_\_\_
- \$5-10          \_\_\_\_\_
- \$10-25        \_\_\_\_\_
- \$25-50        \_\_\_\_\_
- \$50-100       \_\_\_\_\_
- \$100-200      \_\_\_\_\_
- \$200-500      \_\_\_\_\_
- Más de \$500   \_\_\_\_\_

## **Appendix B**

### **Part I Survey Results**



**Question 3:**

**Company Type (Input for Figure 4-1)**

	Company Type						
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company	Total
Company Count	15	29	31	9	21	15	120

**Question 4a:**

**Most Frequently Used Port (Input for Figure 4-2)**

Most Frequently Used Port	Company Type						Total
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company	
<b>Calexico</b>	4	4	8	4	6	4	30
<b>Otay Mesa</b>	9	21	18	5	15	9	77
<b>Tecate</b>	2	4	5			2	13
<b>Total</b>	15	29	31	9	21	15	120

**Question 4b:**

**Alternate Port Used (if applicable)**

Most Frequently Used Port	Company Type						Alternate Port
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company	
<b>Calexico</b>	1						<b>Ensenada</b>
	1		1				<b>S.L.R.C.</b>
	2				1		<b>Otay Mesa</b>
			1				<b>San Luis, Sonora</b>
<b>Otay Mesa</b>	1				2	1	<b>Calexico</b>
	2	1	3				<b>Ensenada</b>
		2				6	<b>Tecate</b>
		1					<b>Laredo</b>
<b>Tecate</b>			1			1	<b>Calexico</b>
		1					<b>Otay Mesa</b>
<b>Total</b>	7	5	6	0	3	8	29

**Question 5:**

**Employee Count (Input for Figure 4-3)**

Size of Company (Based on # of Employees)	Company Type						Total
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non- Manufacturer	Shipper Agricultural	Shipper Non- Agricultural	Transportation Company	
<b>Small, &lt;50</b>	11	4	5	7	2	13	42
<b>Medium, 50-300</b>	4	10	11	2	12	2	41
<b>Large, 300-1,600</b>		14	14		6		34
<b>Xlarge, 1,600-15,000</b>		1	1		1		3
	15	29	31	9	21	15	120

**Question 6:**

**Company Products (Input to Figure 4-4)**

Product Type	Company Type						Total
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company	
<b>Components</b>	7	6	12		4	6	35
<b>Consumer Electronics</b>	4	4	6			4	18
<b>Other Consumer goods</b>	10	18	14		12	9	63
<b>Industrial Products</b>	7	1			5	4	17
<b>Perishables</b>	2			9	2	3	16
<b>Other</b>	3						3
<b>Grand Total</b>	33	29	32	9	23	26	152

**Question 7:**

**Percentage of Raw Materials Received - Inbound, (Input to Figures 4-6 - 4-11)**

	Company Type					
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non Agricultural	Transportation Company
Avg. % Raw Mat'ls Rec'd in Containers	24	35	30	0	0	25
Avg. % Raw Mat'ls Rec'd in Flatbeds	11	7	8	0	12	11
Avg. % Raw Mat'ls Rec'd in Trailer	59	48	44	56	82	50
Avg. % Raw Mat'ls Rec'd in Other	6	14	18	44	6	15
<b>Total %</b>	<b>100</b>	<b>103</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>101</b>

Question 7:

Statistical Analysis

	Company Type					
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
Raw Material Received in Containers	Count of % Raw Mat'ls Rec'd in Containers	Count of % Raw Mat'ls Rec'd in Containers	Count of % Raw Mat'ls Rec'd in Containers	Count of % Raw Mat'ls Rec'd in Containers	Count of % Raw Mat'ls Rec'd in Containers	Count of % Raw Mat'ls Rec'd in Containers
Mean	24.29	34.75	30.35	0.00	0.24	24.53
Standard Error	7.22	7.79	7.09	0.00	0.24	8.05
Median	20	10	0	0	0	20
Mode	20	0	0	0	0	0
Standard Deviation	27.02	41.24	39.49	0.00	1.09	31.17
Sample Variance	730.22	1700.64	1559.57	0.00	1.19	971.84
Kurtosis	4.13	-1.23	-1.28		21.00	0.46
Skewness	1.82	0.72	0.74		4.58	1.35
Range	100	100	100	0	5	90
Minimum	0	0	0	0	0	0
Maximum	100	100	100	0	5	90
Sum	340	973	941	0	5	368
<b>Count</b>	14	28	31	9	21	15
Confidence Level(95.0%)	14.16	15.27	13.90	0.00	0.47	15.78

	Company Type					
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
Raw Materials Received in Platforms	Count of % Raw Mat'ls Rec'd in Platforms	Count of % Raw Mat'ls Rec'd in Platforms	Count of % Raw Mat'ls Rec'd in Platforms	Count of % Raw Mat'ls Rec'd in Platforms	Count of % Raw Mat'ls Rec'd in Platforms	Count of % Raw Mat'ls Rec'd in Platforms
Mean	11.07	7.14	8.23	0.00	11.67	11.33
Standard Error	2.73	4.44	4.28	0.00	5.91	2.82
Median	10	0	0	0	0	10
Mode	10	0	0	0	0	0
Standard Deviation	10.22	23.51	23.82	0.00	27.08	10.93
Sample Variance	104.53	552.65	567.58	0.00	733.33	119.52
Kurtosis	-0.27	10.92	11.31		5.41	-1.45
Skewness	0.86	3.47	3.45		2.49	0.27
Range	30	90	100	0	95	30
Minimum	0	0	0	0	0	0
Maximum	30	90	100	0	95	30
Sum	155	200	255	0	245	170
<b>Count</b>	14	28	31	9	21	15
Confidence Level(95.0%)	5.36	8.71	8.39	#NUM!	11.58	5.53

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	Company Type					
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
<b>Raw Materials Received in Trailers</b>	Count of % Raw Mat'ls Rec'd in Trailer	Count of % Raw Mat'ls Rec'd in Trailer	Count of % Raw Mat'ls Rec'd in Trailer	Count of % Raw Mat'ls Rec'd in Trailer	Count of % Raw Mat'ls Rec'd in Trailer	Count of % Raw Mat'ls Rec'd in Trailer
Mean	58.57	47.68	44.00	55.56	82.14	50.13
Standard Error	7.62	8.41	8.13	17.57	6.75	8.49
Median	55	45	20	100	100	57
Mode	90	0	0	100	100	80
Standard Deviation	28.52	44.48	45.27	52.70	30.93	32.87
Sample Variance	813.19	1978.67	2049.67	2777.78	956.43	1080.27
Kurtosis	-0.30	-1.90	-1.89	-2.57	1.88	-1.29
Skewness	-0.34	0.07	0.27	-0.27	-1.73	-0.54
Range	100	100	100	100	100	90
Minimum	0	0	0	0	0	0
Maximum	100	100	100	100	100	90
Sum	820	1335	1364	500	1725	752
<b>Count</b>	14	28	31	9	21	15
Confidence Level(95.0%)	14.94	16.48	15.94	34.43	13.23	16.63

	Company Type					
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
<b>Raw Materials Received in Other</b>	Count of % Raw Mat'ls Rec'd in Other	Count of % Raw Mat'ls Rec'd in Other	Count of % Raw Mat'ls Rec'd in Other	Count of % Raw Mat'ls Rec'd in Other	Count of % Raw Mat'ls Rec'd in Other	Count of % Raw Mat'ls Rec'd in Other
Mean	6.07	13.64	17.74	44.44	5.95	14.67
Standard Error	3.40	6.15	6.52	17.57	3.96	8.99
Median	0	0	0	0	0	0
Mode	0	0	0	0	0	0
Standard Deviation	12.74	32.54	36.28	52.70	18.14	34.82
Sample Variance	162.23	1058.98	1316.40	2777.78	329.05	1212.38
Kurtosis	7.08	3.74	1.67	-2.57	11.52	4.20
Skewness	2.59	2.29	1.85	0.27	3.38	2.36
Range	45	100	100	100	75	100
Minimum	0	0	0	0	0	0
Maximum	45	100	100	100	75	100
Sum	85	382	550	400	125	220
<b>Count</b>	14	28	31	9	21	15
Confidence Level(95.0%)	6.67	12.05	12.77	34.43	7.76	17.62

**Question 8:**

**Materials Used – Inbound (Statistical Analysis & Input to Figure 4-11)**

	Customs Broker	Transportation	Shippers
Inbound Shipments/Day	Shipment Count / Day	Shipment Count / Day	Shipment Count / Day
Mean	77.29	15.93	8.79
Standard Error	29.05	5.19	1.67
Median	29.50	10.00	4.00
Mode	#N/A	5	3
Standard Deviation	108.70	20.08	15.87
Sample Variance	11816.68	403.35	252.01
Kurtosis	5.03	9.99	24.37
Skewness	2.20	3.01	4.70
Range	385	80	104
Minimum	5	3	1
Maximum	390	83	105
Sum	1082	239	791
<b>Count</b>	14	15	90
Confidence Level(95.0%)	56.94	10.16	3.28

	Shippers			
	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural
Inbound Shipments/Day	Shipment Count / Day	Shipment Count / Day	Shipment Count / Day	Shipment Count / Day
Mean	7.93	8.26	10.00	10.24
Standard Error	1.87	3.16	2.37	4.84
Median	5	4	10	4
Mode	3	3	#N/A	3
Standard Deviation	10.05	17.58	7.11	22.17
Sample Variance	101.07	309.20	50.50	491.59
Kurtosis	11.06	21.29	-1.42	19.04
Skewness	3.11	4.48	0.10	4.30
Range	49	94	19	103
Minimum	1	1	1	2
Maximum	50	95	20	105
Sum	230	256	90	215
<b>Count</b>	29	31	9	21
Confidence Level(95.0%)	3.66	6.19	4.64	9.48



**Question 9:**

**Number of Cross-Border Commercial Vehicles Received by Company Per Day - Inbound  
(Statistical Analysis & Input to Figure 4-13)**

	Company Type					
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper, Agricultural	Shipper, Non-Agricultural	Transportation Company
Cross-Border Commercial Vehicles Received (Morning)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Morning)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Morning)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Morning)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Morning)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Morning)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Morning)
Mean	17.93	3.75	22.52	10.33	5.14	9.14
Standard Error	4.86	1.43	20.17	3.27	2.79	2.65
Median	10.00	1.50	1.00	8.00	2.00	5.50
Mode	10	0	0	#N/A	0	5
Standard Deviation	18.83	7.55	112.28	9.81	12.81	9.92
Sample Variance	354.50	56.94	12605.72	96.25	164.03	98.44
Kurtosis	1.59	21.33	30.89	0.62	19.24	2.86
Skewness	1.41	4.40	5.55	1.16	4.31	1.77
Range	66	40	627	29	60	35
Minimum	0	0	0	1	0	0
Maximum	66	40	627	30	60	35
Sum	269	105	698	93	108	128
Count	15	28	31	9	21	14
Confidence Level(95.0%)	9.53	2.79	39.52	6.41	5.48	5.20

	Company Type					
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
Cross-Border Commercial Vehicles Received (Afternoon)	Commerical Vehicles Rec'd by Company Per Day (Afternoon)	Commerical Vehicles Rec'd by Company Per Day (Afternoon)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Afternoon)	Commerical Vehicles Rec'd by Company Per Day (Afternoon)	Commerical Vehicles Rec'd by Company Per Day (Afternoon)	Commerical Vehicles Rec'd by Company Per Day (Afternoon)
Mean	43.40	5.21	11.00	2.22	4.29	7.36
Standard Error	13.79	2.10	8.15	1.47	1.46	3.26
Median	18	2	2	0	2	3
Mode	18	2	1	0	2	0
Standard Deviation	53.39	11.11	45.38	4.41	6.71	12.19
Sample Variance	2850.54	123.51	2059.47	19.44	45.01	148.55
Kurtosis	1.00	23.98	30.71	0.73	11.55	7.52
Skewness	1.43	4.76	5.53	1.62	3.27	2.63
Range	160	60	255	10	30	45
Minimum	0	0	0	0	0	0
Maximum	160	60	255	10	30	45
Sum	651	146	341	20	90	103
Count	15	28	31	9	21	14
Confidence Level(95.0%)	27.02	4.12	15.98	2.88	2.87	6.38

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Company Type						
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
<b>Cross-Border Commercial Vehicles Received (Night)</b>	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Night)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Night)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Night)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Night)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Night)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Night)
Mean	2.00	0.29	0.13	0.44	0.86	0.00
Standard Error	2.00	0.25	0.08	0.44	0.72	0.00
Median	0	0	0	0	0	0
Mode	0	0	0	0	0	0
Standard Deviation	7.75	1.33	0.43	1.33	3.31	0.00
Sample Variance	60.00	1.77	0.18	1.78	10.93	0.00
Kurtosis	15.00	26.75	13.02	9.00	19.13	
Skewness	3.87	5.14	3.56	3.00	4.32	
Range	30	7	2	4	15	0
Minimum	0	0	0	0	0	0
Maximum	30	7	2	4	15	0
Sum	30	8	4	4	18	0
<b>Count</b>	15	28	31	9	21	14
Confidence Level(95.0%)	3.92	0.49	0.15	0.87	1.41	#NUM!

Company Type						
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
<b>Cross-Border Commercial Vehicles Received (Total)</b>	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Total)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Total)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Total)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Total)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Total)	# Cross-border Commerical Vehicles Rec'd by Company Per Day (Total)
Mean	63.40	9.25	33.58	13.00	11.95	16.50
Standard Error	17.74	3.49	28.31	4.07	5.04	5.30
Median	28.00	4.50	4.00	10.00	4.00	9.50
Mode	100	2	3	#N/A	3	5
Standard Deviation	68.69	18.46	157.61	12.20	23.11	19.83
Sample Variance	4718.40	340.71	24841.58	148.75	534.25	393.04
Kurtosis	0.78	23.69	30.87	2.43	14.40	9.14
Skewness	1.32	4.72	5.55	1.45	3.67	2.89
Range	213	99	881	39	103	75
Minimum	7	1	1	1	2	5
Maximum	220	100	882	40	105	80
Sum	951	259	1041	117	251	231
<b>Count</b>	15	28	31	9	21	14
Confidence Level(95.0%)	34.76	6.84	55.48	7.97	9.89	10.38

**Question 10:**

**Most Frequent Destination of Products - Outbound (Input to Figure 4-14)**

Final Destination	Company Type						Total
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company	
<b>Calexico</b>	1		1			3	5
<b>Otay Mesa</b>	4	2	2			5	13
<b>Tecate</b>	3				1	7	11
<b>Baja California</b>	4		2	2	43	9	60
<b>Southern California</b>	13	12	14	3		6	48
<b>Los Angeles, CA</b>	4	6	10	9		9	38
<b>Rest of California</b>		1					1
<b>Mexico</b>		3	1		7		11
<b>Rest of USA/Canada</b>	11	16	23	1		3	54
<b>Latin America</b>		1	1				2
<b>Asia/Japan</b>		7	3				10
<b>Europe</b>		2	3				5

## Appendix B – Part I Survey Results

### Questions 1 and 3:

#### Company Name and Type

To maintain the confidentiality of respondents, company names are not included in this report. However, the following chart provides the breakdown of responses by city, type and company size.

Company Location	Main Port of Entry	Company Size *	Company Type					Total
			Customs Broker Mexico	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper, Agricultural	Shipper, Non-Agricultural	
Calexico	Calexico	Medium	1					1
Ensenada	Otay Mesa	Large		1	1		1	3
		Medium		2	2		1	6
		Small	1			1		2
Mexicali	Calexico	XLarge		1	1			2
		Large		2	3		2	7
		Medium	1	1	2		4	8
		Small	2			4		10
	Otay Mesa	Large			1			1
		Medium		1				1
Small			1				1	
San Diego	Otay Mesa	Medium	1				1	2
		Small	2				6	8
San Luis Rio Colorado	Calexico	Large			1			1
Tecate	Otay Mesa	Large		1				1
	Tecate	Medium		2	4			6
		Small	2	2	1		2	7
Tijuana	Calexico	Large			1			1
	Otay Mesa	XLarge					1	1
		Large		10	7		3	20
		Medium	1	4	3	2	7	17
		Small	4	1	4	2	2	14
<b>Total</b>		<b>15</b>	<b>29</b>	<b>31</b>	<b>9</b>	<b>21</b>	<b>15</b>	<b>120</b>

**Note \* =**

Small = <50 employees  
 Medium = 51-300 employees  
 Large = 301-1,600 employees  
 XLarge = 1,601-15,000 employees

**Question 11:**

**Transportation Type for Products - Outbound (Statistical Analysis & Input to Figure 4-15)**

	Customs Brokers	Transportation	Shippers
Outbound Shipments/Day	Shipment Count / Day	Shipment Count / Day	Shipment Count / Day
Mean	51.38	12.88	9.16
Standard Error	18.16	4.81	2.11
Median	19	7	3
Mode	6	7	2
Standard Deviation	65.46	19.85	20.39
Sample Variance	4285.42	393.86	415.72
Kurtosis	2.73	10.65	17.35
Skewness	1.76	3.10	4.12
Range	218	82	120
Minimum	2	1	0
Maximum	220	83	120
Sum	668	219	852
<b>Count</b>	13	17	93
Confidence Level(95.0%)	35.59	9.43	4.14

	Shippers			
	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural
Outbound Shipments/Day	Shipment Count / Day	Shipment Count / Day	Shipment Count / Day	Shipment Count / Day
Mean	8.83	8.19	12.89	9.57
Standard Error	3.49	3.47	4.67	5.59
Median	3	3	10	3
Mode	1	5	1	2
Standard Deviation	18.82	20.21	14.02	25.60
Sample Variance	354.23	408.62	196.61	655.36
Kurtosis	21.14	15.79	2.39	19.89
Skewness	4.40	4.00	1.49	4.42
Range	99.6	99.8	43	119
Minimum	0.4	0.2	1	1
Maximum	100	100	44	120
Sum	256.2	278.6	116	201
<b>Count</b>	29	34	9	21
Confidence Level(95.0%)	6.85	6.79	9.16	10.95

**Question 11:**

**Transportation Type for Products - Outbound (Input to Figure 4-16)**

		Number of Truck Axles			
		2 Axle	3 Axle	4 Axle	5 Axle
<b>Calexico</b>	<b># Shipments/Day</b>	2	2.6	0	170.2
	<b># Companies/Port</b>	22	22	22	22
	<b>Avg. Shipments/Day</b>	0.09	0.12	0.00	7.74
<hr/>					
<b>Otay Mesa</b>	<b># Shipments/Day</b>	10.2	92.6	150	405.2
	<b># Companies/Port</b>	59	59	59	59
	<b>Avg. Shipments/Day</b>	0.17	1.57	2.54	6.87
<hr/>					
<b>Tecate</b>	<b># Shipments/Day</b>	3	0	0	16
	<b># Companies/Port</b>	9	9	9	9
	<b>Avg. Shipments/Day</b>	0.33	0.00	0.00	1.78
<hr/>					
<b>Average Shipments/Day by Port</b>	<b>Calexico</b>	0.09	0.12	0.00	7.74
	<b>Otay Mesa</b>	0.17	1.57	2.54	6.87
	<b>Tecate</b>	0.33	0.00	0.00	1.78

**Question 13:**

**Average Weight of Products - Outbound (Statistical Analysis & Input to Figure 4-18)**

	<b>Customs Brokers</b>	<b>Transportation</b>	<b>Shippers</b>
<b>Average Weight of Products / Truck</b>	Avg. Wt. of Products / Truck (lbs)	Avg. Wt. of Products / Truck (lbs)	Avg. Wt. of Products / Truck (lbs)
Mean	35565.71	42298.67	28891.04
Standard Error	3470.30	5669.64	1381.20
Median	40000	40000	30000
Mode	45000	45000	40000
Standard Deviation	12984.68	21958.42	12956.84
Sample Variance	168601810.99	482172312.38	167879660.54
Kurtosis	1.48	8.38	-0.61
Skewness	-1.51	2.18	-0.60
Range	40520	107520	49955
Minimum	4480	4480	45
Maximum	45000	112000	50000
Sum	497920	634480	2542411
<b>Count</b>	14	15	88
Confidence Level(95.0%)	6801.66	11112.28	2707.11

	<b>Shippers</b>			
	<b>Maquiladora, Manufacturer</b>	<b>Maquiladora, Non-Manufacturer</b>	<b>Shipper Agricultural</b>	<b>Shipper Non-Agricultural</b>
<b>Average Weight of Products / Truck</b>	Avg. Wt. of Products / Truck (lbs)	Avg. Wt. of Products / Truck (lbs)	Avg. Wt. of Products / Truck (lbs)	Avg. Wt. of Products / Truck (lbs)
Mean	22707.59	27319.01	40960.00	34428.57
Standard Error	2468.76	2349.93	1142.92	2150.94
Median	22000	28000	40000	35000
Mode	20000	40000	38000	30000
Standard Deviation	13294.69	12654.75	3428.76	9856.83
Sample Variance	176748897.54	160142683.20	11756400.00	97157142.86
Kurtosis	-1.14	-0.40	-1.48	4.06
Skewness	-0.01	-0.33	0.01	-1.68
Range	44900	49955.2	9160	42000
Minimum	100	44.8	35840	3000
Maximum	45000	50000	45000	45000
Sum	658520	792251.4	368640	723000
<b>Count</b>	29	29	9	21
Confidence Level(95.0%)	4838.683143	4605.771385	2240.081132	4215.756767

**Question 13:**

**Average Weight of Products - Outbound (Input to Figure 4-18)**

Weight of Products/Truck (Lbs)	Port		
	Calexico	Otay Mesa	Tecate
Customs Broker	43,333	31,436	42,500
Transportation	33,750	47,164	37,500
Shippers	34,011	28,242	20,240



**Question 14:**

**Percent of Shipment Outbound Method - Outbound (Input to Figures 4-19 – 4-24)**

	Company Type					
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
<b>Avg. % Shipments in Containers</b>	18	29	10	0	10	11
<b>Avg. % Shipments on Flatbeds</b>	8	4	0	0	7	3
<b>Avg. % Shipments on Trailers</b>	71	39	70	67	74	72
<b>Avg. % Shipments Other Method</b>	3	28	20	33	10	15

Question 14:

Statistical Analysis

Company Type						
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
<b>Outbound Shipments, Containers</b>	% Shipment in Containers	% Shipment in Containers	% Shipment in Containers	% Shipment in Containers	% Shipment in Containers	% Shipment in Containers
Mean	18.36	28.66	9.68	0.00	9.52	11.00
Standard Error	7.64	7.92	4.21	0.00	6.56	6.10
Median	3.50	0.00	0.00	0.00	0.00	0.00
Mode	0	0	0	0	0	0
Standard Deviation	28.57	42.63	23.41	0.00	30.08	23.62
Sample Variance	816.25	1817.45	548.23	0.00	904.76	557.86
Kurtosis	4.69	-0.96	8.35		7.56	10.05
Skewness	2.09	0.97	2.88		2.97	3.03
Range	100	100	100	0	100	90
Minimum	0	0	0	0	0	0
Maximum	100	100	100	0	100	90
Sum	257	831	300	0	200	165
<b>Count</b>	14	29	31	9	21	15
Confidence Level(95.0%)	14.97	15.52	8.24	#NUM!	12.86	11.95

Company Type						
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
<b>Outbound Shipments, Flatbeds</b>	% Shipments on Flatbeds	% Shipments on Flatbeds	% Shipments on Flatbeds	% Shipments on Flatbeds	% Shipments on Flatbeds	% Shipments on Flatbeds
Mean	8.21	3.79	0.32	0.00	7.38	2.67
Standard Error	2.55	3.45	0.32	0.00	4.41	1.88
Median	7.50	0.00	0.00	0.00	0.00	0.00
Mode	0	0	0	0	0	0
Standard Deviation	9.53	18.60	1.80	0.00	20.22	7.29
Sample Variance	90.80	345.81	3.23	0.00	409.05	53.10
Kurtosis	0.48	28.36	31.00		9.08	6.86
Skewness	1.07	5.30	5.57		3.04	2.72
Range	30	100	10	0	80	25
Minimum	0	0	0	0	0	0
Maximum	30	100	10	0	80	25
Sum	115	110	10	0	155	40
<b>Count</b>	14	29	31	9	21	15
Confidence Level(95.0%)	4.99	6.77	0.63	#NUM!	8.65	3.69

**Survey and Analysis of Trade and Goods Movement Between California and Baja California, Mexico**

	Company Type					
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
<b>Outbound Shipments, Trailers</b>	% Shipments on Trailers	% Shipments on Trailers	% Shipments on Trailers	% Shipments on Trailers	% Shipments on Trailers	% Shipments on Trailers
Mean	70.57	39.28	69.68	66.67	73.57	71.87
Standard Error	8.89	8.51	7.48	16.67	9.08	9.90
Median	90	0	100	100	100	90
Mode	100	0	100	100	100	100
Standard Deviation	33.26	45.85	41.65	50.00	41.63	38.32
Sample Variance	1106.11	2102.35	1734.89	2500.00	1732.86	1468.70
Kurtosis	-0.50	-1.75	-0.85	-1.71	-0.53	-0.07
Skewness	-0.83	0.46	-0.98	-0.86	-1.16	-1.21
Range	100	100	100	100	100	100
Minimum	0	0	0	0	0	0
Maximum	100	100	100	100	100	100
Sum	988	1139	2160	600	1545	1078
<b>Count</b>	14	29	31	9	21	15
Confidence Level(95.0%)	17.42	16.69	14.66	32.67	17.80	19.39

	Company Type					
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
<b>Outbound Shipments, Other Method</b>	% Shipments Other Method	% Shipments Other Method	% Shipments Other Method	% Shipments Other Method	% Shipments Other Method	% Shipments Other Method
Mean	2.86	28.28	20.32	33.33	9.52	14.53
Standard Error	1.63	8.39	7.16	16.67	6.56	7.82
Median	0	0	0	0	0	0
Mode	0	0	0	0	0	0
Standard Deviation	6.11	45.20	39.87	50.00	30.08	30.28
Sample Variance	37.36	2043.35	1589.89	2500.00	904.76	916.84
Kurtosis	4.25	-0.97	0.63	-1.71	7.56	3.99
Skewness	2.17	1.04	1.60	0.86	2.97	2.14
Range	20	100	100	100	100	100
Minimum	0	0	0	0	0	0
Maximum	20	100	100	100	100	100
Sum	40	820	630	300	200	218
<b>Count</b>	14	29	31	9	21	15
Confidence Level(95.0%)	3.20	16.45	14.04	32.67	12.86	15.32

**Question 15:**

**Percentage of Containers Shipped by Size - Outbound (Statistical Analysis)**

Company Type						
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
<b>Outbound Shipment, 53' Container</b>	% Container Size, 53 Ft.	% Container Size, 53 Ft.	% Container Size, 53 Ft.	% Container Size, 53 Ft.	% Container Size, 53 Ft.	% Container Size, 53 Ft.
Mean	50.45	27.69	46.40	14.29	49.69	26.67
Standard Error	11.96	7.98	8.90	14.29	12.83	12.87
Median	50	0	50	0	48	0
Mode	90	0	0	0	0	0
Standard Deviation	39.65	40.70	44.50	37.80	51.33	44.59
Sample Variance	1572.27	1656.46	1980.25	1428.57	2634.90	1987.88
Kurtosis	-1.62	-0.83	-1.99	7.00	-2.30	-0.41
Skewness	0.01	0.99	0.04	2.65	0.00	1.27
Range	100	100	100	100	100	100
Minimum	0	0	0	0	0	0
Maximum	100	100	100	100	100	100
Sum	555	720	1160	100	795	320
<b>Count</b>	11	26	25	7	16	12
Confidence Level(95.0%)	23.43	15.64	17.44	28.00	25.15	25.23

Company Type						
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
<b>Outbound Shipment, 48' Container</b>	% Container Size, 48 Ft.	% Container Size, 48 Ft.	% Container Size, 48 Ft.	% Container Size, 48 Ft.	% Container Size, 48 Ft.	% Container Size, 48 Ft.
Mean	43.18	33.65	28.80	57.14	37.81	65.00
Standard Error	10.75	8.21	7.83	20.20	12.44	13.95
Median	50	8	10	100	0	100
Mode	50	0	0	100	0	100
Standard Deviation	35.66	41.85	39.17	53.45	49.77	48.34
Sample Variance	1271.36	1751.12	1533.92	2857.14	2476.56	2336.36
Kurtosis	-1.04	-1.26	-0.57	-2.80	-1.93	-1.67
Skewness	0.29	0.74	1.07	-0.37	0.57	-0.77
Range	100	100	100	100	100	100
Minimum	0	0	0	0	0	0
Maximum	100	100	100	100	100	100
Sum	475	875	720	400	605	780
<b>Count</b>	11	26	25	7	16	12
Confidence Level(95.0%)	21.07	16.08	15.35	39.60	24.38	27.35

**Survey and Analysis of Trade and Goods Movement Between California and Baja California, Mexico**

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	Company Type					
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
<b>Outbound Shipment, Other Container Size</b>	% Container Other Size	% Container Other Size	% Container Other Size	% Container Other Size	% Container Other Size	% Container Other Size
Mean	6.36	34.81	24.80	28.57	12.50	6.67
Standard Error	4.72	9.23	8.64	18.44	8.54	6.67
Median	0	0	0	0	0	0
Mode	0	0	0	0	0	0
Standard Deviation	15.67	47.04	43.22	48.80	34.16	23.09
Sample Variance	245.45	2212.96	1867.67	2380.95	1166.67	533.33
Kurtosis	7.02	-1.61	-0.37	-0.84	4.90	12.00
Skewness	2.65	0.69	1.28	1.23	2.51	3.46
Range	50	100	100	100	100	80
Minimum	0	0	0	0	0	0
Maximum	50	100	100	100	100	80
Sum	70	905	620	200	200	80
<b>Count</b>	11.00	26.00	25.00	7.00	16.00	12.00
Confidence Level(95.0%)	9.26	18.08	16.94	36.15	16.74	13.07

**Question 16:**

**Number of Cross-Border Commercial Vehicles Sent Out by Company Per Day – Outbound (Statistical Analysis & Input to Figure 4-25)**

	Company Type					
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper, Agricultural	Shipper, Non-Agricultural	Transportation Company
Cross-Border Commercial Vehicles Sent Out (Morning)	# Commercial Vehicles Sent out Per Day (Morning)	# Commercial Vehicles Sent out Per Day (Morning)	# Commercial Vehicles Sent out Per Day (Morning)	# Commercial Vehicles Sent out Per Day (Morning)	# Commercial Vehicles Sent out Per Day (Morning)	# Commercial Vehicles Sent out Per Day (Morning)
Mean	23.20	5.69	4.68	10.11	4.57	7.60
Standard Error	6.28	1.74	1.51	3.20	1.52	2.04
Median	10	2	2	10	2	7
Mode	10	1	2	#N/A	2	7
Standard Deviation	24.31	9.35	8.43	9.61	6.95	7.92
Sample Variance	591.03	87.44	71.03	92.36	48.36	62.69
Kurtosis	-1.04	7.58	12.59	-0.19	6.60	1.69
Skewness	0.82	2.75	3.54	0.81	2.73	1.48
Range	66	40	40	28	25	25
Minimum	0	0	0	0	0	0
Maximum	66	40	40	28	25	25
Sum	348	165	145	91	96	114
<b>Count</b>	15	29	31	9	21	15
Confidence Level(95.0%)	12.30	3.40	2.97	6.28	2.97	4.01

	Company Type					
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
Cross-Border Commercial Vehicles Sent Out (Afternoon)	# Commercial Vehicles Sent out Per Day (Afternoon)	# Commercial Vehicles Sent out Per Day (Afternoon)	# Commercial Vehicles Sent out Per Day (Afternoon)	# Commercial Vehicles Sent out Per Day (Afternoon)	# Commercial Vehicles Sent out Per Day (Afternoon)	# Commercial Vehicles Sent out Per Day (Afternoon)
Mean	35.67	4.14	4.71	4.89	1.57	8.73
Standard Error	11.43	2.09	2.24	2.65	0.73	4.93
Median	14	1	1	0	0	3
Mode	7	0	0	0	0	0
Standard Deviation	44.27	11.23	12.48	7.94	3.33	19.09
Sample Variance	1960.24	126.19	155.68	63.11	11.06	364.50
Kurtosis	2.40	23.74	14.99	0.20	14.52	12.23
Skewness	1.57	4.71	3.88	1.33	3.60	3.41
Range	154	60	60	20	15	75
Minimum	0	0	0	0	0	0
Maximum	154	60	60	20	15	75
Sum	535	120	146	44	33	131
<b>Count</b>	15.00	29.00	31.00	9.00	21.00	15.00
Confidence Level(95.0%)	22.41	4.09	4.39	5.19	1.42	9.66

**Survey and Analysis of Trade and Goods Movement Between California and Baja California, Mexico**

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	Company Type					
	Customs Broker	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural	Transportation Company
<b>Cross-Border Commercial Vehicles Sent Out (Night)</b>	# Commercial Vehicles Sent out Per Day (Night)	# Commercial Vehicles Sent out Per Day (Night)	# Commercial Vehicles Sent out Per Day (Night)	# Commercial Vehicles Sent out Per Day (Night)	# Commercial Vehicles Sent out Per Day (Night)	# Commercial Vehicles Sent out Per Day (Night)
Mean	2	0.172413793	0.032258065	0	0.952380952	0.2
Standard Error	2	0.172413793	0.032258065	0	0.952380952	0.2
Median	0	0	0	0	0	0
Mode	0	0	0	0	0	0
Standard Deviation	7.745966692	0.928476691	0.179605302	0	4.364357805	0.774596669
Sample Variance	60	0.862068966	0.032258065	0	19.04761905	0.6
Kurtosis	15	29	31	#DIV/0!	21	15
Skewness	3.872983346	5.385164807	5.567764363	#DIV/0!	4.582575695	3.872983346
Range	30	5	1	0	20	3
Minimum	0	0	0	0	0	0
Maximum	30	5	1	0	20	3
Sum	30	5	1	0	20	3
<b>Count</b>	15	29	31	9	21	15
Confidence Level(95.0%)	4.289577191	0.353174042	0.065879689	0	1.986630932	0.428957719

# **Appendix C**

## **Part II Survey Results**



### Appendix C – Part II Survey Results

**Management Question 1:**

**What are the most important factors that determine the time of day you ship your products (Input to Figure 5-1)**

Drivers for Times of Shipment	Company Type			Total
	Customs Brokers	Shippers	Transportation	
Customer/Demand Driven (Pull)	9	20	11	40
Production/Order Completion Driven (Push)	1	41	3	45
Customs Driven	1	8	1	10
Transportation Delay Driven	1	4		5
Just-In-Time		11		11
Fixed Schedule	2	3		5
<b>Total</b>	<b>14</b>	<b>87</b>	<b>15</b>	<b>116</b>

**Management Question 2:**

Are you satisfied with the hours of operation in effect at the port you use most frequently? (Input to Figures 5-2 – 5-5)

Level of Satisfaction with Port Hours of Operation	Company Type					Total	
	Customs Broker	Maquiladora, manufacturer	Maquiladora, non-manufacturer	Shipper agricultural	Shipper non-agricultural		Transportation company
Yes	10	17	21	2	16	9	75
No	1	5	3	1		2	12
24/7	3	2	1	4	3	3	16
Other hours	1	5	6	2	2	1	17
<b>Total</b>	<b>15</b>	<b>29</b>	<b>31</b>	<b>9</b>	<b>21</b>	<b>15</b>	<b>120</b>

Port	Level of Satisfaction	Company Type					Total	
		Customs Broker	Maquiladora, manufacturer	Maquiladora, non-manufacturer	Shipper agricultural	Shipper non-agricultural		Transportation company
Calexico	Yes	3	3	6	1	5	3	21
	No		1					1
	24/7	1		1	2	1	1	6
	Other hours			1	1			2
Otay Mesa	Yes	7	12	12	1	11	4	47
	No	1	4	2	1		2	10
	24/7	1	2	2	2	2	2	9
	Other hours		3	4	1	2	1	11
Tecate	Yes		2	3			2	7
	No			1				1
	24/7	1						1
	Other hours	1	2	1				4
<b>Total</b>		<b>15</b>	<b>29</b>	<b>31</b>	<b>9</b>	<b>21</b>	<b>15</b>	<b>120</b>

**Management Question 3:**

Are there some changes that can be made, or additional services that could be offered by state and federal inspection agencies that would encourage you to ship during non-congested hours? (Input to Figure 5-12)

Suggestions	Company Type			Total
	Customs Brokers	Shipper	Transportation	
Access to Facilities	1	2		3
Interagency Coordination	1	2		3
Expanded Hours	6	14	3	23
Pre-inspection		7	1	8
Process improvements	1	11	2	14
Staffing Increase	1	7	3	11
<b>Total</b>	10	43	9	62

**Management Question 4:**

**Are there any infrastructure changes needed leading to or from the port of entry you use most frequently that would facilitate your shipping? (Input to Figures 5-13 – 5-16)**

Infrastructure Changes Needed	Company Type			Total
	Customs Brokers	Shippers	Transportation	
Capacity	0%	17%	18%	14%
Better Coordination	0%	6%	0%	4%
Longer Hours	11%	0%	0%	2%
More Lines/Lanes	0%	6%	27%	9%
Process Improvements	11%	6%	0%	5%
More/Better Roads	56%	56%	45%	54%
More Staff	11%	6%	0%	5%
Better Traffic Mgmt	11%	6%	9%	7%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Port	Need for Infrastructure Changes	Company Type					Transportation company	Total
		Customs Broker	Maquiladora, manufacturer	Maquiladora, non-manufacturer	Shipper agricultural	Shipper non-agricultural		
Calexico	No	2	3	2	1	3	3	14
	Ports	1		1	1		1	4
	Roads		1	1		1		3
	Yes			2	2	2		6
Otay Mesa	No	1	4	10	2	3	1	21
	Ports	1	3	2		2	2	10
	Roads	2	3	4	2	3	4	18
	Yes	4	10	2	1	4	2	23
Tecate	No		2					2
	Ports			1			1	2
	Roads		1	1				2
	Yes	1	1	3				6
<b>Total</b>		<b>12</b>	<b>28</b>	<b>29</b>	<b>9</b>	<b>18</b>	<b>15</b>	<b>111</b>

**Management Question 5:**

**What do you see as the main problem that causes commercial traffic congestion at the port of entry?**

Port	Causes of Commercial Traffic Congestion	Customs Brokers	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper agricultural	Shipper non-agricultural	Transportation company	Total
Calexico	User Behavior (peak hours, empties, etc.)	1						1
	Operational (customs, inspections, etc.)	2	1	2	3	4	1	13
	Port Infrastructure		1	1		1		3
Otay Mesa	User Behavior (peak hours, empties, etc.)	2	1	1	1	1	1	7
	Operational (customs, inspections, etc.)	1	10	11	3	1	4	30
	Port Infrastructure	1	4	2	1	4	2	14
	Roads	3	4	3		5	2	17
Tecate	Operational (customs, inspections, etc.)		1				1	2
	Port Infrastructure	1	1	4			1	7
<b>Total</b>		11	23	24	8	16	12	94

**Management Question 6:**

**On average, how long does it take your trucks to cross the border? (Input to Figures 5-6 – 5-7)**

Most Frequently Used Port	Company Type						
	Customs Brokers	Transportation	Shippers	Maquiladora, Manufacturer	Maquiladora, Non Manufacturer	Shipper Agricultural	Shipper Non Agricultural
<b>Lower Bound</b>							
Calexico	2.45	3.7	36.5	5	11.5	10	10
Otay Mesa	12	20	121.75	46.75	35	10	30
Tecate	2	2	21	8	13	0	0
<b>Average</b>							
Calexico	2.95	5.1	40	5.5	12	11	11.5
Otay Mesa	16.25	23.5	142.625	54.125	41	11.5	36
Tecate	3	2.5	23	8.5	14.5	0	0
<b>Upper Bound</b>							
Calexico	3.45	6.5	43.5	6	12.5	12	13
Otay Mesa	21.5	27	165.5	61.5	47	13	44
Tecate	4	3	25	9	16	0	0
<b># of Entries</b>							
Calexico	4	4	22	4	8	4	6
Otay Mesa	9	9	59	21	18	5	15
Tecate	2	2	9	4	5	0	0
<b>Mean - Lower Bound</b>							
Calexico	0.61	0.93	1.66	1.25	1.44	2.50	1.67
Otay Mesa	1.33	2.22	2.06	2.23	1.94	2.00	2.00
Tecate	1.00	1.00	2.33	2.00	2.60		
<b>Mean - Average</b>							
Calexico	0.74	1.28	1.82	1.38	1.50	2.75	1.92
Otay Mesa	1.81	2.61	2.42	2.58	2.28	2.30	2.40
Tecate	1.50	1.25	2.56	2.13	2.90		
<b>Mean - Upper Bound</b>							
Calexico	0.86	1.63	1.98	1.50	1.56	3.00	2.17
Otay Mesa	2.39	3.00	2.81	2.93	2.61	2.60	2.93
Tecate	2.00	1.50	2.78	2.25	3.20		

Management Question 6:

Statistical Analysis

	Customs Brokers	Shippers	Transportation
<b>Average Crossing Time - Lower Bound</b>	Average time for trucks to cross the border? (hours) - Lower Bound	Average time for trucks to cross the border? (hours) - Lower Bound	Average time for trucks to cross the border? (hours) - Lower Bound
Mean	1.10	1.99	1.71
Standard Error	0.18	0.11	0.25
Median	1	2	2
Mode	1	2	1
Standard Deviation	0.69	1.08	0.97
Sample Variance	0.48	1.17	0.95
Kurtosis	-0.91	1.54	-1.36
Skewness	-0.03	1.02	0.14
Range	2.00	5.50	2.80
Minimum	0.00	0.50	0.20
Maximum	2.00	6.00	3.00
Sum	16.45	179.25	25.70
Count	15	90	15
Confidence Level(95.0%)	0.35	0.22	0.49

	Shippers			
	Maquiladora, manufacturer	Maquiladora, non-manufacturer	Shipper agricultural	Shipper non-agricultural
<b>Average Crossing Time - Lower Bound</b>	Average time for trucks to cross the border? (hours) - Lower Bound	Average time for trucks to cross the border? (hours) - Lower Bound	Average time for trucks to cross the border? (hours) - Lower Bound	Average time for trucks to cross the border? (hours) - Lower Bound
Mean	2.06	1.92	2.22	1.90
Standard Error	0.23	0.21	0.28	0.18
Median	2	2	2	2
Mode	2	1	3	1
Standard Deviation	1.22	1.18	0.83	0.83
Sample Variance	1.50	1.40	0.69	0.69
Kurtosis	0.46	3.37	-1.28	-1.53
Skewness	0.91	1.48	-0.50	0.19
Range	4.50	5.50	2.00	2.00
Minimum	0.50	0.50	1.00	1.00
Maximum	5.00	6.00	3.00	3.00
Sum	59.75	59.50	20.00	40.00
Count	29	31	9	21
Confidence Level(95.0%)	0.45	0.42	0.54	0.36

**Survey and Analysis of Trade and Goods Movement Between California and Baja California, Mexico**

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	<b>Customs Brokers</b>	<b>Shippers</b>	<b>Transportation</b>
<b>Average Crossing Time - Mean</b>	Average time for trucks to cross the border? (hours) - Average	Average time for trucks to cross the border? (hours) - Average	Average time for trucks to cross the border? (hours) - Average
Mean	1.48	2.28	2.07
Standard Error	0.20	0.11	0.26
Median	1.50	2.00	2.00
Mode	2.00	3.00	2.00
Standard Deviation	0.76	1.06	1.00
Sample Variance	0.58	1.13	1.01
Kurtosis	-0.70	0.92	-1.17
Skewness	-0.50	0.61	-0.12
Range	2.50	5.50	3.00
Minimum	0.00	0.50	0.50
Maximum	2.50	6.00	3.50
Sum	22.20	205.63	31.10
Count	15	90	15
Confidence Level(95.0%)	0.39	0.22	0.51

	<b>Shippers</b>			
	<b>Maquiladora, manufacturer</b>	<b>Maquiladora, non-manufacturer</b>	<b>Shipper agricultural</b>	<b>Shipper non-agricultural</b>
<b>Average Crossing Time - Mean</b>	Average time for trucks to cross the border? (hours) - Average	Average time for trucks to cross the border? (hours) - Average	Average time for trucks to cross the border? (hours) - Average	Average time for trucks to cross the border? (hours) - Average
Mean	2.35	2.18	2.50	2.26
Standard Error	0.22	0.21	0.22	0.18
Median	2.00	2.00	2.50	2.00
Mode	3.00	2.00	3.00	3.00
Standard Deviation	1.21	1.18	0.66	0.82
Sample Variance	1.45	1.40	0.44	0.67
Kurtosis	-0.15	2.18	2.95	-1.19
Skewness	0.55	1.05	-1.67	-0.35
Range	4.50	5.50	2.00	2.50
Minimum	0.50	0.50	1.00	1.00
Maximum	5.00	6.00	3.00	3.50
Sum	68.13	67.50	22.50	47.50
Count	29	31	9	21
Confidence Level(95.0%)	0.44	0.42	0.43	0.35



	Customs Brokers	Shippers	Transportation
<b>Average Crossing Time - Upper Bound</b>	Average time for trucks to cross the border? (hours) - Upper Bound	Average time for trucks to cross the border? (hours) - Upper Bound	Average time for trucks to cross the border? (hours) - Upper Bound
Mean	1.93	2.60	2.43
Standard Error	0.32	0.14	0.32
Median	2.00	3.00	2.00
Mode	2.00	3.00	4.00
Standard Deviation	1.24	1.30	1.24
Sample Variance	1.54	1.68	1.53
Kurtosis	1.49	0.00	-1.37
Skewness	0.85	0.51	-0.02
Range	5.00	5.50	3.50
Minimum	0.00	0.50	0.50
Maximum	5.00	6.00	4.00
Sum	28.95	234.00	36.50
Count	15.00	90.00	15.00
Confidence Level(95.0%)	0.63	0.27	0.63

	Shippers			
	Maquiladora, manufacturer	Maquiladora, non-manufacturer	Shipper agricultural	Shipper non-agricultural
<b>Average Crossing Time - Upper Bound</b>	Average time for trucks to cross the border? (hours) - Upper Bound	Average time for trucks to cross the border? (hours) - Upper Bound	Average time for trucks to cross the border? (hours) - Upper Bound	Average time for trucks to cross the border? (hours) - Upper Bound
Mean	2.64	2.44	2.78	2.71
Standard Error	0.26	0.23	0.28	0.29
Median	2.00	2.00	3.00	3.00
Mode	2.00	3.00	3.00	3.00
Standard Deviation	1.42	1.29	0.83	1.35
Sample Variance	2.02	1.66	0.69	1.81
Kurtosis	-0.38	0.31	2.43	0.35
Skewness	0.52	0.54	-1.17	0.71
Range	5.50	5.50	3.00	5.00
Minimum	0.50	0.50	1.00	1.00
Maximum	6.00	6.00	4.00	6.00
Sum	76.50	75.50	25.00	57.00
Count	29.00	31.00	9.00	21.00
Confidence Level(95.0%)	0.52	0.45	0.54	0.58

**Management Question 7:**

**In number of hours, what do you consider to be an excessive border delay (Input to Figure 5-8)**

Most Frequently Used Port	Company Type						
	Customs Brokers	Transportation	Shippers	Maquiladora, Manufacturer	Maquiladora, Non-Manufacturer	Shipper Agricultural	Shipper Non-Agricultural
Calexico	4	6	44.5	7	22	4.5	11
Otay Mesa	28	16	151.5	72	52.5	6	21
Tecate	2	1.3	23	8	15		
<b># of Entries</b>							
Calexico	3	4	22	4	8	4	6
Otay Mesa	7	7	53	19	16	4	14
Tecate	2	2	9	4	5	0	0
<b>Mean</b>							
Calexico	1.33	1.50	2.02	1.75	2.75	1.13	1.83
Otay Mesa	4.00	2.29	2.86	3.79	3.28	1.50	1.50
Tecate	1.00	0.65	2.56	2.00	3.00		

**Management Question 7:**

**Statistical Analysis**

	<b>Customs Brokers</b>	<b>Transportation</b>	<b>Shippers</b>
<b>Excessive Border Delay Hours</b>	What do you consider an excessive border delay (hours)?	What do you consider an excessive border delay (hours)?	What do you consider an excessive border delay (hours)?
Mean	2.83	1.79	2.61
Standard Error	0.67	0.42	0.20
Median	2.00	1.00	2.00
Mode	1.00	1.00	1.00
Standard Deviation	2.33	1.51	1.88
Sample Variance	5.42	2.28	3.53
Kurtosis	0.75	4.72	1.60
Skewness	1.28	2.04	1.38
Range	7.00	5.70	8.00
Minimum	1.00	0.30	0.00
Maximum	8.00	6.00	8.00
Sum	34.00	23.30	219.50
Count	12	13	84
Confidence Level(95.0%)	1.32	0.82	0.40

	<b>Shippers</b>			
	<b>Maquiladora, manufacturer</b>	<b>Maquiladora, non-manufacturer</b>	<b>Shipper agricultural</b>	<b>Shipper non-agricultural</b>
<b>Excessive Border Delay Hours</b>	What do you consider an excessive border delay (hours)?	What do you consider an excessive border delay (hours)?	What do you consider an excessive border delay (hours)?	What do you consider an excessive border delay (hours)?
Mean	3.26	3.07	1.31	1.60
Standard Error	0.39	0.36	0.33	0.24
Median	3.00	3.00	1.00	1.00
Mode	2.00	2.00	0.50	1.00
Standard Deviation	2.04	1.93	0.92	1.10
Sample Variance	4.18	3.71	0.85	1.20
Kurtosis	0.35	1.78	-0.24	4.92
Skewness	1.01	1.31	0.92	2.25
Range	7.00	8.00	2.50	4.00
Minimum	1.00	0.00	0.50	1.00
Maximum	8.00	8.00	3.00	5.00
Sum	88.00	89.00	10.50	32.00
Count	27	29	8	20
Confidence Level(95.0%)	0.77	0.70	0.64	0.48

**Management Question 9:**

**If delays persist or increase, would your firm consider making changes?**

	Customs Brokers	Shippers	Transportation	Total
<b>No</b>	13	50	13	76
<b>Yes</b>	2	40	2	44
<b>Total</b>	15	90	15	120