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16. Abstract

Economic growth along the Texas-Mexico border has prompted new concerns regarding the adequacy of that area's transportation infrastructure. In response, both the Texas Department of Transportation (TxDOT) and the Texas Turnpike Authority (TTA) are investigating ways in which the border infrastructure might be upgraded, either through new bridges and/or by linking new and existing bridges to major highway facilities. As part of this statewide planning effort, the Center for Transportation Research (CTR), under the auspices of TxDOT and TTA, has conducted a planning-level needs study along the 1,230-mile (1,980-km) Texas-Mexico border. This report, the first in a series of six, defines the study's scope, organization, research problem, research approach, and methodology. In addition, it includes a comprehensive description of the border's binational entry systems and road networks, along with a bilingual glossary of border-related terminology.

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A COMPREHENSIVE OVERVIEW OF THE TEXAS-MEXICO BORDER: BACKGROUND

Research Report 1976-1

Research Project 7-1976
Texas-Mexico Toll Bridge Study

conducted for the

Texas Department of Transportation
and the Texas Turnpike Authority

by the

CENTER FOR TRANSPORTATION RESEARCH
Bureau of Engineering Research
THE UNIVERSITY OF TEXAS AT AUSTIN

January 1994

IMPLEMENTATION STATEMENT

Growing trade between Texas and Mexico has focused attention on the problems of the border's transportation infrastructure. In response, the Texas Department of Transportation (TxDOT) and the Texas Turnpike Authority (TTA) jointly sponsored this study to obtain an overview of the Texas-Mexico border region and to develop specific answers to specific questions.

This report, the first in a series of six, provides a comprehensive overview of the Texas-Mexico border from a transportation planning point of view. The research approach developed for this study — as well as the specific research findings yielded by this approach — can serve as a useful guide in border transportation planning and policymaking, as well as a guide for future studies of Texas-Mexico border transportation issues.

Prepared in cooperation with the Texas Department of Transportation and the Texas Turnpike Authority.

ACKNOWLEDGEMENTS

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B. F. McCullough
Rob Harrison

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The contents of this report reflect the views of the authors, who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Texas Department of Transportation or the Texas Turnpike Authority. This report does not constitute a standard, specification, or regulation.

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B. Frank McCullough, P.E. (Texas No. 19914)
Research Supervisor

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SUMMARY

Economic growth along the Texas-Mexico border has prompted new concerns regarding the adequacy of that area's transportation infrastructure. In response, both the Texas Department of Transportation (TxDOT) and the Texas Turnpike Authority (TTA) are investigating ways in which the border infrastructure might be upgraded, either through new bridges and/or by linking new and existing bridges to major highway facilities. As part of this statewide planning effort, the Center for Transportation Research (CTR), under the auspices of TxDOT and TTA, has conducted a planning-level needs study along the 1,230-mile (1,980-km) Texas-Mexico border. This report, the first in a series of six, defines the study's scope, organization, research problem, research approach, and methodology. In addition, it includes a comprehensive description of the border's binational entry systems and road networks, along with a bilingual glossary of border-related terminology.

CHAPTER 1. INTRODUCTION

1.1 BACKGROUND

While Mexico's entry into the General Agreement on Tariffs and Trade (GATT) in late 1986 did much to heighten U.S.-Mexico trade, a more pivotal event was the election of Salinas de Gortari as president of Mexico in 1988 (Ref 11). Salinas introduced significant economic reforms relating to sector deregulation, industry privatization (e.g., the telephone industry), and sector industrialization (e.g., the border maquiladora assembly plants); in further initiatives, Salinas forged a variety of legal changes that, overall, stimulated trade through a new national program of liberalization. His successes have been such that, by the early 1990s, Mexico had become the third largest U.S. trading partner (behind Canada and Japan). As shown in Figure 1.1, total bilateral trade activity between the two countries reached $75 million by 1991, with a $5 million surplus in favor of the U.S.

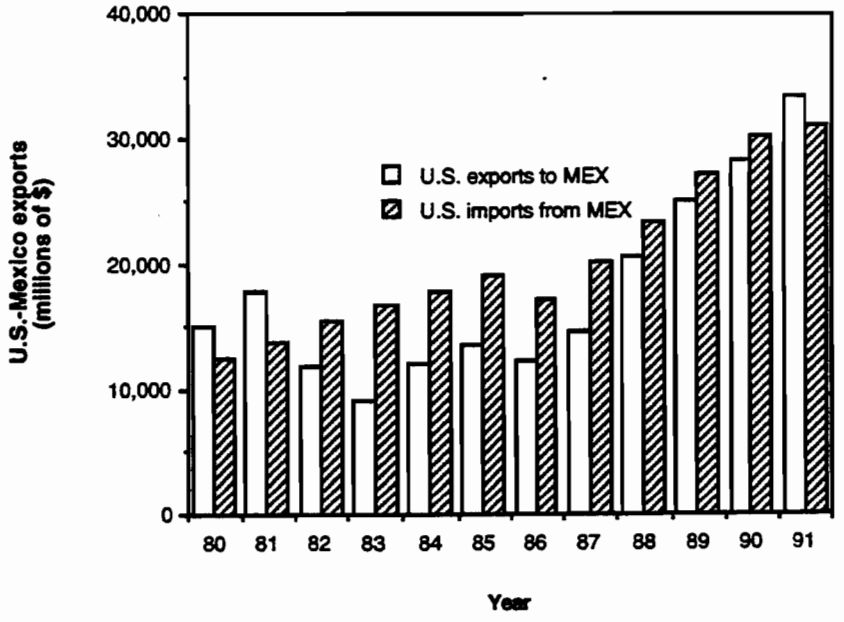

Figure 1.1. Trends in U.S.-Mexico trade (GAO, 1992)

Contributing to the industrialization program of President Salinas was his successful effort to enter Mexico into the trade agreement negotiated between Canada and the United States in 1991. The inclusion of Mexico in this pact formed the basis of what was to become the North American Free Trade Agreement (NAFTA), which, when initially proposed, sought to eliminate trade and other barriers among the three countries. To protect the interests of each of the

countries, trade negotiators proposed that NAFTA be phased in over a 10-year period, with a longer period mandated for specific Mexican industries deemed at risk. While numerous Texas and federal studies examining NAFTA concluded that the agreement would create jobs and trade in favor of the United States, some studies expressed concern that the pact, rather than creating jobs, would threaten both U.S. employment *and* the U.S.-Mexico border environment (Refs 1, 9, 10, 11).

Yet even pre-NAFTA trade growth had prompted concerns regarding the adequacy of border infrastructures — especially those serving the three key gateways in Texas, namely, El Paso, Laredo, and Brownsville. Although the Texas Department of Transportation (TxDOT) has developed a 5-year plan for border infrastructure construction (funded through the Intermodal Surface Transportation Efficiency Act of 1991), there are questions regarding where infrastructure improvements should be made. For example, many border communities, particularly those that depend on U.S.-Mexico trade as a revenue source, have lobbied legislators for more local area infrastructure. But opponents argue that additional infrastructure, particularly at bridges, is unnecessary, given current demand. Nonetheless, the prevailing belief is that infrastructure expansion at the border is both necessary and economically justifiable.

1.2 DESCRIPTION OF STUDY

This study investigates the Texas-Mexico border area from a binational perspective. Defined as a planning-level needs study, its main objective is to assist the Texas Department of Transportation and the Texas Turnpike Authority — the joint sponsors of this project — achieve a better understanding of the border area's transportation demand and infrastructure needs.

In undertaking this investigation, the project staff found a lack of uniform terminology used for referring to the different facilities required for crossing the Texas-Mexico border, as well as confusion over the names and roles of all U.S. and Mexican agencies involved in border crossing procedures. Compounding the issue was the fact that the project developed new concepts that needed specific nomenclature. As a result, a bilingual glossary of border-related nomenclature was developed in this study. Thus, for example, the term "binational entry system" will be used throughout this and subsequent reports. This term was specifically developed in this study to designate the system comprised of the border stations and inspection facilities on both sides of the border. The term can be modified as appropriate. For example, a system comprised of a bridge over the Rio Grande and all the inspection facilities on both sides of the border is termed a "binational bridge entry system."

1.2.1 Study Objectives and Expectations

This research project has three main objectives. The first is to provide, for planning purposes, a comprehensive overview of the infrastructure on both sides of the Texas-Mexico border through a data base of Mexican and U.S. data that define the binational border area. A primary goal of this data base, termed TRANSBORDER in this study, is to provide information for coordinated transportation planning along the Texas-Mexico border. Because it can be utilized by other agencies for their planning purposes, the TRANSBORDER data base will

effectively eliminate redundant data collection efforts.

The second objective is to provide macroeconomic and traffic demand analyses under different post-NAFTA scenarios (including a no-NAFTA scenario). These traffic demand analyses, which contain a significant amount of origin and destination information collected at the bridges, provide an updated overview of traffic patterns across the border.

The final objective is to provide an estimate of the potential demand and revenue at any new toll site along the Texas-Mexico border. This estimate can be used as a guideline for the potential demand for, and the feasibility of, any new proposed toll site along the Texas-Mexico border (and thus represents, in effect, a prefeasibility analysis for new sites along the border).

This study hopes to make clear the challenges inherent in any attempt at binational planning. For example, a bridge over the Rio Grande is not comparable with a bridge serving a homogeneous urban area. A border bridge links two different countries, serves two different economies, addresses two different travel behaviors and, in the case of toll facilities, obtains the toll revenue in two different currencies. The border crossing procedures, and not bridge capacity, are in many cases the main constraint to free flow, and they must be considered when estimating the bridge traffic processing output, as well as when modeling the trip assignment to bridges. To address the demand along the extensive Texas-Mexico border, the project team developed a sector analysis concept that was then normalized and applied to estimate potential revenues from a regional perspective (as opposed to analyzing each site separately). This approach avoids the kind of site-specific project arguments that are inappropriate at the needs-analysis level of infrastructure planning.

1.2.2 Study Scope

In terms of infrastructure economic evaluation, this project was a planning study that identified activity centers along the border where international bridges are used and where new capacity may be desirable. We designated this process a *planning-level needs study.*

To address the need for updated information, the study investigated the Texas-Mexico border and organized a comprehensive data base that covers a wide range of information, from socioeconomic to traffic counts to origin and destination. These data were used to develop a prefeasibility analysis of sectors along the border where additional sites were justified, as well as a capacity analysis of the binational entry system. In this way, we provide a comprehensive picture of border needs for short-term planning.

For long-term planning, the study developed socioeconomic and industrial activity analyses and reviewed other existing analyses of possible post-NAFTA scenarios. It also developed prefeasibility analyses under these different scenarios to be used as guidelines for evaluating proposed bridges at the border. In short, the scope of this study emphasizes three levels:

1. Geographical: The study covers both sides of the Texas-Mexico border, considering all proposed and existing crossings.
2. Continuity: The results provide guidelines for both long- and short-term planning,

which translate into NAFTA and no-NAFTA scenarios.

3. Data Base: The data gathered cover a wide range of transportation planning needs. They are stored in the TRANSBORDER data base in a manner that facilitates updating and retrieval by TxDOT and TTA.

1.2.3 Study Organization

The scope of the study, and some specific contractual provisions, required two basic levels of study organization: geographical and staff. The first stems from a contractual requirement that the study be reported for two geographical segments that approximately correspond to major traffic hubs across the Texas-Mexico border. As for staff organization, the scope of the study required the expertise of a range of researchers, including CTR core staff, personnel from Wilbur Smith Associates, and consultants from the LBJ School of Public Affairs and The University of Texas at El Paso. The two levels of study organization are described below.

Geographical Organization: In accordance with the contract, this study divided the border region into two segments (a strategy deemed appropriate for reflecting actual Texas trade corridors and for facilitating the presentation of study results and their future use). Segment 1 begins at the Gulf of Mexico and ends west of Laredo (Colombia Bridge inclusive). Segment 2 begins immediately west of the Colombia Bridge and ends at the New Mexico border west of El Paso. The two study segments are shown in Figure 1.2. The study objectives, methodology, and research approach were the same for both segments.

Traffic Forecasts and NAFTA: The many studies generated by the NAFTA debate have investigated topics ranging from job creation to environmental impacts (Refs 1, 2, 3, 5, 6, 7, 9, 10, 11, 12). These studies have been used variously by both advocates and opponents to pass, modify, or halt the passage of NAFTA by the U.S. Congress.

Accordingly, this study covers two scenarios: one with and one without NAFTA. It first concentrates on current trade and traffic movements, since those data are independent of further tariff reductions and represent the base case if NAFTA is not passed into law. Then a selection of traffic forecasts is made that reflects possible NAFTA impacts. Such forecasts are, however, problematical for two reasons. First, most economists concede that forecasting trade after the year 2000 is inherently difficult; second, and, particularly relevant to this study, determining the intermodal potential for U.S.-Mexico trade is an especially formidable undertaking at this stage. Nonetheless, scenarios were developed to address traffic needs across the border under NAFTA.

1.2.4 Staff Organization

The study required staff skilled in traffic demand forecasting, transborder operations, transportation planning, data base management systems, and macroeconomic and industrial activity analysis. As the main contractor of this study, CTR addressed transborder operations, transportation planning, data base management, and most of the traffic demand analysis.

The most accurate traffic demand forecasts are obtained when a previously calibrated

model is further refined with additional data. Wilbur-Smith Associates (WSA), a Wall Street-accredited specialist in traffic demand forecasts, prepared a revenue forecast for the Zaragosa Bridge in El Paso using a calibrated model that provided competent results (Ref 8). WSA was contracted to perform the analysis of Segment 2 because of the knowledge they gained in this study and because of the likelihood that improving an already calibrated model would be preferable to developing an entirely new model.

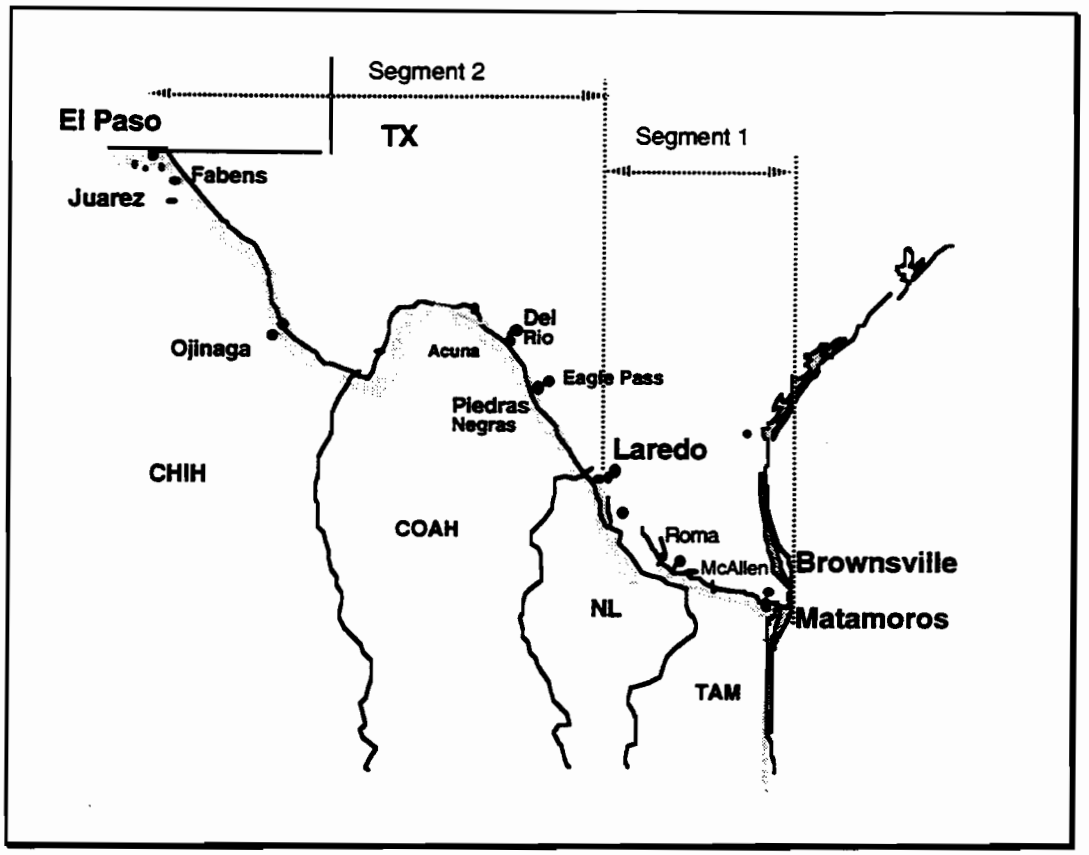

Figure 1.2. Geographical division of the border into two segments for study purposes

Macroeconomic and industrial activity analyses of NAFTA impacts — an important part of this study — served as a base for recommending realistic scenarios for traffic demand estimates. As experts in these types of analyses, the UT-Austin LBJ School of Public Affairs (the LBJ School) and The University of Texas at El Paso's Institute for Manufacturing and Materials Management (IM3) were subcontracted to perform, respectively, the macroeconomic overview and the maquiladora overview. (These are documented further in Chapter 3 of Report 1976-3, "Comprehensive Overview of the Texas-Mexico Border: Traffic Patterns Assessment.")

Figure 1.3 shows a flowchart of the combination of technical skills used in this project, organized in the chronological order determined during this study. In the initial phases, CTR collected data and developed the TRANSBORDER data base, while the LBJ School and IM3

performed the macroeconomic and maquiladora analyses. Next, CTR developed the sector analysis approach that was used by both CTR and WSA in the traffic demand and revenue forecasts, the final deliverable of this project.

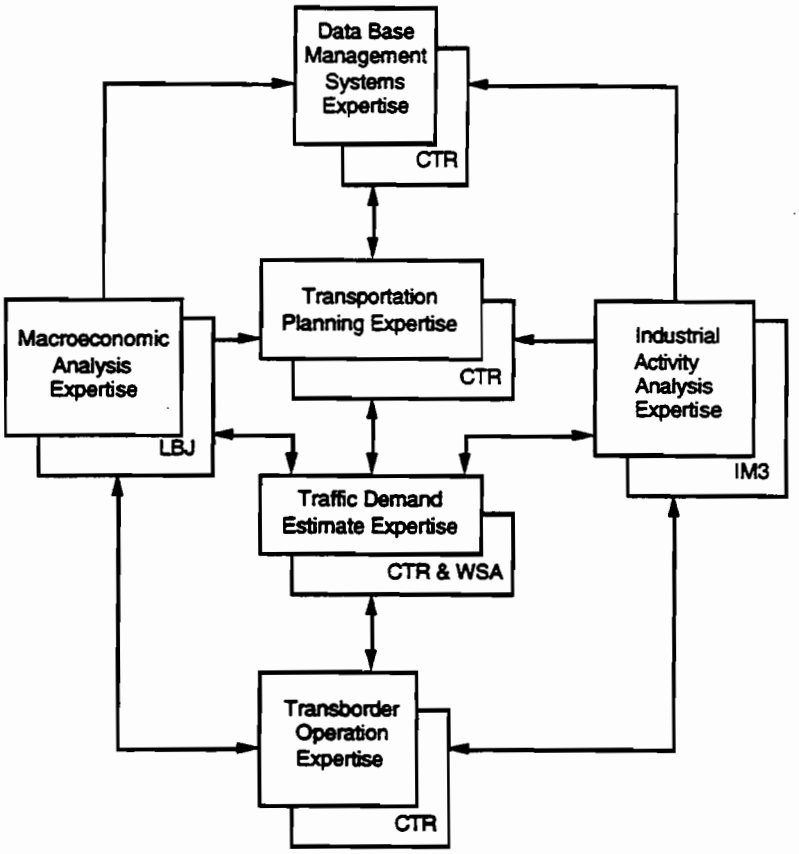

Figure 1.3. Technical skills organization

1.3 ORGANIZATION OF THE STUDY REPORTS

This project has prepared six reports, the contents of which are summarized in Table 1.4. A systems approach is helpful in explaining the flow of information conveyed by these reports. The traditional systems approach encompasses the following phases: problem formulation, synthesis of alternative solutions, analysis, and evaluation. All the phases require availability of data (information). Figure 1.4, a flowchart of these phases and their relationship, shows that a systemic approach to a study begins with data collection, with the information then used to formulate and define the problem. Next, alternative solutions are examined and the analysis performed, followed by an evaluation of the results that may lead to a change either in the problem formulation or in the set of alternative solutions (with such changes requiring new analysis and perhaps new data).

Table 1.4. Study reports

Report	Report Title	Summary of Contents
1976-1	Comprehensive Overview of the Texas-Mexico Border: Background	(1) Study scope and organization (2) Problem formulation and definition of a study methodology and a research approach (3) Comprehensive description of the border transportation network. (4) Bilingual glossary of border-related terminology (included also in subsequent reports)
1976-2	Comprehensive Overview of the Texas-Mexico Border: Data Base	Development of the TRANSBORDER data base
1976-3	Comprehensive Overview of the Texas-Mexico Border: Traffic Patterns Assessment	Sector analysis concept Macroeconomic and maquiladora analyses Origin and Destination of transborder trips Definition of preliminary sector boundaries
1976-4	Comprehensive Overview of the Texas-Mexico Border: Revenue Analysis - Segment 1	Revenue and traffic demand forecasts - Segment 1
1976-5	Comprehensive Overview of the Texas-Mexico Border: Revenue Analysis - Segment 2	Revenue and traffic demand forecasts - Segment 2
1976-6F	Texas-Mexico Bridge Study: Summary Report	Overall project findings

Reports 1976-1 and 1976-2 describe the data collection (information) and problem formulation phases of this study. The unusually extensive data collection phase was necessitated by the facts that (1) the TRANSBORDER data base and the qualitative assessment of the border transportation network were specific study deliverables, and (2) that data base served as a prerequisite for obtaining the other project deliverables. This report, the first of the series, concentrates on the qualitative overview of the border and on the description of the study scope and methodology. It includes also a bilingual glossary of border-related terminology compiled and developed during this study.

Report 1976-3 presents the synthesis of alternative solutions and the analysis phases, while reports 1976-4 and 1976-5 describe the analysis and evaluation phases. Report 1976-3 documents the development of the sector concept that was used as the basis for the traffic demand and revenue analyses performed in this study. It presents the first practical application of the sector concept, the definition of the preliminary sector boundaries, and the selection of the sectors whose potential demand warrant their further analysis. Report 1976-3 also documents the origin and destination surveys and discusses the traffic flow patterns across the Texas-Mexico border. Finally, it describes the macroeconomic and the maquiladora analyses of the Texas-Mexico border with and without NAFTA, setting the groundwork for defining scenarios for the

revenue and traffic demand analyses described in Reports 1976-4 and 1976-5, respectively, for Segments 1 and 2 (see Figure 1.2). The objectives and scope of each of these reports are fully described in their respective introductory chapters. Finally, Report 1976-6F summarizes key study findings.

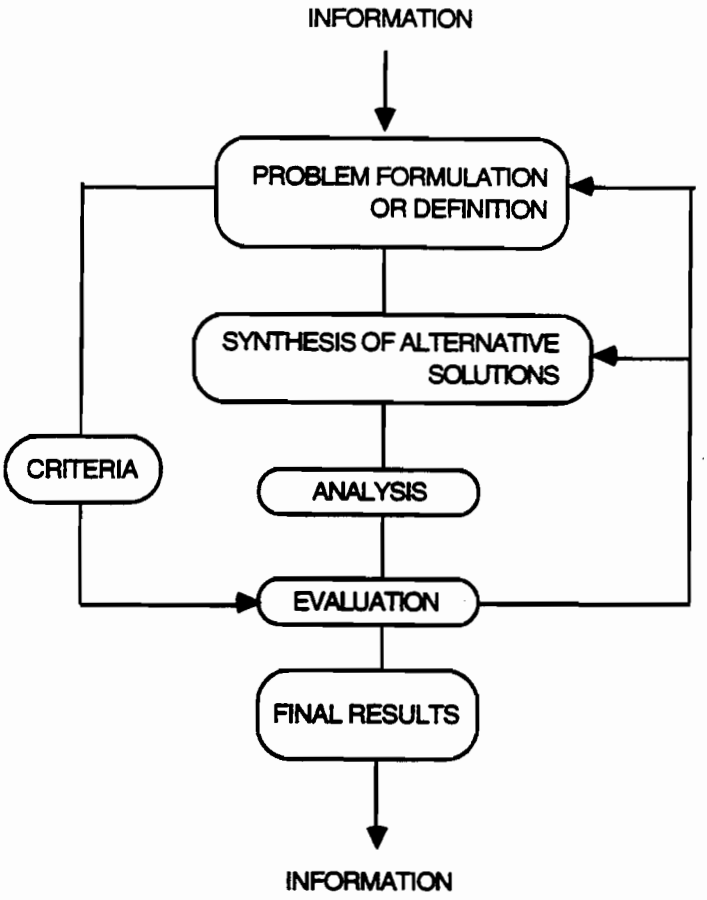

Figure 1.4. Traditional systems approach

1.4 REPORT ORGANIZATION

This report documents the results of the initial phases of this study, which consisted of defining the study approach, developing the conceptual methodology for the prefeasibility analysis, and collecting the data. At the same time, this report provides a binational overview of the Texas-Mexico border transportation infrastructure. The binational perspective, a constant throughout this report, is one that focuses as much on Mexico as on the U.S.

This report is divided into seven chapters and one appendix. Chapter 1 has provided general background on the main border issues, the study, its objectives and expectations, its

scope, and its organization. Chapter 2 defines the problems and introduces the methodology developed to resolve them. Chapter 3 summarizes the types of data collected and the methodologies used to obtain them. It also briefly explains the TRANSBORDER data base, which is discussed in detail in the second report in this series.

Chapters 4 through 6 document the qualitative findings obtained from each major type of data described in Chapter 3; these findings comprise the first study deliverable, which is a descriptive assessment of the transportation infrastructure at the Texas-Mexico border. Chapter 4 describes the administrative issues and procedures necessary to build, operate, and finance a binational entry system, both in the U.S. and in Mexico. Chapter 5 gives a comprehensive overview of the status of all proposed and existing binational entry systems along the Texas-Mexico border. Chapter 6 then gives an analogous overview of the road networks on both sides of the border. It describes the results of a broad road survey undertaken on over 2,500 miles (4,000 km) of Mexican routes to the border, and on over 3,000 miles (4,800 km) of Texas border routes. It also reports on the status of all planned and proposed highways on both sides of the border.

Chapter 7 presents the findings of the border overview and discusses related conclusions and recommendations for future studies, which include some observations on inspection facility design and staffing.

Lastly, we provide a glossary of border-related terminology used in this study. While this bilingual glossary can be used as a English-Spanish dictionary of border-related nomenclature, the translations of government agencies into the other country's language are not literal; rather, they reflect the nearest possible U.S. equivalent of the Mexican agency (and vice-versa). This glossary includes (1) a list of names and acronyms of all U.S. and Mexican organizations involved in border issues; (2) terminology specifically coined for reference to new techniques developed in this study; and (3) nomenclature specifically developed to designate border facilities that do not have appropriate names. This glossary is aimed at standardizing the terminology to be used in this study as well as in future studies.

CHAPTER 2. RESEARCH APPROACH

2.1 INTRODUCTION

The bridges, dams, and ferries serving the Texas-Mexico border form an interrelated transportation system whose main objective is to move people and commodities from one country to the other. Because this system depends on its links with the rest of the infrastructure of both countries, it cannot be properly studied in a disaggregated manner. For example, while the feasibility of a border bridge depends on its own traffic processing capability, it also depends on the availability of infrastructure links and on the demand and capacity of neighboring bridges. Thus, the overall capacity of the entire border on a macro level depends on how well these "micro" systems meet the local demand and how well they interact with one another.

This chapter discusses the research approach developed in this project to address specific Texas-Mexico border transportation needs.

2.2 SYSTEM DEFINITION

In the United States, border bridge construction traditionally begins with a community expressing a need; that community then follows through by obtaining a U.S. Presidential permit and the funds required for the construction. At some point in the process, the community must negotiate with Mexican authorities, since the revenue from such bridges, which ultimately come under binational control, accrue to both Mexican and U.S. entities. Figure 2.1 shows the basic steps traditionally used to build a border bridge in the United States.

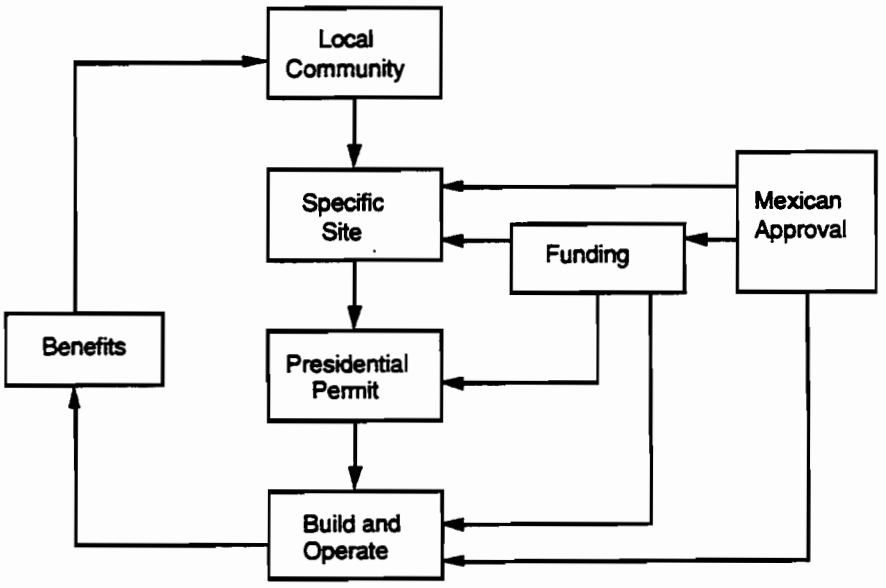

Figure 2.1. Steps required in building a U.S. binational bridge entry system

This process assures that benefits from the new structure are channeled back into the border community. Within this context, numerous studies that develop revenue predictions pertaining to specific sites have been (and are being) undertaken by different agencies (Refs 13, 14). While this type of study provides answers to site-specific questions, it does not address the larger issue: how to optimize the entire border area.

Sometimes the persons or communities interested in building a new border bridge approach state-level organizations (e.g., TxDOT and TTA) seeking funds, advice, or highway links to the site they are promoting. These state agencies need guidelines for determining whether a new site should be supported. This need is best satisfied with a planning-level needs study, which comprehensively investigates the needs and demands along the border and provides guidelines for potential demand and revenue at any new site. These guidelines are provided by a prefeasibility analysis of new sites within any sector of the Texas-Mexico border.

Figure 2.2 defines the analytical focus of this study. When a need for a new site arises, the study provides a feasibility evaluation of the potential demand and revenue, as well as an inventory of the infrastructure on both sides of the border. Such information is then used in deciding whether to pursue the project further — that is, whether to perform the site-specific studies listed in the dotted box in Figure 2.2. The comprehensive inventory of all existing and planned infrastructure provides guidelines for future improvement planning, as well as additional technical justifications for pursuing (or abandoning) a proposed project.

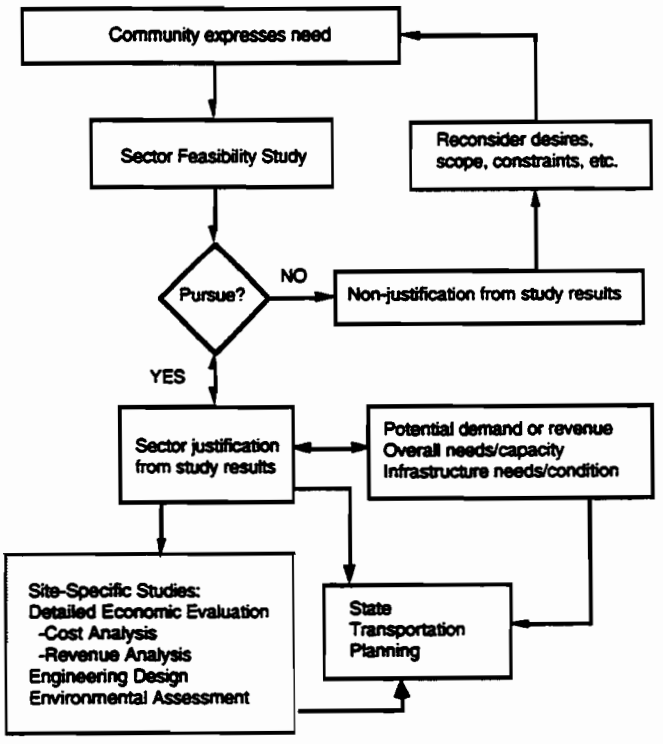

Figure 2.2. System definition for analyzing a proposed binational bridge entry system

Completing the steps outlined in Figure 2.2 requires that the study guidelines cover any new site along the border (including sites to be proposed in the near future). Because the literature on traffic demand and revenue predictions relating to the Texas-Mexico border is almost entirely devoted to the investigation of individual sites, the otherwise state-of-the-art approaches used in those previous studies cannot provide the answers sought by the present study; therefore, a more direct approach was developed.

2.3 RESEARCH METHODOLOGY

This study developed criteria for dividing the border into broadly homogeneous sectors — that is, areas of socioeconomic activity capable of attracting and generating traffic from a number of origin and destination zones. Guidelines on potential demand and revenue at any new proposed site are given by the range and averages developed for the sector where the new site is located, as shown in Figure 2.3. This approach avoids the problems inherent in limiting the study scope to specific sites, while providing a basis for a subsequent evaluation of a proposed site.

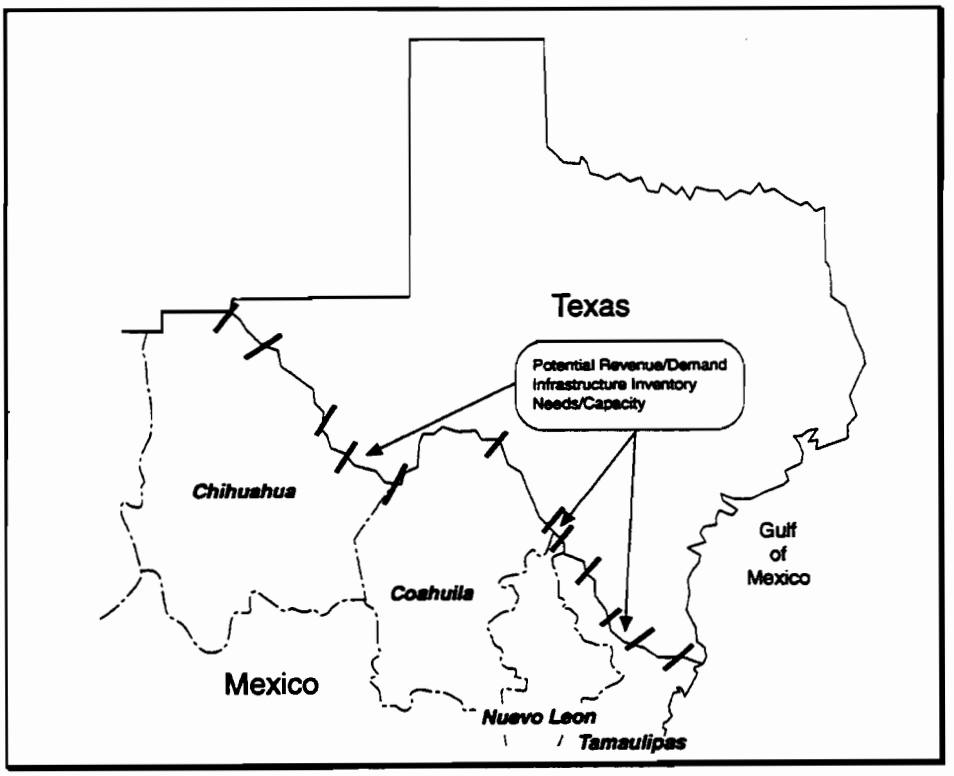

Figure 2.3. Study results for border sectors

The guidelines for transportation planning developed in this study require an aggregated research approach, one in which individual sites are grouped according to the sector criteria

developed in this project. An aggregated analysis provides the answers sought by this study, whereas a disaggregated analysis would be more appropriate in those cases where site-specific results are desired. Figure 2.4 compares the general results of the aggregated and disaggregated analysis.

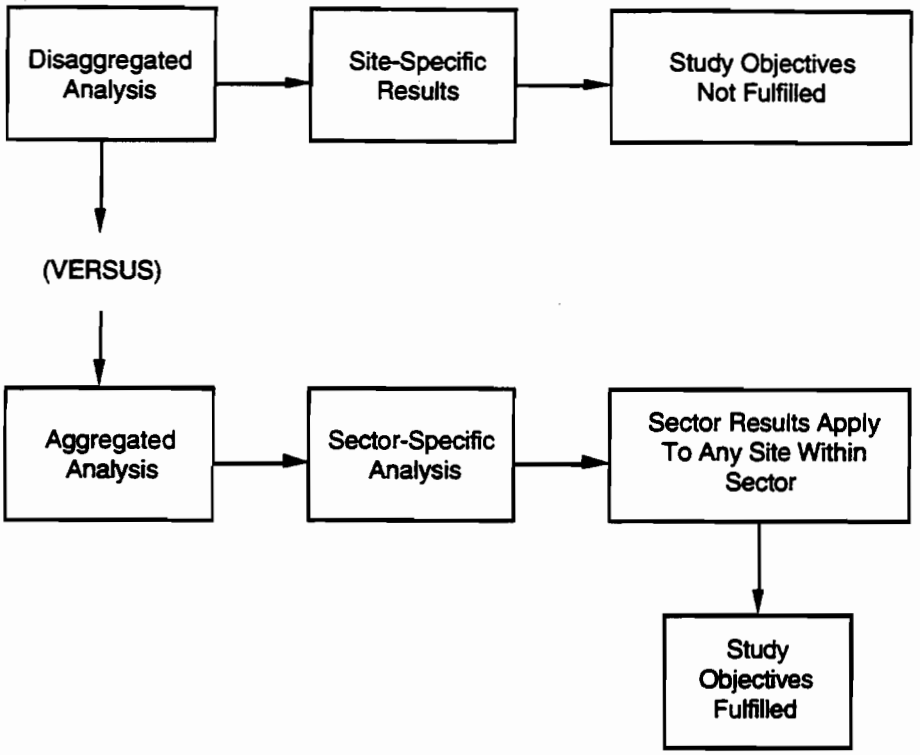

Figure 2.4. Aggregated vs. disaggregated analysis

The research approach was developed to determine the type of results previously discussed. The first step in this research approach is the collection of existing data. Fortunately, a significant amount of useful data is available from state, federal, municipal, and private agencies, as well as from numerous studies addressing Texas-Mexico border transportation. The project staff collected, organized, and reduced all this available information in developing the TRANSBORDER data base, which contains data on traffic, socioeconomic indicators, tolls and revenues, origins and destinations, road conditions, and bridge inventories. All data were collected on a binational level, with the data base containing about as much Mexican as U.S. data. Once enough data were collected, a preliminary evaluation of the Texas-Mexico border was made and areas with potential for traffic demand were identified. At the same time, the project developed an approach for aggregated data analysis that addresses the specific issues of this study.

We used available data to determine the level of aggregation of the analysis; that is, to define boundaries for sectors of the border. Macroeconomic and industrial activity analyses

prepared by the LBJ School and by IM3 were later used as scenarios for traffic projections. Previously collected data were then used in conjunction with these scenarios to obtain traffic growth schedules. These schedules were used in the final step of the study, the demand and revenue estimates under the different scenarios, which was performed by CTR for Segment 1, and by WSA for Segment 2, for the reasons outlined in Chapter 1.

The sector concept was specifically developed by study staff to meet the basic requirements of the project. Representing a new approach to analyzing the border area, this concept, along with its application, is explained in detail in the third report of this series.

CHAPTER 3. DATA COLLECTION AND COMPILATION

3.1 INTRODUCTION

This chapter describes the sources and types of all data collected in this study — data which were subsequently stored in the data base described in Report 1976-2, "Comprehensive Overview of the Texas-Mexico Border: Data Base."

3.2 DATA SOURCES

Data were collected from libraries, newspapers, field trips, interviews, meetings, and from existing data bases. In addition, previous studies, reports, and data obtained by federal, state, and local agencies, including chambers of commerce and private enterprises, were collected, evaluated, compiled, and stored. The methods used to obtain these data are described below.

3.2.1 Libraries and Newspapers

The University of Texas library system served as a major source of information about the border. Data obtained from numerous books, articles, reports, and newspapers relating to the border were gathered, reduced, and stored either in the data base or in a filing system at the Center for Transportation Research (CTR). The University's Public Affairs Library, Benson Latin American Collection, and Perry-Castañeda Library were the main sources for this type of information.

With respect to periodicals, CTR staff subscribed to eleven newspapers — listed in Table 3.1 — that provided up-to-date information on border and NAFTA issues. Other relevant newspapers, including the *Laredo Morning News, The Corpus Christi Caller Times*, and *San Antonio Light,* were obtained from the University library system. Articles about binational entry systems, city planning, and infrastructure were especially tracked; in some cases, the project staff followed up on relevant items by contacting and meeting with the parties involved.

3.2.2 Field Trips and Meetings

The data collection process required that the project staff travel to border communities and to other major Texas cities, including Houston, Austin, Fort Worth, and San Antonio (some out-of-state meetings were also conducted). During these visits, personnel from federal, state, and local governments, commissions, authorities, chambers of commerce, and private enterprises were contacted to discuss relevant issues relating to the study. Much of the information obtained from these field trips is presented in Chapter 5.

A Mexican field engineer traveled to Mexico City and to other major Mexican cities to make contacts and gather data. The overall purpose of these visits was to establish channels of communication with the various federal agencies involved in Mexico-U.S. border binational entry systems. An impressive amount of traffic and socioeconomic data on the Mexican border states (later stored in the TRANSBORDER data base) was obtained during these trips.

Finally, representatives from CTR attended meetings and conferences where border-related issues were discussed.

Table 3.1. Newspapers and place of publication

NEWSPAPER	CITY	COUNTY / STATE	ISSUED
The Brownsville Herald	Brownsville	Cameron	Daily
San Benito News	San Benito	Cameron	Wed./Sun.
The Valley Star	Harlingen	Cameron	Daily
The Monitor	McAllen	Hidalgo	Daily
Progress Times	Mission	Hidalgo	Weekly / Wed.
Eagle Pass News Guide	Eagle Pass	Maverick	Thur. / Sun.
Del Rio News-Herald	Del Rio	Val Verde	Daily
The Big Bend Sentinel	Marfa	Presidio	Weekly / Thur.
El Paso Times	El Paso	El Paso	Daily
El Paso Herald Post	El Paso	El Paso	Daily
El Financiero	Mexico City	Mexico	Weekly

3.2.3 Existing Data Bases

Various government and research agencies have developed data bases containing socioeconomic and technical data compiled for a variety of purposes. After reviewing these data bases, the project staff selected three computer data bases for data downloading. These are discussed below.

State Comptroller data base: The State Comptroller's Office, one of the largest state agencies in Texas, performs a multitude of duties relating to state revenue collection, state expenditure tracking, and state finance monitoring. As one of its primary duties, the Comptroller's Office collects 26 state taxes, including sales taxes. Sales tax data are stored by city in a data base that contains total sales and retail sales for the first calendar quarter of 1984 through the currently available quarter. The Comptroller's Office data base also includes the number of reporting outlets by quarter, as reported to this office by the taxpayers in the selected city, county, or metropolitan statistical area. For the purposes of the present study, the project team downloaded sales data for every Texas border city; this information was then stored in the TRANSBORDER data base.

BORDERBASE SEIS: BORDERBASE SEIS (Socioeconomic Information System) is a subsystem of the Border Information Service (BORDERBASE). Originally developed by IM3 at The University of Texas at El Paso (UTEP), this subscriber-accessed data base is now provided by the Texas Centers for Border Economic and Enterprise Development. BORDERBASE SEIS provides a host of border-region socioeconomic information. Maquiladora indicators, as well as

some traffic and population data used in this study, were obtained from this data base.

BRINSAP Data Base: The Bridge Inventory, Inspection, and Appraisal Program (BRINSAP) is a statewide data base containing 140 items of federally required data (updated annually) on each bridge in the state. Twelve border bridges are periodically inspected in this program, with data for these bridges forming part of this project's Texas-Mexico border data base inventory files.

3.2.4 On-Site Surveys

A route reconnaissance survey was conducted on major Mexican and U.S. roads to collect data on travel time, delay, area type, number of lanes, lane width, speed limit, shoulder width, and road condition. In addition, origin/destination surveys were performed on several binational bridge entry systems in both Segment 1 and Segment 2. In these surveys, data regarding vehicle type, license plate, frequency of travel, origin, destination, and reason for trip were collected. For commercial traffic, axle number and cargo (loaded/empty) information was collected. These data were then stored in the TRANSBORDER data base, which contains updated origin and destination information (over 50,000 items), as well as road-condition data on over 5,000 miles (8,050 km) of roads, both in the U.S. and in Mexico.

3.3 OVERVIEW OF COLLECTED DATA

This section discusses the type of information collected by each main data category. In addition, it serves as a guideline for the use of the TRANSBORDER data base. This information can be used as a guideline for future data collection in the following main categories: inventory and description of binational entry systems, traffic, commodity, socioeconomic, highway condition, and origin and destination data.

3.3.1 Inventory of Binational Entry Systems

Inventory data were collected from field trips, existing data bases, and from the literature on all existing and proposed binational entry systems. This information covers structure type, geometric layouts, number of toll booths or turnstiles, number of primary and secondary customs lanes, number of traffic lanes, and inspection data for those systems that are part of BRINSAP. In addition, customs and INS staffing information and toll schedules were obtained, and the status of proposed binational bridge entry systems, such as financial feasibility and environmental assessment studies, were collected. The overall information consists of a comprehensive inventory and status update of all existing and proposed binational entry systems along the Texas-Mexico border.

3.3.2 Traffic Data

Traffic counts for each bridge were collected for both southbound and northbound lanes. Southbound traffic counts were collected from either bridge managers or owners, whereas northbound traffic counts were collected from U.S. Customs, GSA, and CAPUFE. Counts from these different sources were classified according to transportation type — autos, pickups, loaded

or empty trucks (by axle), buses, bikes, motorcycles, miscellaneous, total vehicles, or pedestrians — and were stored in the TRANSBORDER data base.

Traffic counts were also obtained for each main route to the border on both sides. On the U.S. side, traffic history dating back to 1979 was obtained from TxDOT's permanent automatic traffic recorders (ATR) annual reports. (These ATRs are installed at representative locations on the highway systems throughout Texas, with both rural and urban traffic characteristics represented.) The annual average hourly volumes by day of the week, high hours of the year, and average daily traffic volumes by month, day, and season were compiled. ATR stations located on the border and on every route leading to and from the border were downloaded and reformatted into the TRANSBORDER data base. In addition, traffic counts by vehicle type for a 24-hour period were compiled from manual traffic stations operated by TxDOT.

Mexican-equivalent ATR traffic data were obtained from "Datos Viales," which is published annually by the Secretaría de Comunicaciones y Transportes (SCT) in Mexico. The extracted data include annual average daily northbound traffic and growth rates for some binational bridge entry systems (1987 and 1989). Information analogous to that of U.S. ATR reporting (i.e., traffic history at each main route at, to, and from the Texas-Mexico border) was also obtained. As a result, the TRANSBORDER data base developed in this study forms the most comprehensive binational traffic history on the binational entry systems and on the main routes to the border.

3.3.3 Vehicle Ownership Data

Vehicle registration data were collected for Texas and for all Mexican border states. On the U.S. side, TxDOT's master file contains records of vehicles — identifying border county and vehicle type — from 1988 through 1992. In addition, the numbers of registered vehicles for 1982 through 1991 per Texas county were collected, and total vehicles in operation for 1980 through 1991 classified by passenger cars and trucks were collected as well. These numbers, based on the official state records, were compiled by R. L. Polk & Co.

On the Mexican side, vehicle ownership data were collected for the four Mexican border states (Tamaulipas, Nuevo Leon, Coahuila, and Chihuahua). The data, categorized by state, municipality, and vehicle type, cover the years from 1982 to 1991.

3.3.4 Infrastructure and Highway Condition

A comprehensive survey of all main routes to the border was conducted by CTR over almost 2,200 miles (3,542 km) of Mexican roads. At the same time, Wilbur-Smith Associates surveyed about 2,800 miles (4,500 km) of Texas routes. Chapter 6 discusses infrastructure and highway condition data in greater detail.

3.3.5 Commodity Data

Commodity data, collected from the U.S. Customs Service, consist of the total number of Mexican shipments. While these data provide a very interesting picture of commodity flow across the Texas-Mexico border, they could not, unfortunately, be included in the

TRANSBORDER data base because of a nondisclosure agreement with U.S. Customs.

3.3.6 Socioeconomic Data

Texas population data by county, along with sales data by city (1984 to 1992), were obtained from the State Comptroller's Office data base. In addition, employment data by metropolitan statistical area in Texas were also collected (1984 through 1992).

Population data for Tamaulipas, Nuevo Leon, Coahuila, and Chihuahua (broken down by municipality and at times by city) were collected for 1970, 1980, and 1990. Also, employment data for the aforementioned Mexican states were collected by municipality and broken down by type of economic activity.

Maquiladora data, including the number and names of the maquilas, their geographic location, and the products manufactured, were also obtained for this study. (Report 1976-3, "Comprehensive Overview of the Texas-Mexico Border: Assessment of Traffic Patterns for Revenue Analysis Impacts of the North American Free Trade Agreement," discusses the maquiladora industry in more detail.)

3.3.7 Origin and Destination Data

A literature review provided CTR with some origin and destination (O&D) data (see Report 1976-3 for a fuller description of O&D data sources used in transportation planning studies). To supplement and update the origin and destination data, CTR bilingual staff conducted over 15,000 O&D interviews at eight binational bridge entry systems during a series of field trips. The selected method — one that ensured a high response rate — was direct interview.

3.4 TRANSBORDER DATA BASE

The data described above were stored in a data base specifically designed to serve research and planning purposes. The data were stored and organized in several files capable of being linked by binational entry system and/or geographical location (e.g., city, municipality). The SAS software used is simultaneously a powerful relational data base software, and one of the most comprehensive statistical packages available. In addition, TxDOT is an SAS subscriber, with personnel trained in its use. The TRANSBORDER data base organized all data described above in a comprehensive, binational manner.

A library of formatted variables was also specifically designed to work in conjunction with the TRANSBORDER data base. The formats in this library decode all values of variables that consist of numeric codes or short abbreviations (these substitute for lengthy names whose individual storage would otherwise require excessive disk space). This library serves three purposes: First, it makes the data base output as self-explanatory as possible, minimizing the need for tedious consultations with the data base manual. Second, it improves the self-documentation power of the data base, assuring easy use within offices and agencies hampered by frequent personnel turnover. And third, the library makes the data base more cost effective by saving a considerable amount of storage space.

For greater flexibility, the data base comes with a library of standard programs that run in any system that operates the basic SAS package. These programs can be run in conjunction with the library of formats to produce standard data reports (e.g., origin and destination matrices, trip frequency tables, traffic history series, road condition summaries, and several others). Every file in the data base comes with its own report-producing program.

Research Report 1976-2 discusses in detail the data base structure, the contents of each file, the library of formats, and the library of standard programs. Accordingly, Report 1976-2 can serve as a users' manual for the TRANSBORDER data base.

CHAPTER 4. ADMINISTRATIVE ISSUES IN BINATIONAL ENTRY SYSTEMS

4.1 INTRODUCTION

The building of a binational entry system requires that the sponsoring entities obtain federal, state, and local permission from authorities on both sides of the border. In addition, the sponsors are required to demonstrate their ability to finance the new binational entry system. The following sections describe the application for, and the subsequent operation of, a Texas-Mexico border entry system.

4.2 AUTHORIZATION TO BUILD A BINATIONAL BRIDGE ENTRY SYSTEM

In order to obtain authorization to construct a new bridge across the Rio Grande (Rio Bravo), the sponsors of the bridge, either in Mexico or in the U.S., must obtain permits from various federal, state, and local agencies in both countries.

4.2.1 U.S. Authorization Process

The first step toward obtaining authorization for the construction of an international bridge is the application for a Presidential permit. According to the International Bridge Act of 1972 (86 Stat. 731), the Executive Order 11423 of August 16, 1968 (33 F.R. 11741), and the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), the Secretary of State is empowered to determine the necessity for an international bridge and to issue a Presidential permit if its construction is considered to be in the national interest. For this purpose, the Secretary of State shall consult with the Secretary of the Treasury, the Secretary of Defense, the Attorney General, and the Secretary of Transportation; the Secretary of State may also consult with other department and agency heads and with state and local government officials as deemed appropriate.

The local sponsor prepares the application documents and submits an application for a Presidential permit to the Department of State. Upon receipt of this application, the Department of State publishes a notice in the Federal Register and circulates the application for comment to other federal executive agencies and to state and local authorities, which, in the case of Texas, will usually include the following (Ref 15):

- International Boundary and Water Commission (IBWC)
- Department of Transportation (U.S. Coast Guard, Federal Highway Administration)
- Environmental Protection Agency (EPA)
- Department of Commerce
- Department of Defense (Corps of Engineers)
- Federal Highway Commission
- Department of Agriculture
- Department of Energy
- Department of the Treasury (Customs Service)

- Department of Justice (Immigration and Naturalization Service)
- Department of Interior (Fish and Wildlife Service and Bureau of Reclamation)
- United States Attorney General
- Department of Housing and Urban Development
- General Services Administration (GSA)
- United States Advisory Council on Historic Preservation
- United States Water Resources Council
- Texas Department of Commerce
- Texas Department of Parks and Wildlife
- Texas Department of Transportation
- Texas Water Commission
- Texas Water Development Board
- Texas Historical Commission
- Texas Animal Health Commission
- Texas Alcoholic Beverage Commission
- Texas Governor's Office of State Affairs
- Texas Secretary of State
- Texas General Land Office
- Local city and county government authorities

The application will include: (1) identification of the person or entity applying for the permit; (2) a description of the proposed bridge, including location, design, safety standards, access routes, and related construction details; (3) approval and construction schedules; (4) method of financing the proposed bridge, including estimated costs, details of financing, and proposed toll structure; (5) explanation of why construction of the bridge will serve the national interest, including, for example, traffic projections; (6) steps that have been taken or will be taken to obtain the approval of the Mexican government; (7) steps that will be taken to donate to GSA the site for the U.S. border station; and (8) a list of other permits and approvals from U.S. federal and state agencies that are understood to be required, along with the steps, if any, being taken to secure them.

To facilitate the process, the applicant or sponsor will, during the planning process, consult with the State Department and with the U.S. Section of IBWC and GSA (and with other agencies having interest or jurisdiction over the area of the international bridge), answering any questions or responding to any reservations these agencies might have. As a courtesy, the U.S. Department of State will also provide a copy of the application to Mexico's Secretaría de Relaciones Exteriores (SRE) and Secretaría de Comunicaciones y Transportes (CILA).

Also consulted during the application process is the International Boundary and Water Commission (IBWC). According to the International Bridge Act of 1972, the President, in determining whether to grant approval for an international bridge, "shall secure the advice and recommendations" of the United States section of the IBWC. During the Presidential permit

phase, the U.S. section of the IBWC reviews the preliminary plans to ensure that they satisfy the requirements of U.S.-Mexico treaties regarding IBWC responsibilities. The U.S. section also informs the Mexican IBWC section of the application. At this phase, IBWC grants only preliminary approval, with its report perhaps recommending modification of the original plan. The Department of State grants a Presidential permit only after receiving tentative approval for the bridge project from the IBWC.

Under the National Environmental Policy Act, federal agencies are required to assess the environmental impacts of their planned construction. Whether formal environmental documents need to be prepared will depend on the expected environmental impacts. In the case of international bridges, environmental assessments are customarily required; these in turn provide the basis for determining whether an environmental impact statement is required. The office of Environment, Health, and Natural Resources will assist in the preparation of the required environmental analysis documentation for a Presidential permit, with the GSA sometimes coordinating a joint environmental assessment. In addition to the environmental review requirements of EPA, other statutory requirements include those given by the Endangered Species Act, the National Historic Preservation Act of 1966, the Clean Air Act, and the Clean Water Act.

The various agencies consulted by the State Department will offer comments regarding the application. After receiving these comments (and after addressing all questions and environmental concerns), the State Department determines whether the construction of the bridge is somehow in the national interest. The other federal agencies are informed of the decision and, if there are no objections, the permit is issued 15 days later. If there is disagreement among the agencies, the decision will likely be referred to the President. With the Presidential permit, the applicant is granted permission to construct the bridge, subject to specific technical conditions, the approval of the Mexican government, and to the U.S. federal government agreeing to provide the essential inspection services.

In Texas, the environmental documents relating to the roadway approaches are reviewed either by TXDOT or by the FHWA (according to the funding source). The Governor's Office of State Affairs, TxDOT/FHWA, and Mexican and local sponsors then review a draft agreement for the construction of the bridge. Additional meetings with concerned agencies are also held to negotiate other aspects of the bridge and its facilities.

Once the Presidential permit is issued, final plans are prepared and submitted to the IBWC for approval. This agency determines whether the proposed bridge obstructs or deflects the river's current — an effect that would violate treaties between the two countries. The IBWC will transmit the submitted plans to CILA. In the same way, if the Mexican section of IBWC receives detailed plans from a Mexican contractor, it will transmit those plans to the IBWC. IBWC and CILA jointly decide whether the plans meet treaty requirements.

After obtaining approval from the IBWC, the applicant must obtain approval of its design plans from the Department of Transportation (DOT). The authority to issue that approval is delegated to the U.S. Coast Guard (USCG), a branch of the DOT. The USCG frequently

consults with the IBWC when considering the application. The decision is based on the effects of the proposed bridge on navigation and on the degree to which it complies with environmental laws and regulations. Public hearings may be held if necessary.

TxDOT (or the FHWA), its Mexican counterpart (SCT), and GSA formulate and process the approval contract on the letting for construction of the bridge. The contract is executed, and bids are jointly received and awarded for the bridge. The State Department and USCG are notified of the completion of the bridge and its facilities by the Mexican and U.S. parties involved in the project.

4.2.2 Mexican Authorization Process

In Mexico, the bridge sponsors present the proposal for a new binational entry system to federal, state, and municipal authorities. At the federal level (binational entry systems in Mexico fall under federal jurisdiction), a written proposal, along with preliminary studies justifying the benefits of the proposed project, is presented to the Grupo Intersecretarial de Puertos y Servicios Fronterizos (GIPSF) coordinated by the Dirección General de Fronteras (DGF), a subagency of the Secretaría de Relaciones Exteriores (SRE). This group consists of representatives from several executive departments, including the departments of foreign affairs, interior, defense, treasury and public finance, planning and budget, commerce and industry, agriculture and water resources, communication and transportation, and social development. The group also consults with other federal, municipal, and state authorities. GIPSF will approve or deny all proposals to open new binational entry systems, including their financing, construction, maintenance, improvements, and removal. The group establishes an annual program of activities that take into account norms defined by the concerned federal agencies, as well as objectives established in accordance with Mexico's interests. The annual program receives input from a register of detected needs and proposals presented by border states and municipalities, by national agencies (either public or private), or by the neighbor country (through the appropriate diplomatic channels).

GIPSF will analyze the proposal and will determine the feasibility of establishing a new binational entry system for Mexico. The Secretaría de Hacienda y Crédito Público (SHCP) determines the possibility of financing the binational entry system using either federal funds or a private trust.

Bilateral meetings are then held to conduct preliminary studies, with federal, state, and municipal representatives from both countries attending the meetings. Diplomatic notes expressing interest in constructing a new binational entry system are exchanged between the two countries. After the Secretaría de Comunicaciones y Transportes (SCT) and its U.S. counterpart agree on technical procedures, a preliminary project is prepared and submitted to the IBWC for review. SCT is in charge of the project on the Mexican side of the bridge, while the Secretaría de Desarrollo Social (SEDESOL) is in charge of building the facilities and roadways at the binational entry system. With detailed project plans for both sides of the bridge submitted to IBWC for approval, both countries then exchange diplomatic notes authorizing the construction of the binational entry system. Following this, SCT and its U.S. counterpart sign a contract for

the construction of the binational entry system. Finally, once construction is completed, SCT and SEDESOL hand the binational entry system over to Caminos y Puentes Federales de Ingresos y Servicios Conexos (CAPUFE) and to the corresponding agencies for operation and administration. In the case of a private trust, the trust contracts the services of CAPUFE. The mechanism for establishing a new border port is depicted in Figure 4.1.

4.3 FINANCING OF BINATIONAL ENTRY SYSTEMS

The United States and Mexico finance new binational entry systems in different ways. But for each new binational entry system, the following must be financed:

- bridge
- toll facilities
- inspection facilities
- connecting infrastructure (including right-of-way)

The sources and procedures for financing these elements are the responsibility of different agencies. Constraints to financing each of these facilities must be considered when planning a new binational entry system. For example, it is often found that the link between the two countries (i.e., the bridge itself) is only a small fraction of the overall cost of the facility. The following sections discuss the financing for these facilities for both the U.S. and Mexico.

4.3.1 United States

The entities discussed below are responsible for financing the various elements of a new binational entry system.

The Bridge and Toll Facilities: Generally, the bridge sponsor is responsible for securing the financing for both the bridge and its toll facilities. The bridge sponsors typically are a local city (or cities) or a county, or a combination of the two. (A 1972 law prohibits any private entity from owning a binational entry system. But because such permits issued before 1972 are still acknowledged, a few binational entry systems are presently in the hands of private owners.)

In a typical case, financing for the construction of a new facility will be arranged through the sale of revenue bonds issued by the bridge sponsors. The facility will be owned by the sponsoring city/ies or county, in accordance with an operating agreement setting out the division of surplus revenues from the bridge operation among the sponsoring entities. Once the bridge is constructed, its operation and maintenance, along with the repayment of its bonds, will be paid through toll receipts. All revenue exceeding expenses will be shared among the entities (based on a signed contract). The remaining revenues, if any, are typically transferred to the sponsor's general fund.

The bridge owners are typically represented by a board of trustees or a bridge board. For example, the board of trustees for the Hidalgo Bridge has absolute authority and power regarding the control, management, and operation of the toll bridge system. The board also controls the

expenditure and application of the revenues of the system, subject to the provisions contained in the ordinance (Ref 16).

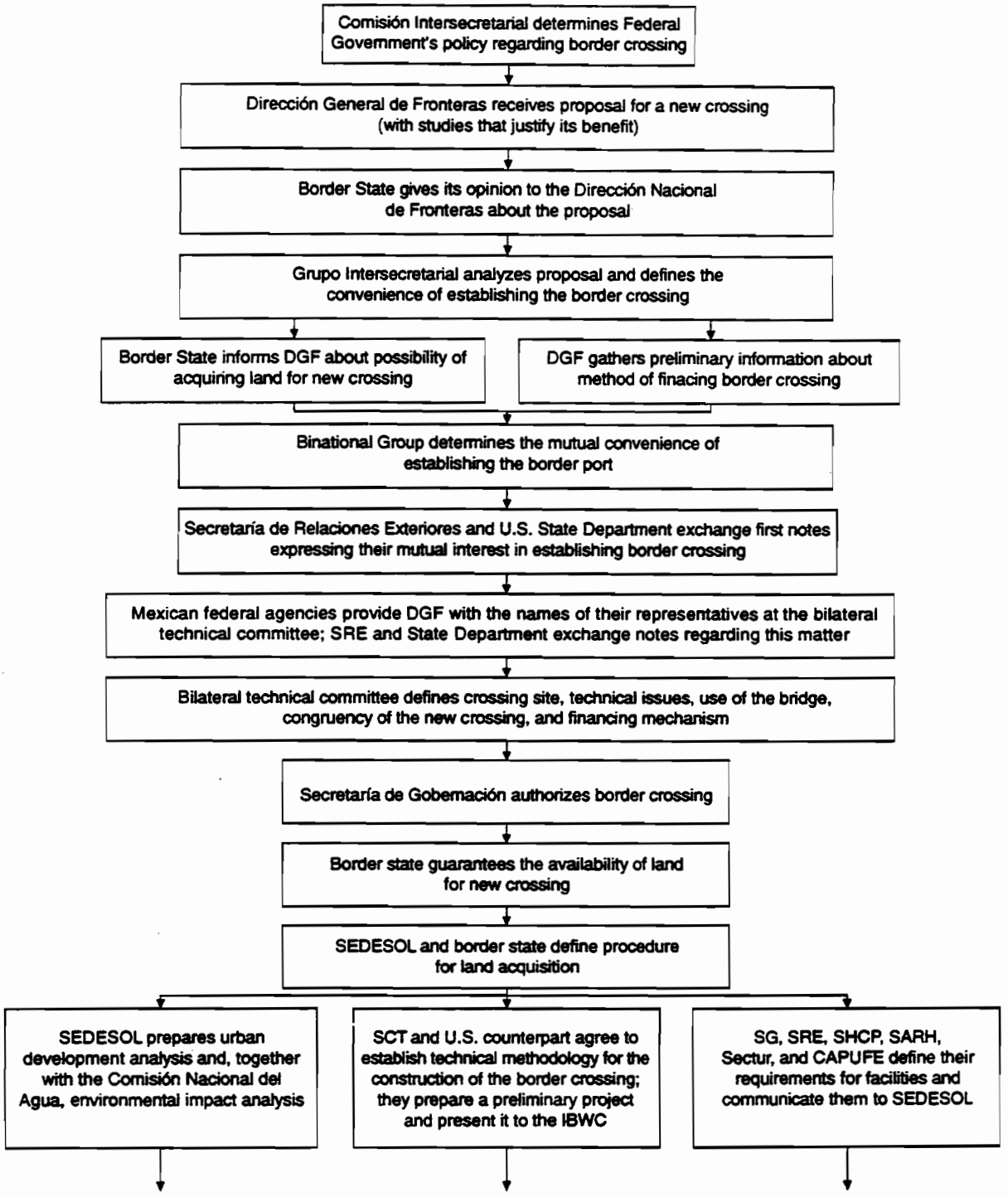

Figure 4.1. Mexican mechanism for establishing a binational entry system
(continued on next page)

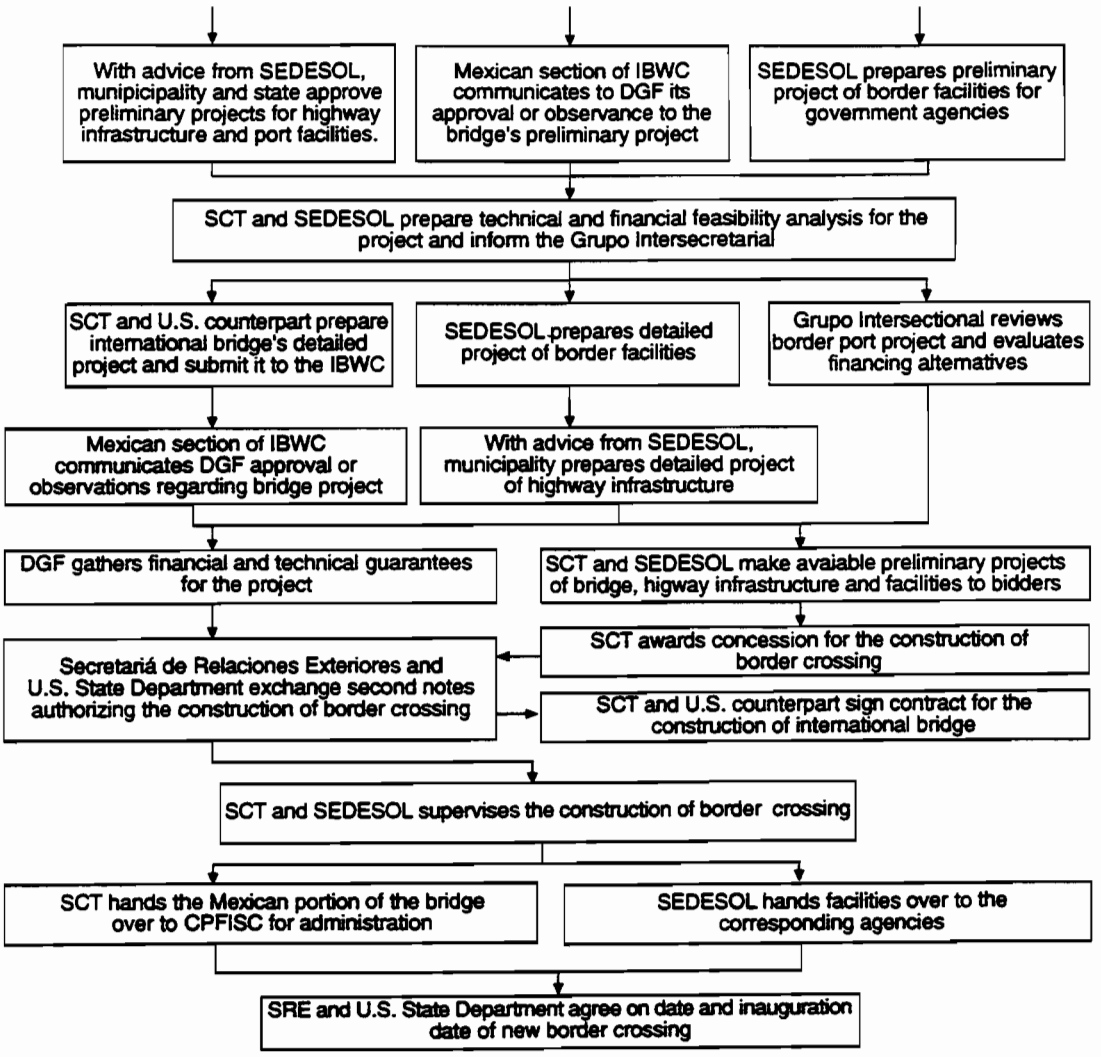

Figure 4.1. Mexican mechanism for establishing a binational entry system
(continued from preceding page)

The Inspection Facilities: The General Services Administration (GSA) must approve the application for local funding and construction of the U.S. Border Inspection Station (see Section 4.4.1 for a complete description of U.S. border operations). GSA typically owns the border station facilities, which it then leases to the U.S. Customs Service, Department of Agriculture, Immigration and Naturalization Service, and to other involved agencies. Funding for GSA facilities were recently made available through the Southern Border Capital Improvements Fund. Some proposals for new binational entry systems indicate that the bridge sponsor might even be

prepared to finance the GSA facilities fully and/or arrive at some arrangement for leasing the facilities to the inspection agencies. The latter, according to Brownsville Port Director Jim Kruse, is found to be the case for the proposed bridge at the Port of Brownsville. (It must be noted that staffing of the federal inspection facilities is funded by the responsible agencies through standard personnel allocation — that is, toll bridge revenues are not used for this purpose. Even though current legislation does not allow private sources to subsidize staffing and associated costs for the federal inspection station, bridge sponsors might explore this option in the future, especially in those cases where financing is not available to staff a new border station.)

Connecting Infrastructure: TxDOT is responsible for constructing the access road leading to the binational entry system and for providing the link between existing infrastructure and the new system. Often the new binational entry system requires infrastructural upgrades other than simply the access road. Such upgrade projects might include linking the binational entry system to the closest highway, or expanding the roadways leading to the closest highway.

4.3.2 Mexico

The financial scheme for any new binational entry system in Mexico must be approved by the Grupo Intersecretarial de Puertos y Servicios Fronterizos (GIPSF). The entities discussed below are responsible for providing financing for the various elements of a new binational entry system.

Bridge and Toll Facilities: The design, construction, and supervision of bridge and toll facilities are federal responsibilities. SCT is responsible for highway bridges, while the Ferrocarriles Nacionales de Mexico (FNM) is responsible for rail bridges. With respect to highway bridges, SCT prepares the projects for concession. Once the concession is granted, funds are made available by combining resources from the concessionaire, SCT (through CAPUFE), and from financial institutions issuing revenue bonds. The toll revenue received during the concession is used for paying off the debt and for operating and maintaining the bridge. After the concession is completed, the operation of the bridge is turned over to CAPUFE (the agency also responsible for federal toll roads and bridges). Toll revenues are used to operate and maintain the toll road network and to provide funds to support the National Highway Program.

Inspection Facilities: The planning and design of the inspection facilities are the responsibilities of SEDESOL, while funding for the inspection facilities is provided by SHCP.

Connecting Infrastructure: Planning, designing, constructing, and supervising the connecting highway infrastructure are the responsibilities of federal, state, and local governments (depending on the road administrative classification). The actual funding mechanism varies according to whether it is a free or a toll road: For a free road, the three levels of government (federal, state, and local) reach a compromise to provide funds on a percentage basis. For the toll road, as mentioned above, or for an international bridge (at the federal level), SCT prepares the project for concession; funds are then received from the concessionaire, SCT, and from financial institutions issuing revenue bonds.

4.3.3 The Role of TTA and TxDOT

TTA: Historically, TTA has not been involved in providing toll bridges along the international border. Rather, border cities and counties have traditionally taken the lead in providing these facilities. In many cases toll bridges provide a tremendous source of revenue to the owners. For example, net revenues from the Laredo Bridge System's Bridge I and Bridge II (Colombia Bridge began operation in July 1991) totaled $10.5 million (U.S.) for 1991 and $12.7 million for 1992. As mentioned earlier, these revenues are transferred to the general fund of a city or county. Understandably, such revenue soon becomes an indispensable part of the general budget of a city or county. In interviews conducted for this study, some officials expressed apprehensions regarding the involvement of any outside agency that might jeopardize this flow of income.

Some border agencies have recently contacted TTA regarding the possibility of its financing, constructing, operating, and controlling a binational bridge entry system. In this case it is expected that TTA's control of the project would extend through the bond term (and through subsequent bond terms that may be required in future expansions). At bond maturity, the ownership of the U.S. side would revert to the sponsoring entities, in accordance with an operating agreement setting out the division of surplus revenues from the bridge operation among these entities.

This new role for TTA is implicit in a statement of policy from the Texas Turnpike Authority's Committee on Privatization. According to this policy, TTA should consider the option of private involvement in every project it undertakes. The objectives of this policy are to encourage the kind of private participation that will:

- expand the scope of projects studied, and/or
- accelerate the construction and completion of projects, and/or
- reduce the overall costs of a project to the users of the facilities, and
- maximize for all Texans the benefits to be derived from TTA facilities.

Through TTA's private involvement in existing and future projects (where practicable), TTA seeks to better provide Texans with cost-effective, high quality toll facilities.

Any public or private entity that requests TTA's involvement in a turnpike project must first submit a proposal to TTA that, among other things, describes the project and outlines the scope of TTA's participation. In reviewing the proposal, TTA staff will determine whether the project merits further consideration.

Texas Department of Transportation: Because the infrastructure required in connecting existing infrastructure with a new facility is provided by the state, TxDOT must be involved in the planning and coordination of any new binational entry systems. In this way, the state agency can include connecting infrastructure in its Transportation Improvement Program (TIP) and Project Development Plan (PDP). Such proactive involvement ensures that funding will be available.

4.4 BORDER OPERATIONS

In allowing individuals and their vehicles to cross the border, authorities on both sides follow specific operations and procedures. Some operations vary according to whether individuals are traveling to the U.S. or to Mexico, while other procedures are similar for both sides of the border. The following, compiled from the U.S. General Service Administration (Ref 17) and from U.S. Department of the Treasury guidelines (Refs 18, 19), describes operational procedures followed on each side of the border.

4.4.1 U.S. Border Operations

U.S. border operations are divided into southbound operations and northbound operations. There are four types of traffic processed through a binational entry system: pedestrian, non-commercial, commercial, and bus. Non-commercial includes vehicles not carrying materials for resale or use in manufacturing (non-commercial vehicles are also referred to as privately owned vehicles, or POVs). Commercial traffic includes all the vehicles carrying merchandise for resale or use in manufacturing.

A district consists of several ports of entry. A port of entry may in turn represent one or more binational entry systems (and could also include an airport or seaport). The focus of the following discussion is on binational bridge entry systems along the Texas-Mexico border.

Southbound Border Operations: There are toll and toll-free binational entry systems along the Texas-Mexico border. Crossing a toll bridge requires paying a fee that varies from one bridge to another, and from one vehicle or traffic type to another. Toll is paid either by cash or by coupons bought in advance from bridge system agents. The owner of the bridge, which could be a city, county, state, or private organization, receives the toll revenues.

At some binational entry systems, U.S. customs inspect southbound commercial traffic for weapons, fraudulent documents, or patent-infringing products. Also, U.S. customs inspects all goods entered under Temporary Importations Under Bond (TIB) — that is, products imported into the U.S. for the purpose of being exported to another country within 1 year from the date of importation. (This 1-year period could be extended to a maximum of 3 years upon approval from the customs district or port director.) Certain other products, including automobiles and automobile bodies, may be kept under bond for a maximum of 6 months only. Since these imports are not intended for consumption or sale in the U.S., duties are not imposed. The amount of bond posted on these goods is generally double the estimated duties. TIBs should be exported before the expiration of the bond period (to avoid any liquidated damages in the amount of bond). Finally, the Texas Department of Public Safety (DPS) occasionally checks southbound traffic to verify vehicle ownership (in an effort to recover stolen vehicles at some binational entry systems).

Northbound Border Operations: Northbound traffic is first processed through primary inspection booths. The pedestrian, non-commercial, and bus primary inspection booths are jointly operated by U.S. Customs and the Immigration and Naturalization Service (the agents of which have been cross-trained to perform each others' function). Officers first check the

citizenship of each person entering the United States: While U.S. citizens are not required to show documents, non-citizens are asked to present proper documents that prove eligibility to enter the United States. Officers will then ask whether the individual has anything to declare in the form of goods or money.

At the officers' discretion, travelers are either instructed to enter the U.S. without any further delays, or they are asked to proceed to secondary inspection for further processing, questioning, or inspection. Secondary inspection could include a detailed search of a vehicle or person by customs officers (using in some cases trained dogs), further verification and/or processing of immigration documents by Immigration and Naturalization officers, or inspection of plants or animals by the Animal and Plant Health Inspection Service (APHIS), which is part of the U.S. Department of Agriculture (USDA).

Persons found to be carrying illegal or prohibited materials, holding inadequate or fraudulent documents, or attempting to circumvent any U.S. regulation are subject to measures that include detainment, hearings, trial, and/or deportation.

Commercial vehicles are processed through designated primary booths located at the entrance to the import lot. These booths are manned by customs officers. Some commercial vehicles are processed through primary lanes only, while others are inspected and processed in the import lot or secondary inspection. A further discussion on processing commercial vehicles is included in the section describing the role and responsibilities of the U.S. Customs Service.

Passengers traveling by bus are processed individually through the pedestrian booths or turnstiles. Passengers are allowed to reboard following an inspection of the empty bus.

There are several agencies involved in northbound border operations. The following is a description of the role, purpose, and responsibility of each agency. Figure 4.2 depicts the flow of southbound and northbound traffic at a binational entry system.

United States Customs Service (USCS): The United States Customs Service is under the jurisdiction of the Department of the Treasury. Customs officers are responsible, together with Immigration and Naturalization officers, for overseeing primary and secondary non-commercial vehicle, pedestrian, and bus inspection lanes. USCS officers are also responsible for inspecting commercial traffic in primary and secondary areas.

The major function of the USCS is to administer the Tariff Act of 1930, as amended. Its primary responsibilities include collecting duties, fees, and penalties on imported merchandise that exceed certain values; enforcing laws, restrictions, or quotas on imported goods; confiscating contraband (especially narcotics); detaining persons involved in any action to circumvent customs regulations; interdicting copyright, patent, and trademark infringements; and processing cargo and mail into and out of the U.S., including the export of high-technology products. Customs is also responsible for ensuring that carriers have proof of liability insurance in compliance with U.S. Department of Transportation (DOT) and U.S. Interstate Commerce Commission (ICC) regulations.

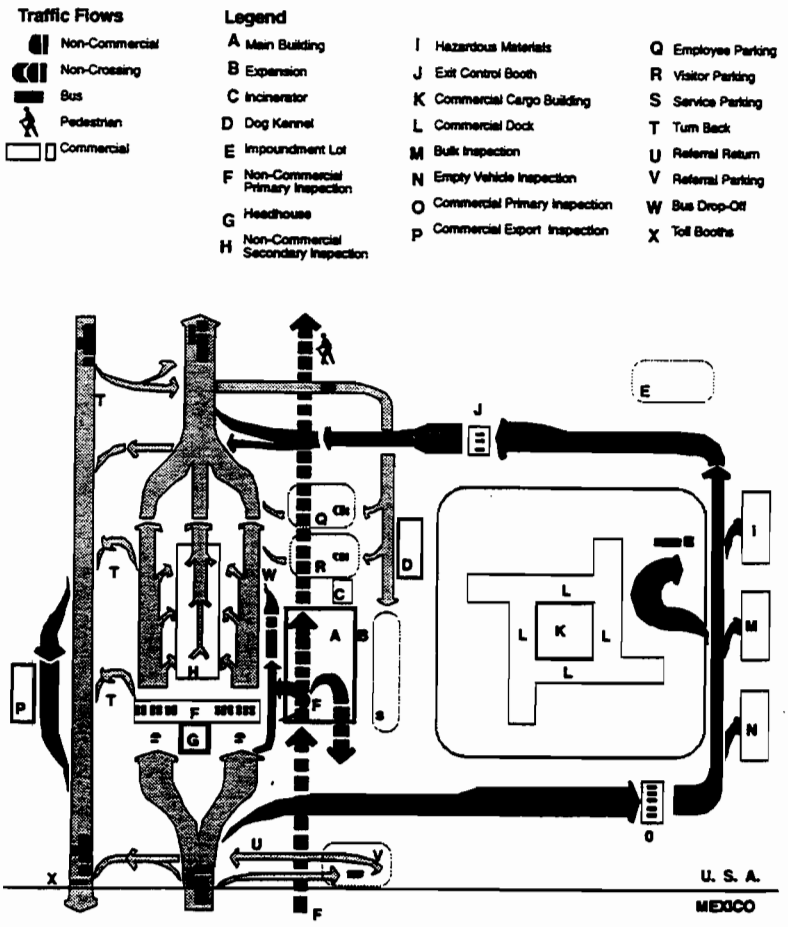

Figure 4.2. Flow of southbound and northbound traffic at a binational bridge entry system

The Customs Service field offices are divided into seven regions: Northeast Region, New York Region, North Central Region, Southeast Region, South Central Region, Southwest Region, and Pacific Region. Each region is headed by a regional commissioner who reports to the Commissioner and Deputy Commissioner of Customs. A region is subdivided into districts. The Texas-Mexico border is part of the Southwest Region and is made up of two districts: The Laredo District, with jurisdiction over all the ports of entry extending from the Port of Brownsville to Del Rio, inclusive; and the El Paso District, with jurisdiction over all the ports of entry west of Del Rio to Columbus, New Mexico. A port of entry is usually administered by a port director, who delegates responsibilities to an assistant port director and to chief inspectors, who in turn delegate responsibilities to supervisors and inspectors. A typical organizational chart for a port of entry is presented in Figure 4.3.

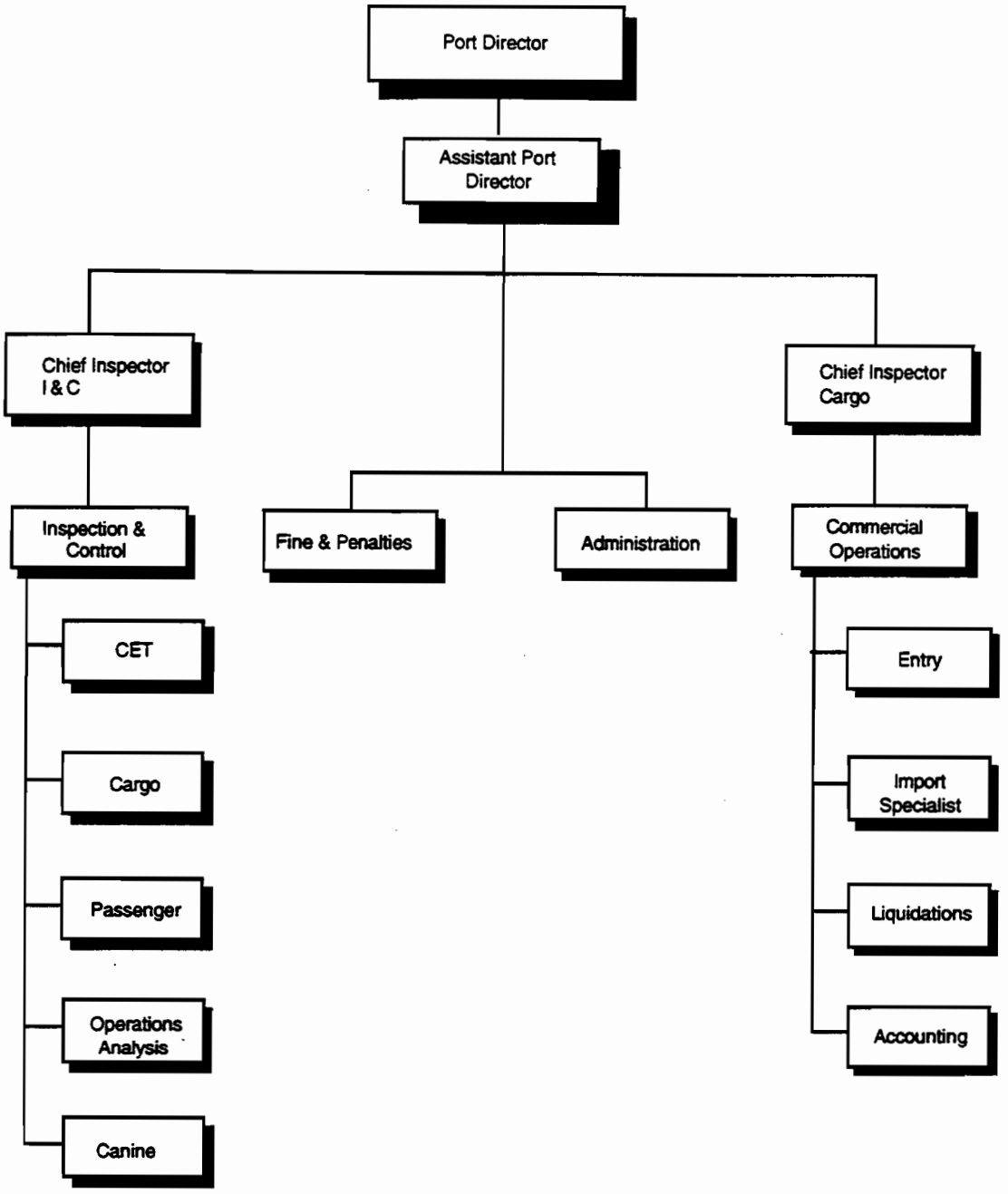

Figure 4.3. U.S. Customs Service organizational chart at a port of entry

The Inspection and Control group (I&C) at a port of entry is responsible for the inspection of persons, baggage, vehicles, and cargo entering the U.S.; the control of merchandise in the custody of customs; and the control and inspection of exports. The I&C is also responsible for devising and implementing programs for carrying out the aforementioned activities.

As shown in Figure 4.3, I&C consists of the following teams, each of which is headed by a chief inspector:

(1) Contraband Enforcement Team (CET): This is a special enforcement team that is aimed at interdicting contraband.

(2) Cargo Inspection Team: This team examines cargo and mail entering the U.S.

(3) Passenger Inspection Team: Responsible for processing passengers carrying cargo into the U.S.

(4) Operational Analysis: This team is responsible for intercommunicating between the different teams and reporting the existing trends in enforcing regulations.

(5) Canine Inspection: This group trains the dogs used for search and inspection.

Only owners, purchasers, and licensed customhouse brokers are allowed to bring commercial goods into the U.S. There are two types of entries: formal entries, which are generally goods valued at over $1,250; and informal entries, which include goods valued at $1,250 or less. Some goods, such as leather, are considered formal entries when their value exceeds $250. Informal entries, unlike formal entries, require neither a bond nor a broker. The processing fee for informal entries is $2 for automated entries, $5 for manual entries not prepared by customs, and $8 for manual entries prepared by customs. For formal entries, there is a users' fee of $5 per entry ($100 annually) for customs, and $2 per entry ($40 annually) for agricultural products.

Individuals carrying merchandise must file documents to determine if the merchandise should be released from customs' custody. Other documents containing information for duty assessment and statistical purposes are also filed. The group responsible for processing duties and revenues is referred to as Commercial Operations, and consists of:

(1) Entry Team: The team that deals with revenues and cashier services.

(2) Import Specialist: The team that reviews documents submitted by brokers.

(3) Liquidation Team: The team that disposes of captured or seized merchandise.

(4) Accounting Team: The team that keeps track of all the financial activities.

(5) Fines and Penalties Team: The team that handles prosecutions against any party involved in an illegal action.

(6) Administration: The team that provides support to other customs' groups.

There are various entry documents that should be filed with customs within 5 working days of a shipment's arrival to a port of entry. These documents include:

(1) Customs Form 7533 (Entry Manifest) or Customs Form 3461 (Application and Special Permit for Immediate Delivery) or other applications required by customs

(2) Proper documents proving the right to enter the U.S.

(3) Commercial invoice in any form

(4) Packing list

(5) Any other documents required by U.S. Customs

Once the merchandise is determined to be released by customs, an entry summary for consumption will be filed and duties are paid to customs within 10 working days from release. The entry summary includes:

(1) Entry package returned to the importer, broker, or his authorized agent after releasing merchandise

(2) Customs Form 7501 (Entry Summary)

(3) Other invoices and documents for duties assessment, statistics, and verification

A bond should also be posted with customs through a U.S. surety company when merchandise is entered. The bond will cover any possible future duties, taxes, and penalties imposed on the merchandise.

Release of a shipment might be expedited through the so-called "Line Release System" by submitting an application for a Special Permit for Immediate Delivery on Customs Form 3461 prior to the arrival of merchandise. With the approval of the customs district director and with the appropriate bond posted, merchandise imported from Mexico or Canada, including fresh fruits and vegetables for human consumption, is eligible for immediate release. The Line Release System allows empty trucks, trucks with a low-risk of carrying narcotics, and repetitive shipments to be expeditiously processed. Once a shipment arrives at the import lot, the driver submits the manifest to customs, which verifies all the information through a computer check. A shipment has a certain code (Common Commodity Classification Code) that identifies the shipper or manufacturer, importer, broker, and commodity. If the information presented on the manifest matches the information on the customs computer terminal, the shipment is eligible for release. Otherwise, Customs Inspection and Control and Commercial Operations will be responsible for processing a shipment at the import lot. The Line Release System is made possible by the implementation of the Automated Manifest System (AMS) and the Automated Broker Interface (ABI) system, through which a broker sends, in advance, all information about a shipment to the customs information data bank in Virginia. Line Release shipments are usually processed in less than 5 minutes. However, this system is not widely used along the border, owing to qualification restrictions and to the inaccessibility of computers to brokers (Ref 20).

Goods not released are placed in a customs-bonded warehouse for up to 5 years from the date of arrival. These goods do not include perishable items, explosives, or prohibited substances. If the goods do not enter the U.S. and are re-exported or destroyed, no duty is paid. However, if the goods are released for consumption, duties are paid according to the rates in effect on that date.

Goods not allowed to enter because of a failure to file entry within 5 working days from

arrival are placed in a general order warehouse at the risk and expense of the importer. These un-entered goods are sold in a public auction after 1 year. Some goods, such as perishables and explosives, are auctioned earlier. In some instances, goods are destroyed (especially those goods deemed incapable of bringing in sufficient after-tax revenue to make an auction worthwhile).

Only customhouse brokers are allowed by tariff laws to act as agents for the importers. All such agents should be given a customs' power-of-attorney by the individual or firm for whom they are acting on behalf. A nonresident individual, partnership, or foreign corporation would give the power-of-attorney to an employee, broker, partner, or corporation officer who is to handle all customs matters. The brokers, selected after careful background checks, are licensed by the U.S. Department of the Treasury. The Broker Compliance and Evaluation Program, which is part of the Customs Field Operations Division, develops, implements, and monitors programs to ensure the competence of customs brokers. Such programs include the Customhouse Broker Exam and the Customs Brokers License Program. Brokers' duties include preparing and filing customs entries, posting bonds, arranging for duties payments, releasing goods in customs custody, and representing their principals to customs.

Customhouse brokers are contacted by exporters to prepare a Shippers' Export Declaration (SED), which includes information about the exporter, the cosignee, destination, and value of merchandise. The broker also obtains the necessary licenses to export certain shipments, such as firearms and sensitive technology.

U.S. customs brokers have recently requested that the U.S. Department of Justice open an anti-trust investigation into what they refer to as "monopolistic and exclusionary practices" by Mexican customhouse brokers and freight forwarders. At issue is a long-standing procedural discrepancy: Goods entering Mexico must be processed by a Mexican customhouse broker employed by a Mexican customhouse. Both the broker and the customhouse owner must be Mexican citizens. Yet while merchandise imported into the U.S. must be processed by a U.S. customs broker employed by a U.S. customhouse, only the broker must be a U.S. citizen. Mexican customhouses, clearly exploiting this discrepancy, tend to set their offices on the U.S. side to process goods imported into the U.S. and into Mexico (Refs 21, 22).

Goods are examined by customs officials prior to release. The degree of examination varies. For example, textiles and textile products are trade-sensitive and may be subject to examinations more extensive than those given to other merchandise. Also, Line Release shipments are normally not examined, since customs count on customhouse brokers responsible for these shipments. However, about 2–3 percent of these shipments are randomly inspected and examined. Examination is necessary to determine the value of goods (and thus the value of duties imposed), to mark goods with the country of origin or with a special marking or labeling, to check for any prohibited articles or narcotics, to verify invoices and quantities of goods according to invoices, and to ensure that animals, plants, and their products comply with the regulations as required by certain federal agencies. To relieve possible congestion at the import lot, trucks are sometimes forwarded for inspection to centralized examination stations (CES) located in proximity to the import lot. CESs are not available everywhere along the border; the

import lot might be the only place for inspection at a port of entry.

Immigration and Naturalization Service (INS): The Immigration and Naturalization Service is under the jurisdiction of the Justice Department. Other agencies under the same jurisdiction that are involved in border operations include the Executive Office for Immigration Review (EOIR) and the U.S. Border Patrol (see Fig. 4.4). The EOIR, which acts independently of the INS and the border patrol, is responsible for deportation. There are two INS regions along the U.S.-Mexico border: the Southern Region, covering Texas and New Mexico; and the Western Region, covering Arizona and California. The Southern Region has border districts in Harlingen, San Antonio, and El Paso.

The INS enforces the Immigration and Nationality Act (8 USC 1103) and is responsible for inspecting the eligibility of persons seeking to enter or reside, whether permanently or temporarily, in the United States. As shown in Figure 4.5, the INS office at a port of entry is headed by a port director who oversees line inspection, benefits processing, enforcement, and administration.

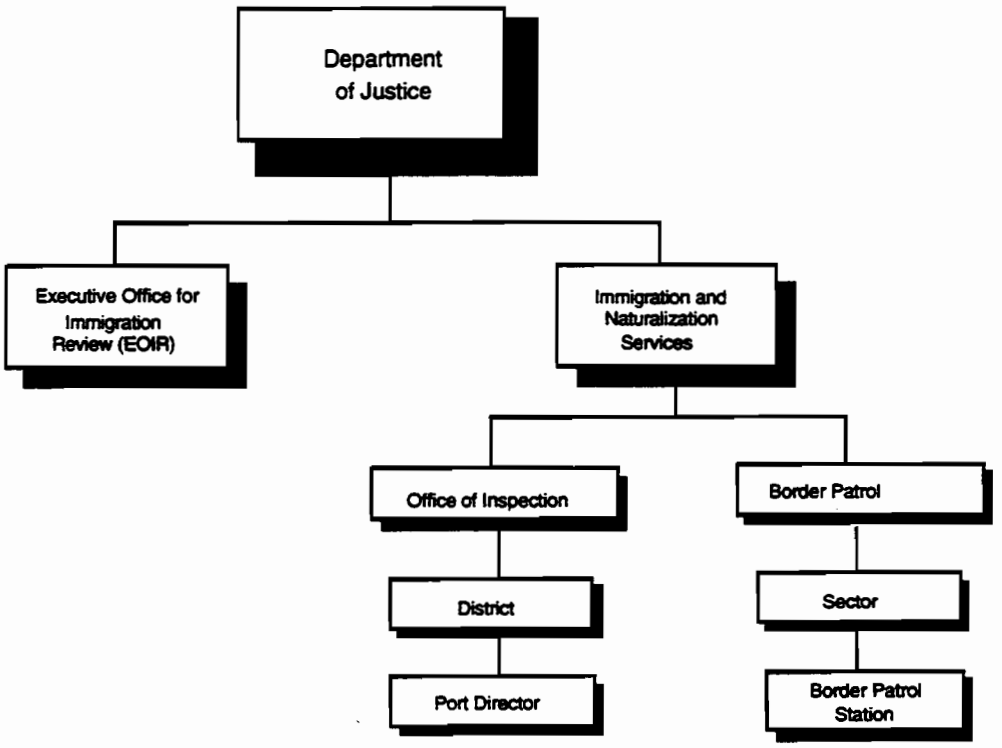

Figure 4.4. Organizational chart of the agencies involved in border operations

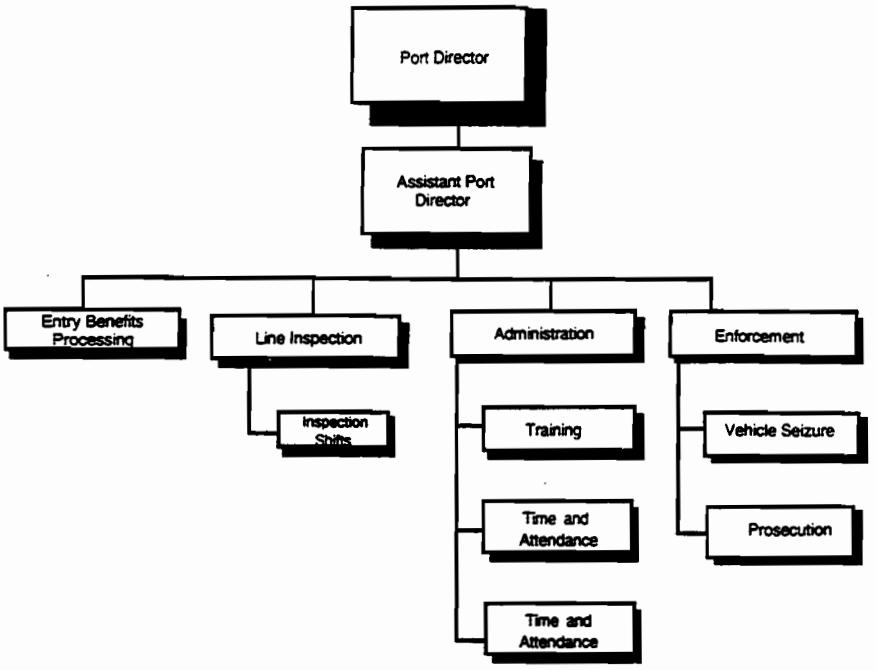

Figure 4.5. Immigration and Naturalization Service organizational chart at a port of entry

Line inspection is the processing performed at primary inspection jointly by immigration and customs officers. In this process, individuals are quickly processed for their eligibility to enter the U.S. If the need for further inspection or processing (owing to immigration issues) arises, the individuals involved are referred to Benefits Processing or Secondary Inspection.

Benefits processing includes further document processing, verifying, and questioning of individuals who do not pass line inspection. Foreign nationals holding a valid visa to enter the U.S. are processed by benefits processing to acquire one of the following:

- Arrival Departure Record I-444 — an entry permit to the U.S.-Mexico border states only
- Arrival Departure Record I-94 — an entry permit to the U.S.
- Three-day border crossing card
- Work permits
- Residence or alien cards

Processing of the above entry documents could be performed either in the Secondary Inspection area designated for INS or in private interview rooms.

Enforcement includes the processing after violations are detected in the course of line inspection or benefits processing. The steps include further investigation, case preparation, prosecution, and assets or vehicle forfeiture.

Administration includes all the support activities provided to INS personnel at a port of entry. This could be in the form of personnel training, job improvement programs, staff payroll, and benefits, purchasing, and accounting services.

U.S. Border Patrol: The U.S. Border Patrol is responsible for prohibiting persons from illegally crossing the border to enter the U.S., interdicting contraband smuggling, and arresting violators. The Border Patrol is responsible for the continuous surveillance of the border area outside and adjacent to the ports of entry. Such surveillance includes driving, flying, or monitoring remote low-light-level television (LLTV) along the border and in adjacent areas. Persons along the border suspected of committing any illegal action are apprehended. Following apprehension, these individuals are questioned, fingerprinted, and, if warranted, prosecuted. After a temporary detainment, foreign nationals are escorted by the Border Patrol for deportation. In pursuit of its objectives, the Border Patrol might use the Automated Fingerprint Identification System (AFIS), the Central Index System (CIS) used by INS, and the National Criminal Information Computer (NCIC) data base systems.

Although the Border Patrol is a sub-agency of the INS, its operations are independent of that agency. The U.S. Border Patrol jurisdictions are divided into sectors, which are further sub-divided into stations. These stations are the bases of the border patrol in that sector. Additionally, border patrol personnel are allowed to use the facilities at the ports of entry for document filing and other administrative activities.

U.S. Department of Agriculture (USDA): The Animal and Plant Health Inspection Service (APHIS) is part of the U.S. Department of Agriculture (USDA). It consists of two groups: Veterinary Services (VS) and Plant Protection and Quarantine (PPQ).

Persons in possession of vegetables, fruits, meats, plants, animals, or any plant- or animal-based products in Primary Inspection are referred to Secondary Inspection, where APHIS plays a significant and essential role. Travelers who fail to declare all carried items are, if detected, fined ($50 or more); items are also confiscated. Livestock and vegetables inspected in the exporting country could pose a security risk and a jurisdiction question (Ref 23).

APHIS responsibilities consist of enforcing quarantines and inspecting animals, plants, animals and birds by-products, produce, and forest products. Beagle dogs and low-energy X-ray machines are used to detect hidden items. These steps are taken to prevent any animals and plants with pests, diseases, and disease-carrying organisms from entering the U.S. and damaging crops, livestock, pets, and the environment. Based on the results of inspection, animals or plants are either released or seized. Seized plants, produce, or any other products are tested, stored in large cans, and possibly destroyed. Seized live animals, such as pet birds, are placed in quarantine until a decision to allow or deny entry into the U.S. is made. Other APHIS responsibilities include establishing and maintaining safe and effective biologics used on animals, and ensuring the humane treatment of animals (Ref 24).

General Services Administration (GSA): The General Services Administration (GSA), Public Buildings Service, is responsible for providing, constructing, and managing the inspection facilities, buildings, and surrounding grounds at a binational entry system. Some border station

facilities are leased from GSA by the various inspection agencies. Other border station facilities are actually owned and maintained by INS or customs. Still other border station facilities are owned by local governments or private entities (and then leased to the federal government).

There are two GSA regions: Region 7, with jurisdiction over Texas and New Mexico; and Region 9, with jurisdiction over Arizona and California. There are also different divisions within each GSA region with responsibilities to provide planning, leasing services, design management, and budgeting for major construction, repair, and alteration projects. These divisions include Design and Construction, Real Estate, and Planning. GSA field offices are responsible for janitorial services and maintenance of facilities, including equipment. These services could also be contracted. Other field responsibilities include minor repairs and alterations.

Other Agencies: There are other agencies involved in border operations. These include:

- State and local agencies: The Texas Alcoholic Beverage Commission collects taxes on tobacco and alcohol. The utilized booth is either provided by the state or leased from the federal agencies. In 1987 the state legislature passed a law requiring commercial vehicles entering the U.S. to register with Texas Railroad Commission (RRC) to verify the possession of liability insurance and pay a $2 fee for a stamp. In 1992 the fee was raised to $20.
- Food and Drug Administration (FDA): The Food and Drug Administration is responsible for inspecting foods and pharmaceutics. Their activities might require space on the commercial dock.
- Drug Enforcement Administration (DEA): The Drug Enforcement Administration is responsible for combating illegal drug smuggling.
- Fish and Wildlife Service (FWS): The responsibility of the Fish and Wildlife Service is to prohibit the entry of protected endangered species and wildlife, both plants and animals. Certain permits from the FWS and the country of origin are needed to allow the entry of endangered species. There are certain ports designated for entry of fish and wildlife. None of these ports are located on the Texas-Mexico border.
- Public Health Services (PHS): The Public Health Service (PHS) is part of the U.S. Department of Health and Human Services. PHS is responsible for prohibiting persons with certain diseases from entering the U.S., and restricting the entry of dogs, cats, monkeys, birds, and turtles. Customs officers usually assist the PHS in carrying out responsibilities, since the PHS does not require space or inspection at a binational entry system.

4.4.2 Mexico Border Operations

Traffic moving to and from Mexico through binational entry systems must undergo a series of processing steps that basically involve inspection and toll collection. Bridges owned by the federal government in Mexico are administered by CAPUFE, which is a subagency of SCT. This agency is responsible for federal toll roads and bridges.

Inspection and clearance of transborder traffic at ports along the U.S. border involve several Mexican federal agencies. Customs processing is handled by the Dirección General de Aduanas, which is a branch of the Subsecretaría de Ingresos, which is, in turn, a branch of the Secretaría de Hacienda y Crédito Público (SHCP). One branch of the Dirección General de Aduanas, the Policía Federal Fiscal, is in charge of the surveillance of binational entry systems. Immigration regulations and those regulations regarding foreign nationals living in Mexico are administered by the Dirección General de Servicios Migratorios, which is under the jurisdiction of the Secretaría de Gobernación (SG). Animal and plant health inspections are handled by Sanidad Vegetal y Sanidad Animal, which is under the Secretaría de Agricultura y Recursos Hidráulicos (SARH).

Southbound Border Operations: For imports into Mexico, Mexican customs processes and clears the corresponding import documents, conducts random inspections of cargo, and issues the documentation proving compliance with customs processing. Clearing procedures, similar for most ports of entry, involve a series of inspection steps, usually referred to as inspection "modules." In general, the process starts before cargo actually enters Mexican territory. The Mexican customs broker, whose computer is on-line with Mexican customs' computer system, files the information about a shipment via computer to customs and obtains, through a computer printout, the import documents ("pedimentos") already validated. With these documents, the customs broker agent pays the corresponding duties and taxes, with such payments automatically registered on the customs' system. After this, the truck is instructed to proceed across the border.

In the first Mexican inspection step, the license plates and serial number of the trailer are checked. For cargo that will be cleared at interior customs (e.g., customs inspection stations located at points in the interior of Mexico), the documentation is verified at a second module and proceeds thereafter. When the truck arrives at the customs inspection booth, a customhouse agent will be waiting for it on-site to present the import documentation. Information regarding the shipment is entered into customs' computer system, which randomly determines whether the truck will undergo detailed inspection (Red/Green light). This detailed inspection includes the verification of quantities, types and weights of merchandise, verification of permits, duties, and control of illegal substances. The percentage of shipments undergoing detailed inspection depends on the type of commodity, of which there are 34 classification types. For common import shipments, this percentage averages around 10 percent; for maquiladora shipments, around 1 percent. However, because their system allows for additional inspection (at the discretion of customs officials), the actual percentages are usually higher. If the cargo of a shipment selected for random inspection requires inspection by Sanidad Vegetal y Sanidad Animal, an inspector is called for the inspection. Normally, detailed inspection takes 3 hours maximum. Shipments with no detailed inspection normally require from 1–10 minutes to be cleared. Following the trailer's inspection, the customshouse agent receives the clearing documents and the trailer is sealed. At the next customs checkpoint, usually located further from the border or at the limits of the border zone, the trucks are checked for customs clearance

documentation (they are not inspected further).

Mexican customs adopted in 1991 a series of reforms in accordance with Mexico's open trade policies. These reforms were intended to improve the efficiency of customs procedures, reduce corruption, and increase the collection of customs duties. Steps taken for this purpose included the adoption of an automated customs processing system known as "Sistema de Automatización Aduanero Integral" (SAAI). SAAI allows brokers to file and process the import/export documentation via computer; it also allows for the automation of the randomly selected detailed inspection, thus greatly reducing the processing time and allowing for better control of import and export information. The system is currently operating, at various levels, at all border ports on the Mexico-Texas border (Nuevo Laredo, the border port having the largest volume of truck crossings, was the first to introduce this system). Presently, shipment information can be read using bar code technology at Nuevo Laredo, Ciudad Juarez, and at Matamoros ports of entry.

Privately owned vehicles are inspected by Mexican customs randomly according to the "green/red" (or Pass/Do Not Pass) system. The green/red light systems are installed on each bridge, on the southbound customs inspection lane, and also on the already mentioned customs check points located on the limits of the border zones. Mexican customs inspectors may interrogate the vehicle's passengers to check whether the passengers are carrying anything to declare before activating the random inspection light (usually by tubes on the pavement or by pushing a button). Vehicles that activate a green light proceed, while vehicles that activate a red light may undergo detailed inspection at the secondary inspection area. Customs officials also inquire about the immigration status of the vehicle's passengers. Where applicable, vehicle passengers or pedestrians (e.g., tourists) have their necessary documentation processed at the facilities of the Dirección General de Servicios Migratorios, usually located adjacent to the bridge entrance.

Northbound Border Operations: Tolls from northbound traffic are collected at toll booths located at the entrance of each bridge, with booths for vehicular traffic and booths specifically designated for pedestrian traffic. CAPUFE is presently working out with motor carriers the changeover from cash to coupons to pay for tolls.

For Mexican exports, customs verifies the SHCP permits and the payment of taxes. The northbound processing of truck traffic is similar to the southbound processing. Once a truck arrives at the binational entry system, the customshouse agent presents the export documentation; the system then determines whether the truck needs to undergo detailed inspection (about 1 in 30 shipments goes through detailed inspection).

4.5 BORDER INSPECTIONS UNDER NAFTA

The recently approved North American Free Trade Agreement should simplify customs and other inspection procedures. However, rules of origin, which refer to the percentage of North American content that a product must contain in order to qualify for preferential tariff treatment, as well as other enforcement concerns, will still require a continuous customs presence (similar to that in operation on the U.S.-Canada border). Quotas and other restrictions must be

enforced, trademarks, copyrights and patents must be protected, and unsafe products must be prohibited. Other federal border inspection requirements from both the U.S. and Mexico also must be observed. For example, the threat of increased illegal drug traffic will necessitate intensified inspection efforts, particularly on the U.S. side of the border (Ref 25).

CHAPTER 5. TEXAS-MEXICO BINATIONAL ENTRY SYSTEMS

5.1 INTRODUCTION

This chapter describes each of the binational entry systems located along the Texas-Mexico border (proposed and under-construction entry systems are also included). Operation starting dates, ownership, number of toll and inspection booths, connecting highway facilities, proposals for expansion, and traffic data are particularly discussed.

5.2 EXISTING SITES

The binational entry systems linking the U.S. and Mexico at the Rio Grande (Rio Bravo) include twenty bridges, two dams, and one ferry, all utilized for vehicular and pedestrian traffic. There are also six rail bridges, one of which is also a vehicular bridge. The existing vehicular bridges range from small two-lane structures that allow only non-commercial traffic, to eight-lane structures having modern border station facilities.

In general, binational entry systems, including bridges, are owned by both countries. On the U.S. side, these systems are most often owned by border cities, counties, state, or federal entities, though a few are privately owned. On the Mexican side, international bridges fall under federal jurisdiction and are, in general, administered by Caminos y Puentes Federales de Ingresos y Servicios Conexos (CAPUFE), a subagency of the Secretaría de Comunicaciones y Transportes (SCT). Although most binational entry systems are toll facilities, there are a few free facilities. On the U.S. side, tolls from city- or county-owned bridges are collected by the corresponding bridge authorities, with the revenue usually going into the owner's general funds. In Mexico, the toll revenue collected by CAPUFE goes to the federal government. Approximately 30 percent of toll revenues in Mexico are used for operation and maintenance of these facilities, while 40 percent go to the National Highway Program. Table 5.1 lists Texas-Mexico binational entry systems for vehicular and pedestrian traffic. Figures 5.1 through 5.6 show the existing and proposed binational entry systems along the Texas-Mexico border.

Generally, peak hours vary for each direction of travel during the day. The peak hours for the northbound direction are during the morning from 6 to 8 a.m., with such traffic consisting mostly of either Mexicans that work in the U.S. or parents taking their children to U.S. schools. The southbound peak hours are typically between 5 and 7 p.m., when people return home to Mexico after school, work, or shopping.

A large seasonal traffic variation is also observed at bridges. Factors that significantly affect vehicular traffic volumes are winter-Texans (i.e., those vacationers who travel to Texas — especially to the valley area — to escape the harsh winters of the northern and northeastern states) and university and national holidays. Pedestrians are mostly Mexicans crossing the border to shop in the U.S. (Many Mexican consumers prefer the greater selection, higher quality, and better service that U.S. merchants offer. In addition, Mexican consumers often combine shopping trips with social events and family activities.)

Table 5.1. Existing vehicular international bridges along the Texas-Mexico border

Mex. State	Bridge U.S. Name / Mexican Name	U.S.-Mexico City or Town	U.S. County
Tamaulipas	1. Gateway Bridge / Puente Matamoros	Brownsville-Matamoros	Cameron
Tamaulipas	2. B&M Bridge / Puente B y M	Brownsville-Matamoros	Cameron
Tamaulipas	3. Los Indios Bridge/ Puente Lucio Blanco	Harlingen - Lucio Blanco	Cameron
Tamaulipas	4. B&P Bridge / Puente Las Flores	Progreso- Nuevo Progreso	Hidalgo
Tamaulipas	5. Hidalgo-Reynosa Bridge / Puente Reynosa	Hidalgo-Reynosa	Hidalgo
Tamaulipas	6. Los Ebanos Ferry / Dias Ordaz-Los Ebanos	Los Ebanos-Dias Ordaz	Hidalgo
Tamaulipas	7. Rio Grande Bridge / Puente Camargo	Rio Grande City-Cd. Camargo	Starr
Tamaulipas	8. Roma Bridge / Puente Miguel Aleman	Roma-Ciudad Miguel Aleman	Starr
Tamaulipas	9. Lake Falcon Dam / Presa Falcón	No U.S. City-Ciudad Guerrero	Starr
Tamaulipas	10. Juarez-Lincoln (No. 2) Bridge / Puente Laredo 2	Laredo-Nuevo Laredo	Webb
Tamaulipas	11. Convent Street (No. 1) Bridge / Puente Laredo 1	Laredo-Nuevo Laredo	Webb
Nuevo leon	12. Solidarity Bridge / Puente Solidaridad	Laredo-Colombia	Webb
Coahuila	13. Eagle Pass Bridge / Puente Piedras Negras	Eagle Pass-Piedras Negras	Maverick
Coahuila	14. Del Rio Bridge / Puente Ciudad Acuña	Del Rio-Ciudad Acuña	Val Verde
Coahuila	15. Lake Amistad Dam / Presa de la Amistad	No U.S. City-No Mexican City	Val Verde
Coahuila	16. La Linda Bridge / Puente La Linda	No U.S. City-No Mexican City	Brewster
Chihuahua	17. Presidio Bridge / Puente Ojinaga	Presidio-Ojinaga	Presidio
Chihuahua	18. Fort Hancock / El Porvenir	Fort Hancock-El Porvenir	Hudspeth
Chihuahua	19. Fabens Bridge / La Caseta	Fabens-Caseta	El Paso
Chihuahua	20. Zaragoza Road Bridge / Puente Zaragoza	Ysleta-Zaragoza	El Paso
Chihuahua	21. Bridge of the Americas / Puente Cordova	El Paso- Ciudad Juarez	El Paso
Chihuahua	22. Good Neighbor Bridge / Puente Reforma	El Paso-Ciudad Juarez	El Paso
Chihuahua	23. Paso Del Norte Bridge / Puente Santa Fe	El Paso-Ciudad Juarez	El Paso

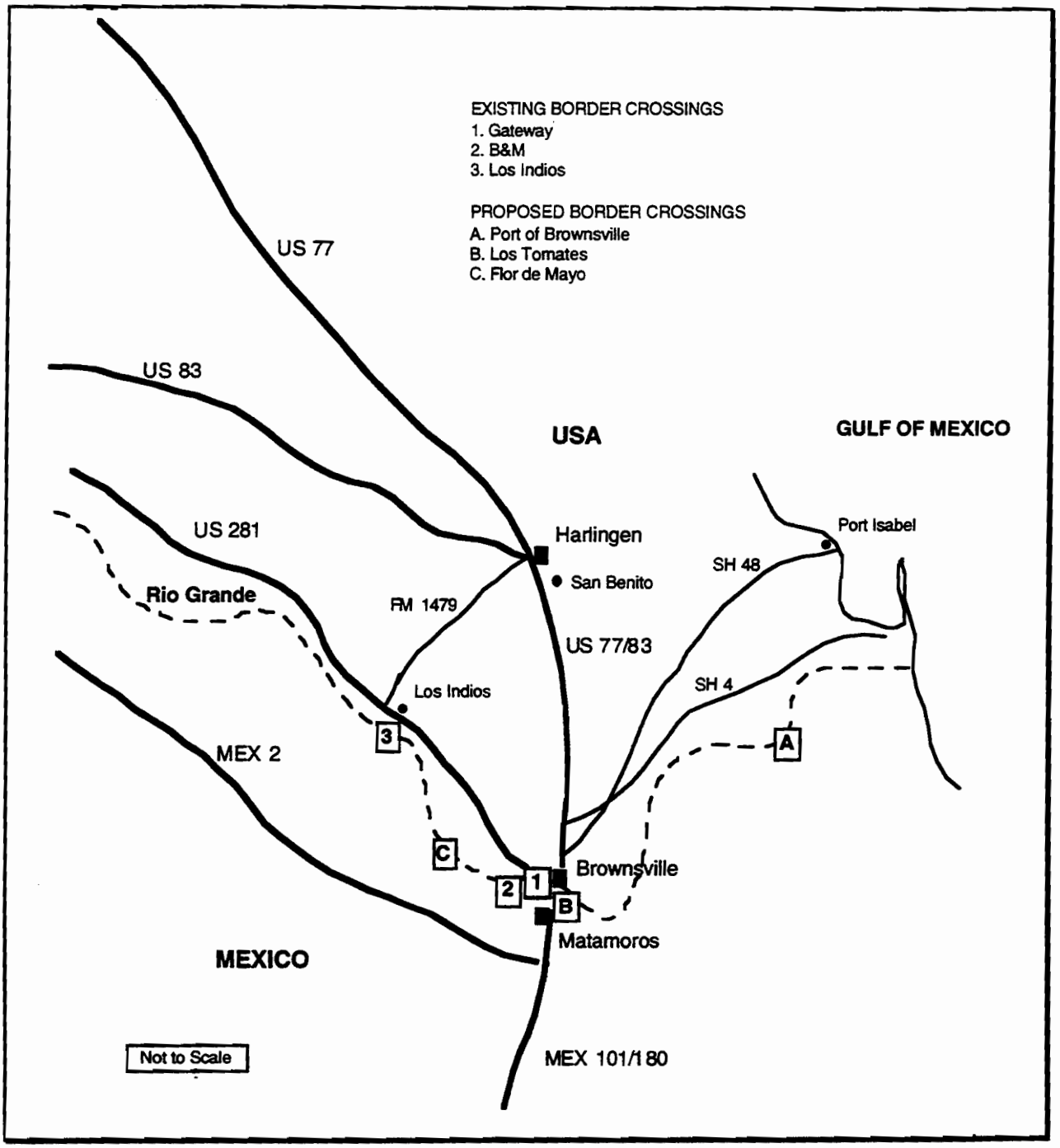

Figure 5.1. Existing and proposed binational bridge entry systems in Brownsville area

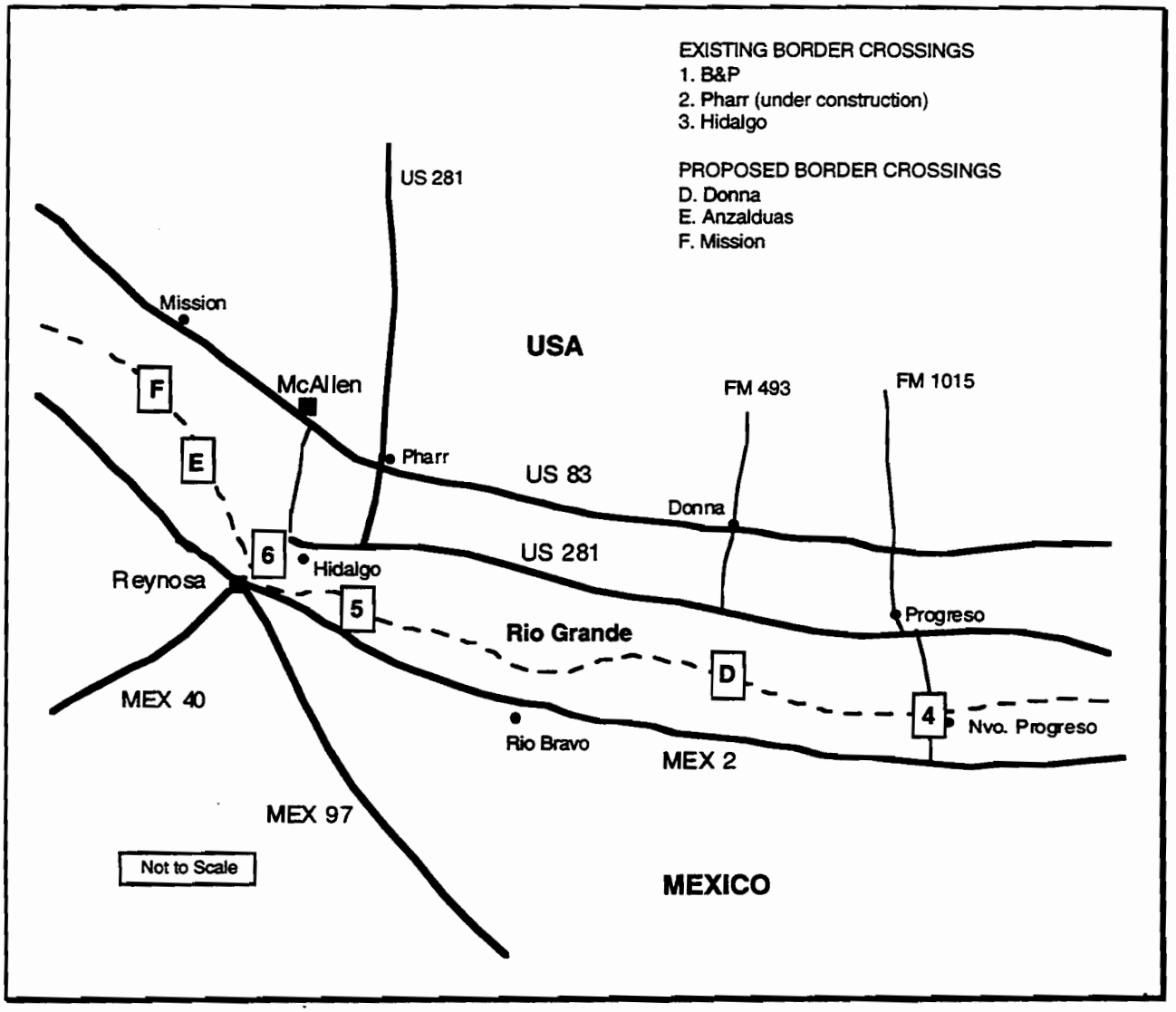

Figure 5.2. Existing and proposed binational entry systems between Progreso and Mission

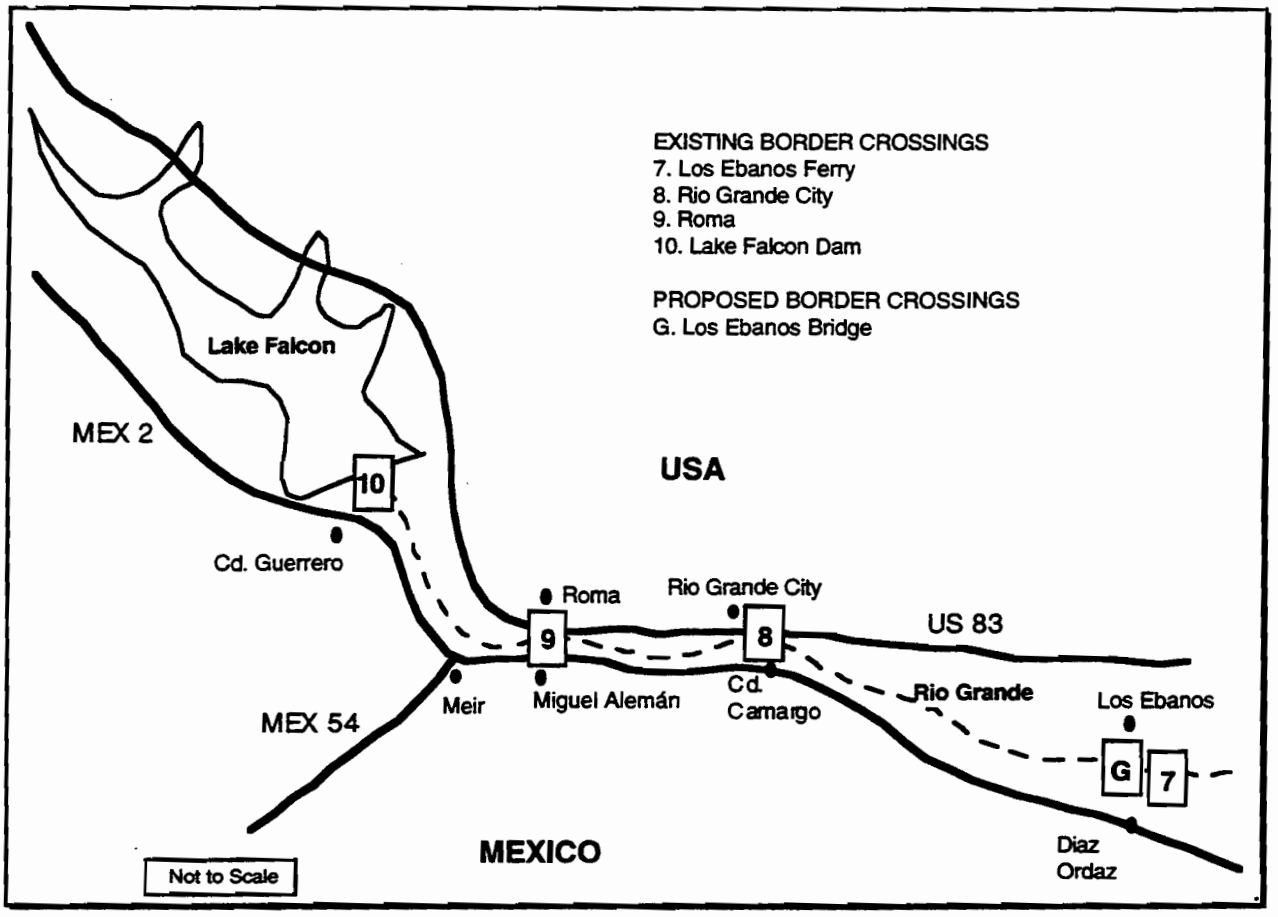

Figure 5.3. Existing and proposed entry systems between Los Ebanos and Lake Falcon

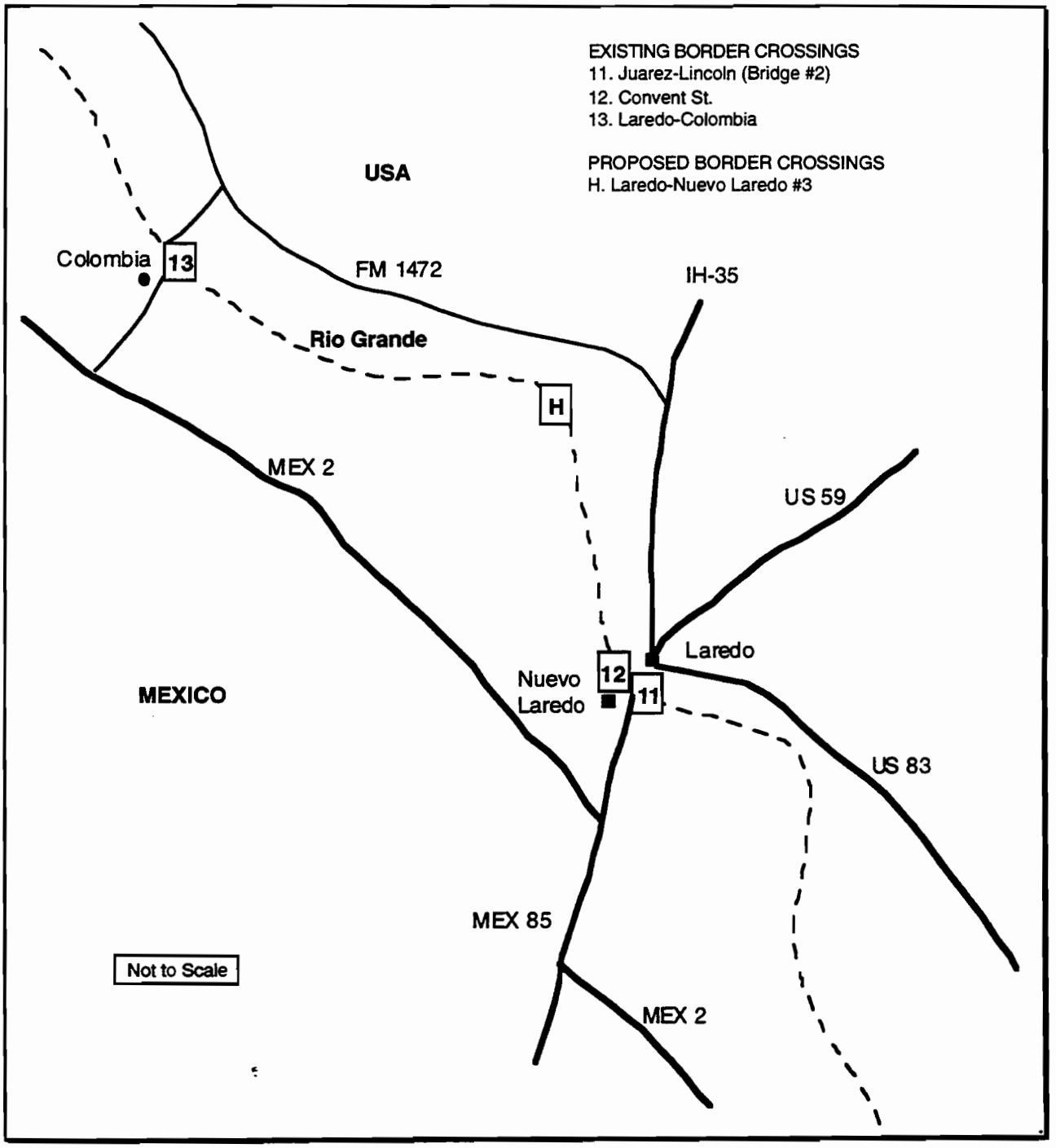

Figure 5.4. Existing and proposed binational entry systems in Laredo area

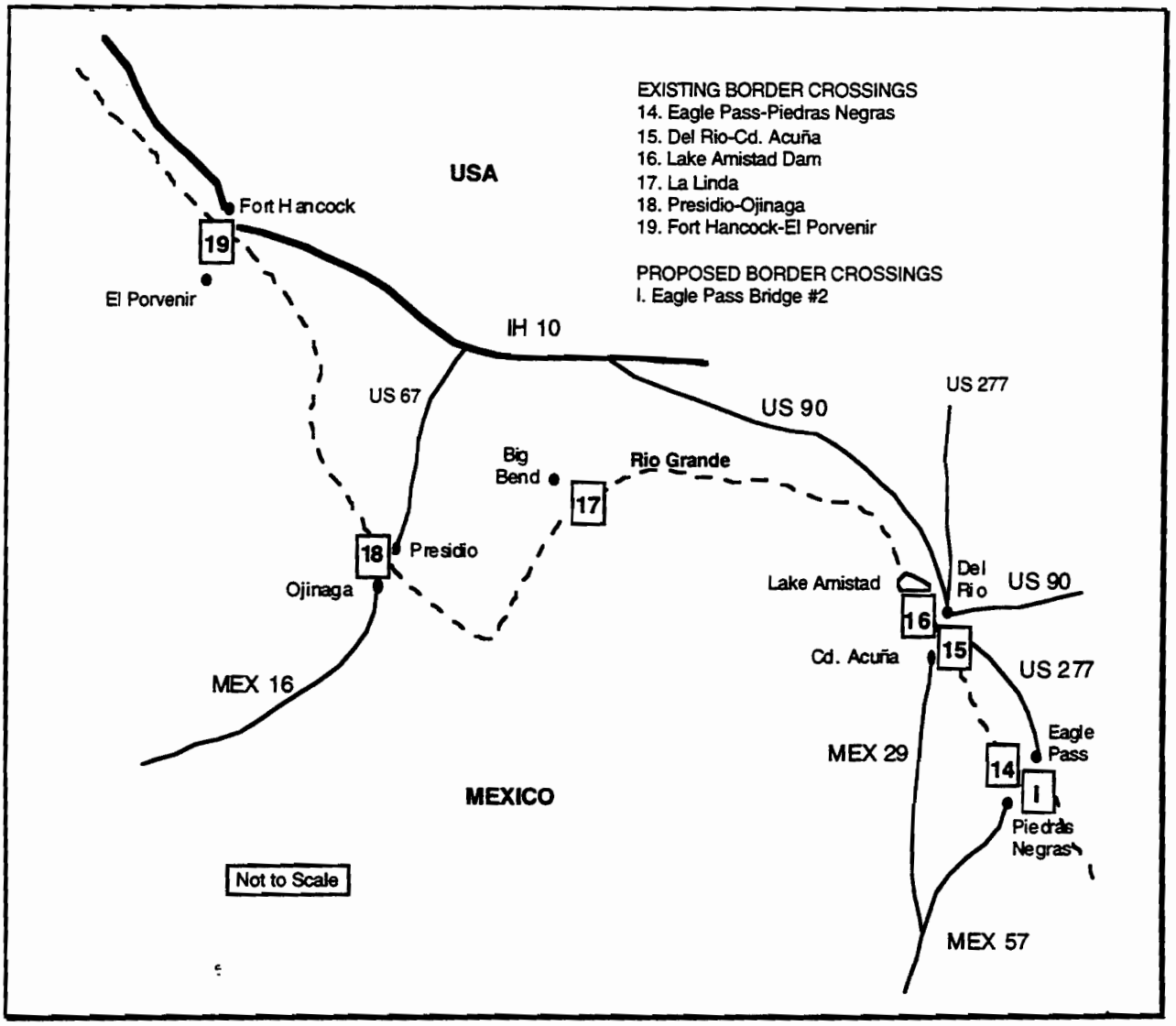

Figure 5.5. Existing and proposed entry systems from Eagle Pass to Fort Hancock

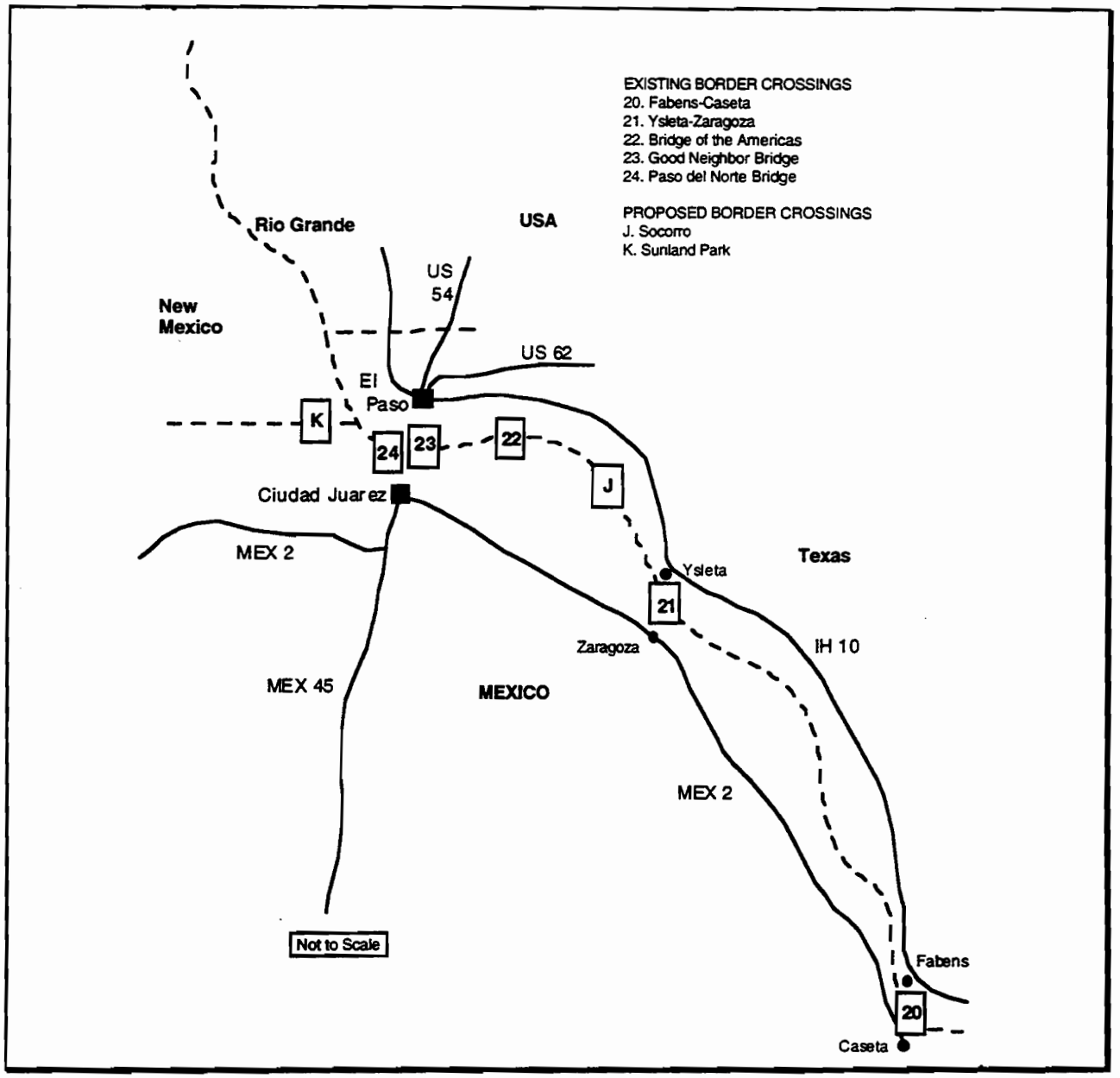

Figure 5.6. Existing and proposed bridge entry systems in Fabens and El Paso area

5.3 SEGMENT 1

In Segment 1 there are thirteen binational entry systems located at six ports of entry. Eleven of these are for vehicular traffic, one is for rail only, and another is for both rail and vehicles. Table 5.2 lists the ports of entry in Segment 1, along with the number of binational entry systems within each port. Vehicular and pedestrian binational entry systems at each port of entry are described below.

Table 5.2. Number of binational entry systems in each port of entry in Segment 1

Segment 1 Port of Entry	# of Vehicular Binational Entry Systems	# of Rail Binational Entry Systems	# of Combined Binational Entry Systems (Rail & Vehicular)
Brownsville	2	-	1
Progreso	1	-	-
Hidalgo	1	-	-
Rio Grande City	2	-	-
Roma	2	-	-
Laredo	3	1	-

5.3.1 Brownsville Port of Entry

This port of entry consists of three binational entry systems: Gateway, B&M, and Los Indios.

Gateway Bridge: Gateway Bridge is a toll facility connecting Brownsville in the U.S. and Matamoros in Mexico. It is located adjacent to Brownsville Central Business District. The U.S. side of the bridge is owned by Cameron County, while the government of Mexico (GOM) owns the other side. Gateway consists of two separate concrete bridges, with two lanes in each direction and with each bridge carrying one-way traffic. One bridge was built in 1968; the age of the other bridge is unknown. Pedestrian walkways are also provided in each direction to accommodate the high number of pedestrians crossing daily. Current southbound access to Gateway Bridge is via E. 14th Street and E. Elizabeth Street through three toll lanes. Vehicular traffic must travel around a city block to approach southbound toll booths. Northbound bridge traffic from Gateway enters onto International Boulevard, which connects to Expressway 83/77.

Currently, there are four primary inspection booths at the U.S. Customs facility for private vehicles, with room for expansion to six. Typically, two of these booths are open, with others opened as demand increases. There are seventeen secondary inspection booths, with no room for expansion. During fiscal year 1992 (October 1991 through September 1992), 11–12 percent of all privately owned vehicles passing through the U.S. Customs facility were subject to secondary inspection. There are four primary inspection booths for trucks, of which two are typically staffed. The truck import lot currently has twenty secondary inspection booths. The referral rate to secondary inspection docks for trucks was 100 percent during fiscal year 1992. A new import lot is being constructed that will increase capacity to 50 truck docks. An expansion of the truck entrance to the import lot is also planned (targeted for December 1993 completion). The expansion will allow trucks to maneuver more easily from the bridge to the import lot. The southbound toll facility has three toll booths, with no designated truck booth. There is no apparent room for expansion. Because the surrounding land is fully developed, future facility expansion would be difficult.

Perishables are typically not handled at this binational bridge entry system, since they do not have the facilities to accommodate the inspection of these products. The adjacent B&M Bridge is better suited for the inspection of trucks transporting perishables.

Historic northbound traffic counts of pedestrians, trucks, buses, and privately owned vehicles are shown in Figure 5.7. Southbound traffic counts are presented in Figure 5.8. The bridge carries approximately 7,700 vehicles per day in the northbound direction only. A large number of pedestrians make use of this bridge daily. Vehicular traffic crossing the bridge is said to be mostly local traffic (between the twin cities), with external traffic estimated to account for 5-10 percent of the traffic. Through a recent license plate count in the central business district, it was also revealed that two-thirds of the automobiles were of Mexican origin (Ref 27). Truck traffic crossing the bridge is mostly maquiladora traffic (60-70 percent). (The findings of an origin-and-destination study conducted by CTR at Gateway are presented in Report 1976-3.)

As for the Mexican side, there is one customs administrator serving Gateway (Puente Matamoros), B&M (Puente B y M), and Los Indios (Puente Lucio Blanco). Gateway Bridge is also known as Puente Nuevo or Puerta México. Mexican customs at Puente Nuevo has three primary inspection lanes (or booths) for private vehicles. One of these booths is always closed. There is a fourth lane for empty trucks. The secondary inspection area includes space for about 10 to 15 vehicles. Loaded trucks make a right turn before reaching the customs booths that connect with the commercial lot. It takes approximately 15 minutes for these trucks to reach the import lot using a truck route (or "ruta fiscal"). Both Puente Nuevo and Puente Viejo (B&M Bridge) use the same import lot. This import lot has a capacity of approximately 60 vehicles. The time required for detailed inspection of commercial vehicles at the Mexican import lot is approximately 3 hours.

Northbound traffic pays toll at booths managed by CAPUFE. For pedestrians, there are two turnstiles staffed by two workers. One of these turnstiles is closed at night (11 p.m. to 7 a.m.), when pedestrian traffic is light. There are three lanes or booths for vehicles. One lane is for trucks, while the other two are for privately owned vehicles. The lanes are opened all day, with the exception of the truck lane, which is closed from 11 p.m. to 7 a.m.

Avenue Alvaro Obregon, a four-lane divided street in fair condition, connects Matamoros with Gateway. The street is in a commercial zone, a few miles away from Matamoros' central business district. One has to go through Matamoros' narrow crowded roads to get from the bridge to the airport, highway MEX 2, or to highway MEX 101/180 (to Ciudad Victoria).

B&M Bridge: B&M Bridge connects Brownsville and Matamoros approximately 1 mile (1.6 km) upstream from Gateway Bridge. The bridge is privately owned and operated by the Brownsville and Matamoros Bridge Company, a subsidiary of Union Pacific Railroad Company (UP) and Ferrocarriles Nacionales de México (FNM, National Railroads of Mexico). History: A concession was received in 1886 to operate rail and vehicles on this bridge. Construction was underway from1901 to1909. The bridge was reconstructed in 1941. Recent expansion and remodeling of the border facilities were completed in January 1992 (Ref 28).

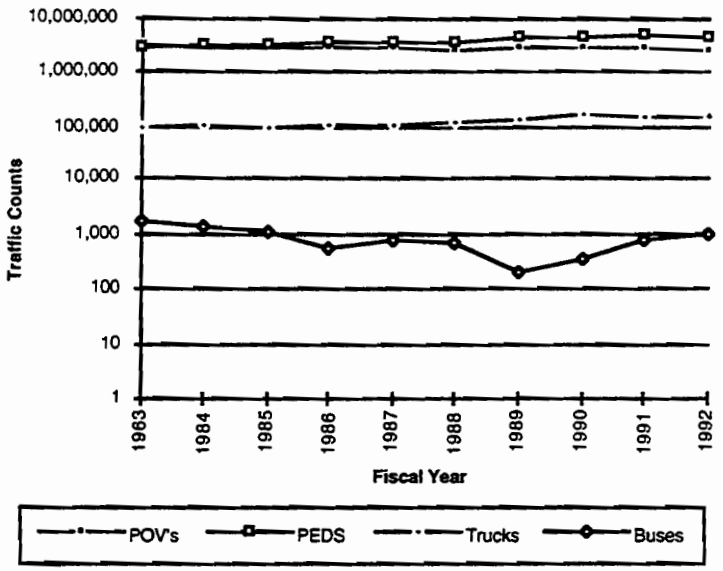

Figure 5.7. Northbound traffic at Gateway International Bridge (source: U.S. Customs)

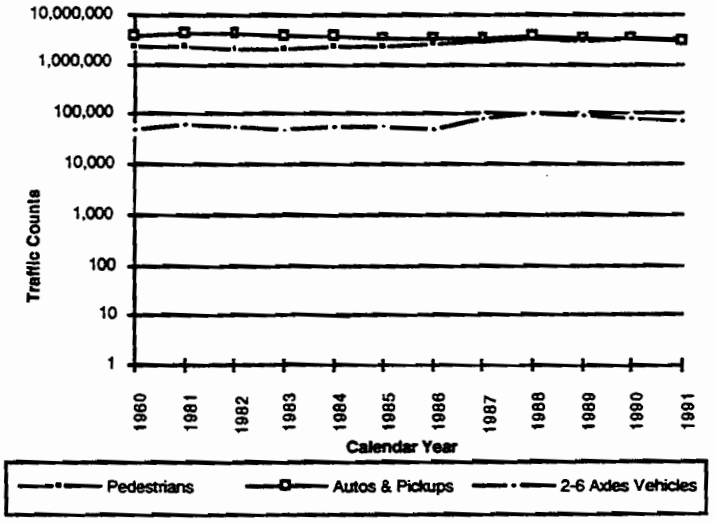

Figure 5.8. Annual southbound traffic at Gateway International Bridge (source: Cameron County International Bridge System)

The span is a single railroad bridge modified to handle passenger vehicles (two narrow lanes) when not used for its original purpose. A traffic delay of approximately 10 to 15 minutes is expected for each rail crossing. Union Pacific passes during the day, while Southern Pacific (SP) passes at night. Brownsville is the southern terminus of UP and SP, both of which handle

only freight. About 200 carts pass the bridge daily in both directions. The bridge charges $25 for each loaded cart and nothing for empty carts. B&M Bridge is the only binational railroad entry system in Brownsville.

There are currently four primary inspection booths at the U.S. Customs facility for private vehicles (this number could be expanded to six). There are twelve secondary inspection booths, with room for expansion to eighteen secondary inspection booths. During the 1992 fiscal year (October 1991 through September 1992), about 9 percent of all privately owned vehicles passing through the U.S. Customs facility were subject to secondary inspection. As mentioned earlier, the commercial lot on the U.S. side is less than 1 year old. Although the facility has a primary inspection booth for trucks, it is not being utilized because of the potential for traffic delays that such usage would create. There are 15 secondary inspection docks at this facility. The referral rate to secondary inspection for trucks was 100 percent during the 1992 fiscal year. Northbound traffic counts are presented in Figure 5.9. The southbound toll facility has two toll booths (with a designated truck booth); there is no room for expansion.

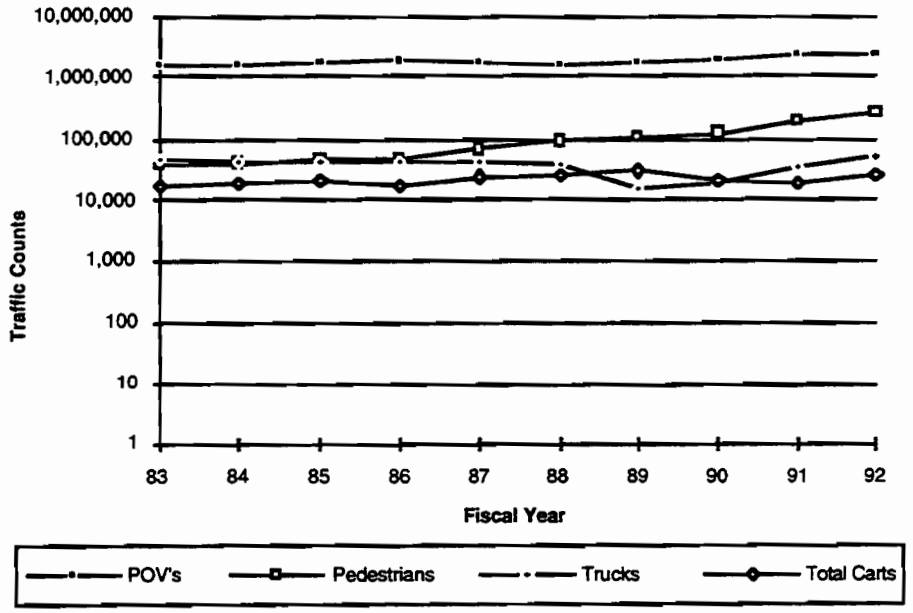

Figure 5.9. Northbound traffic at B&M International Bridge (source: U.S. Customs)

On the Mexican side, Puente B y M (B&M), also known as Puente Viejo, has one primary southbound lane for customs inspection. There is space for about four to five vehicles at secondary inspection. Trucks go to the commercial lot (the same used by Gateway) located between the two bridges (Puente Viejo and Puente Nuevo). The trip for trucks from Puente Viejo to the commercial lot is shorter than that from Puente Nuevo to the lot. The northbound

toll facility is not typical of other northbound facilities along the Texas-Mexico border, since it is located on the U.S. side, in line with the southbound toll facilities. There are three northbound toll booths for vehicles. Revenues from the bridge are divided equally between the bridge's two owners.

The bridge connects to E. Carranza and Alvaro Obregon in the central business district of Matamoros. There are plans to expand the bridge, with construction predicted to cost $4 million and to require 2 years to complete. In order to make room for expansion, the bridge owners need to negotiate with occupants and owners of some buildings in downtown Matamoros. The government of Mexico has indicated that it has no interest in expanding the bridge (it denied the bridge company's 1983 expansion attempt and reiterated its lack of interest at a July 1992 bilateral meeting held in Nogales, Arizona).

Los Indios Bridge: This bridge is also known as the "Free Trade Bridge," so called in anticipation of benefits to be gained from the North American Free Trade Agreement. The Los Indios Bridge is located approximately 18 miles (29 km) upstream on the Rio Grande/Rio Bravo from Brownsville/Matamoros international bridges, and 10 miles (16 km) south of Harlingen/San Benito (a predominantly rural area). History: The idea for the bridge was conceived in 1959 by a group of businessmen who organized the San Benito International Bridge Company and secured the first permits. Negotiations leading to the successful start of construction began in 1988. Work on the U.S. side of the bridge began in September 1991, with site-work in Mexico beginning in June 1991. The entry system was opened and in full operation by November 1992.

Los Indios is a toll facility. On the U.S. side it is owned by Cameron County (50 percent), the City of Harlingen (25 percent), and the City of San Benito (25 percent). On the Mexican side, the bridge is under concession by CAPUFE.

The bridge is a typical five-span structure carrying four lanes of traffic. The GSA built the most recently constructed border station on the lower border at a cost of about $16 million. Full customs, immigration, and agriculture inspection facilities are included.

There are currently four primary inspection booths at the U.S. Customs facility for private vehicles — a number which could be expanded to twelve. Only one of these booths is currently utilized. There are twelve secondary inspection booths, with room for expansion to 36 booths. From November 1992 through March 1993, about 30 percent of all privately owned vehicles passing through the U.S. Customs facility were subject to secondary inspection.

The import lot for trucks is an impressive facility. There are 50 docks for trucks' secondary inspection. Many advanced features are included in this facility, including 50-foot (15-m) docks, a hazardous cargo overflow area, and a large area for the preparation of paperwork associated with import operations. There is sufficient space for future expansion. The referral rate to secondary inspection docks for trucks has been 100 percent since the facility was opened for traffic. The southbound toll facility includes two toll booths, with no designated truck booths. There is also sufficient room for expansion of the southbound facility. Although there are available facilities for pedestrians, little demand exists for cross-border traffic at this binational bridge entry system. Northbound and southbound monthly traffic counts are presented

in Figures 5.10 and 5.11, respectively.

The southbound Mexican inspection facilities at Puente Libre Comercio or Puente Lucio Blanco (the Mexican names for Los Indios Bridge) include three non-commercial vehicular primary inspection lanes, and eight to ten parking spaces for secondary inspection of privately owned vehicles. The commercial lot includes three primary inspection lanes for trucks, and a dock capacity of approximately 50 to 60 vehicles. The Mexican northbound toll facility includes two lanes for privately owned vehicles, and another two for trucks.

Inadequate connecting infrastructure apparently is limiting the growth of bridge traffic. However, efforts are underway to improve bridge connections with U.S. and Mexican highways. For example, on the U.S. side a new spur from the bridge connects to US 281. Loop 590, a direct route from the bridge to US 77/83 and to the Port of Harlingen, Valley International Airport, and Harlingen Industrial Parks, is under development. On the Mexican side, a new spur of about 2 miles (3.2 km) connects the bridge with MEX 2. The new spur is in good condition; it consists of two lanes that are about 12-feet (3.7-m) wide, and paved shoulders on both sides that are about 8-feet (2.4-m) wide. Matamoros is about 16 miles (26 km) east and Reynosa about 30 miles (48 km) west.

The bridge is the only binational entry system in Brownsville that allows transmigrant — or "transmigrantes" — vehicles (i.e., travelers crossing through Mexico to Central or South America). About 50 to 60 transmigrantes cross the bridge daily.

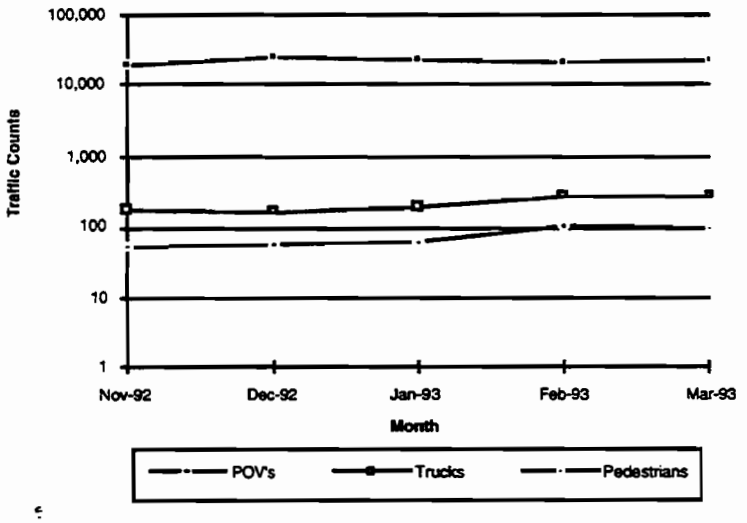

Figure 5.10. Monthly northbound traffic at Los Indios International Bridge (U.S. Customs)

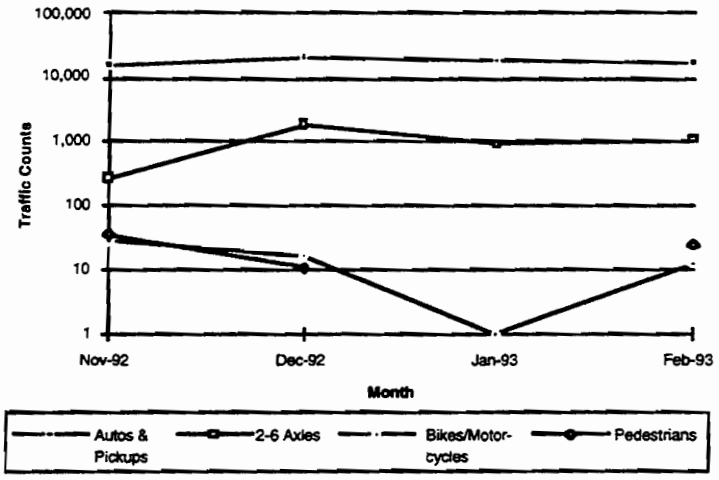

Figure 5.11. Monthly southbound traffic at Los Indios International Bridge (source: Cameron County International Bridge System)

5.3.2 Progreso Port of Entry

This port of entry consists of one binational bridge entry system: Progreso International Bridge — more commonly known as Baker and Pate (B&P) Bridge.

B&P Bridge: B&P Bridge is a two-lane toll facility connecting the towns of Progreso and Progreso Lakes on the U.S. side with Nuevo Progreso on the Mexican side. The bridge leads directly to the busy (and poorly maintained) city streets of downtown Nuevo Progreso. On the U.S. side, the bridge is in a rural area, several miles from Progreso and directly connected by FM 1015 to US 281.

History: The privately owned Progreso International Bridge was built in 1953. It was dubbed B&P International Bridge for its founder, the Baker and Pate Bridge Company. The east side of the bridge was expanded in 1983 to accommodate northbound trucks and to eliminate vehicle bottlenecks. Renovation and improvement of GSA facilities were completed in 1989.

There are currently four primary inspection booths for private vehicles at the U.S. Customs facility, which could be expanded to six booths. Typically, two of these booths are open for traffic (10 a.m. to 10 p.m.), with all three opened during busy times and only one opened during slow times. There are sixteen secondary inspection booths, with no room for expansion. During the 1992 fiscal year (October 1991 through September 1992), about 13 percent of all privately owned vehicles passing through the U.S. Customs facility were subject to secondary inspection. While there are two primary truck inspection booths to the import lot, they are not routinely used, since 100 percent of all trucks are referred to secondary inspection. There are 14 secondary inspection docks that are 25-feet (7.6-m) wide. U.S. Customs does not experience any capacity problems in the import lot. The U.S. southbound toll facility includes two toll booths, with no designated truck booth.

Nuevo Progreso is a popular tourist attraction and is frequently visited by winter-Texans. According to U.S. Customs Port Director John Finney, traffic at the bridge is not too heavy, with flows constant between 10 a.m. and 10 p.m. The origin of southbound truck traffic is mostly the three granaries located in proximity to the bridge. Daily traffic volumes to the granaries range between 20 to 150 trucks. Maquiladora traffic is very low. Of the many fruit and vegetable trucks passing through Progreso, 50 percent are estimated to be local traffic and 50 percent are estimated to be interior traffic. There is also some vehicular traffic from Rio Bravo (overflow from Reynosa). For a while, trucks were allowed to cross only one at a time, owing to concerns about the structural stability of the steel bridge. Today, truck movements across the bridge are no longer controlled (engineers have verified the bridge's structural integrity). Northbound and southbound traffic counts are presented in Figures 5.12 and 5.13, respectively.

The border facility of Puente Las Flores (B&P Bridge) on the Mexican side is small. There are two customs primary inspection booths for privately owned vehicles, one of which is closed. The secondary inspection area can contain only a few vehicles. For northbound traffic, there is one turnstile for pedestrians (with one worker collecting tolls). As for vehicular traffic, there are two booths, though only one is opened. When traffic backs up, the other booth is opened for trucks.

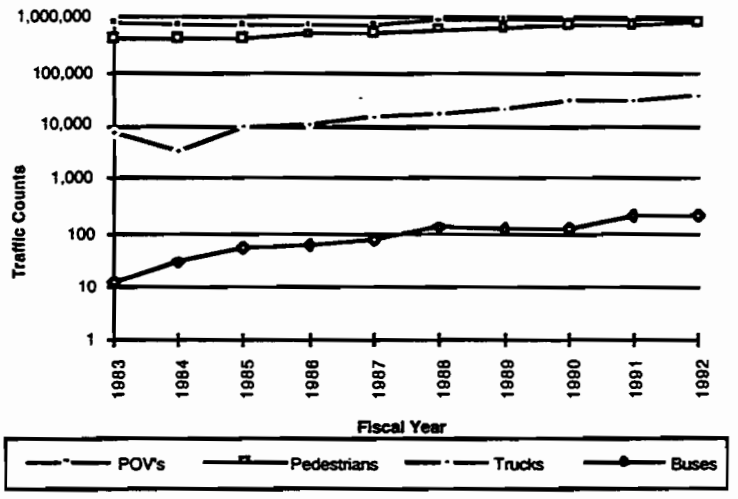

Figure 5.12. Northbound traffic at Progreso International Bridge (U.S. Customs)

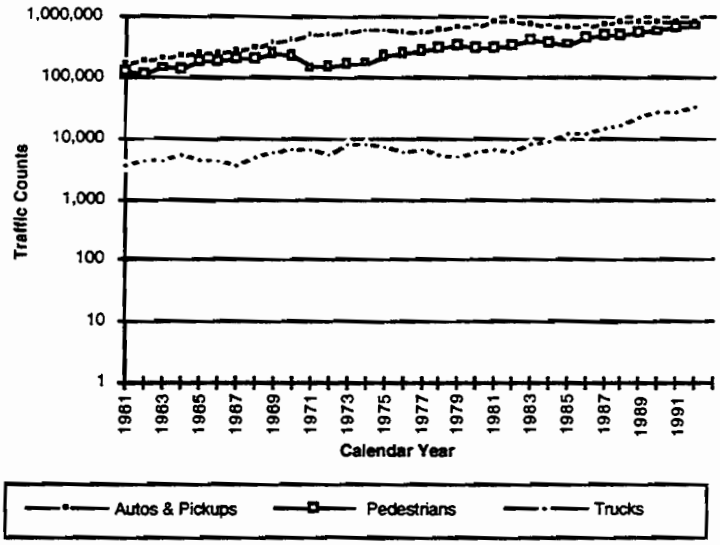

Figure 5.13. Annual southbound traffic at Progreso International Bridge (source: B&P Bridge Company and Laredo State University)

5.3.3 Hidalgo Port of Entry

This port of entry consists of one binational bridge entry system: the Hidalgo/Reynosa Bridge.

Hidalgo/Reynosa International Bridge: Hidalgo-Reynosa Toll Bridge was first authorized for construction in 1926 by an act of the 69th Congress, which granted permission to the Hidalgo and Reynosa Bridge Company. This bridge was operated privately until 1960, when it was purchased by the City of McAllen from the bridge company.

Revenue bonds were issued by the City of McAllen in 1964 to finance a new four-lane bridge, the construction of which was completed in 1966. The old suspension bridge was demolished in 1971. An additional four-lane span was completed in 1988, with Mexico sharing in the cost of this construction. The new bridge provides four lanes into the U.S., while the old bridge provides four lanes into Mexico.

Although the City of McAllen owns and operates the toll bridge, the City of Hidalgo shares in the revenues. The bridge's gross revenues for 1992 were about $5.27 million (Ref 29). About 80 percent of the revenues are derived from automobiles, 14 percent from trucks, and 6 percent from pedestrians.

The bridge serves as a connection between downtown Reynosa in Mexico and a roadway that leads to the urbanized area of McAllen-Edinburg in the U.S. On the U.S. side, the closest highways to the bridge are Spur 115, US 281/Spur 241, and US 83; on the Mexican side, the closest highways include MEX 2, MEX 97, and MEX 40.

For northbound traffic, there are currently twelve primary inspection booths at the U.S. Customs facility for private vehicles. One of the primary booths handles only empty trucks. There is an additional designated bus route for inspecting buses going into the U.S. For most of the day, there are at least seven booths opened, with one more opened during peak times. There are 45 secondary inspection booths. During fiscal year 1992, a little over 9 percent of all privately owned vehicles passing through the U.S. Customs facility were subject to secondary inspection. Although there are two available primary inspection booths at the entrance of the import lot, only one of the booths is typically opened. The import lot includes 33 truck docks. The referral rate to the secondary inspection docks for trucks was 100 percent for fiscal year 1992.

During a typical week, the peak period for cars falls on Sundays between 11 a.m. and 8 p.m. On a typical day, the customs office will handle 8,000 to 10,000 cars. Processing time for POVs (privately owned vehicles) at a primary inspection is 20-25 seconds plus queuing time. Processing time for trucks varies. Line release trucks average 1–3 minutes in processing time. If the truck is transporting agricultural products, processing can take 15–16 minutes. If a trucker's papers are not ready, processing could take 45–90 minutes. Typically, the busiest time for trucks is 11 a.m. to 6 p.m. daily (80 percent of all trucks enter during that time). Northbound traffic counts are depicted in Figure 5.14.

Private vehicles that cross the bridge appear to be mostly local (about 75 percent). During Holy Week the composition changes, when 50 percent are said to come from the interior of Mexico. Truck traffic is said to be very seasonal. According to a U.S. Customs official, 65 percent of truck traffic processed between November and April are produce related, while 35 percent are maquiladora related. Between May and October this trend reverses.

The U.S. southbound toll facility includes four toll booths, with one designated for trucks (though it is used by cars as well). There is little room for facility expansion. One booth is opened from 12 a.m. to 7 a.m. Three booths are opened from 7 a.m. to 12 a.m., except for the period from 4 p.m. to about 9 p.m., during which time four booths are opened. Trucks typically line up on the right-hand side of the toll facility (the designated truck booth) waiting for space to open up at the Mexican customs facility. As truck traffic on the bridge starts to move through the Mexican customs facility, a police officer at the southbound toll facility instructs the next group of trucks to move south. Annual southbound traffic counts are shown in Figure 5.15.

On the Mexican side of Puente Reynosa (Hidalgo-Reynosa Bridge), there are six customs inspection booths for privately owned vehicles and one lane for buses and empty trucks. Two booths are designated for commercial traffic at the entrance of the import lot. For northbound traffic, there are two toll turnstiles for pedestrians. For non-commercial vehicles, there are four toll booths, one of which is usually closed. There is a separate toll booth for commercial traffic. To get to the bridge in Reynosa, one must travel through the city's narrow streets.

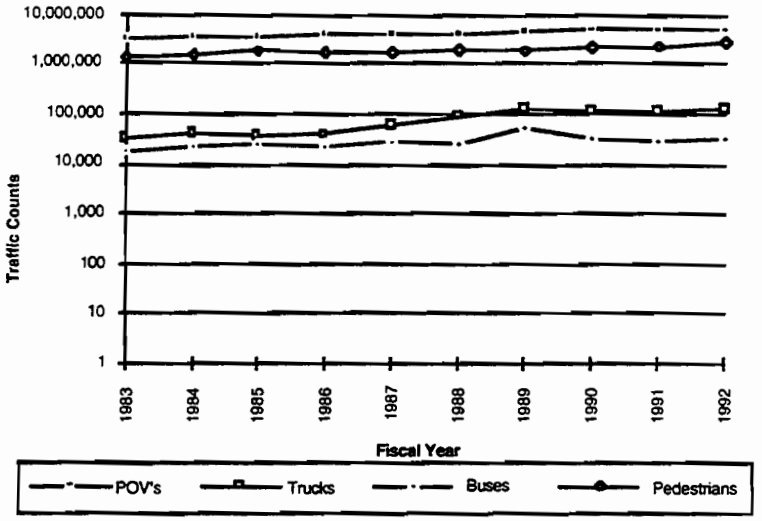

Figure 5.14. Northbound traffic at Hidalgo-Reynosa International Bridge (U.S. Customs)

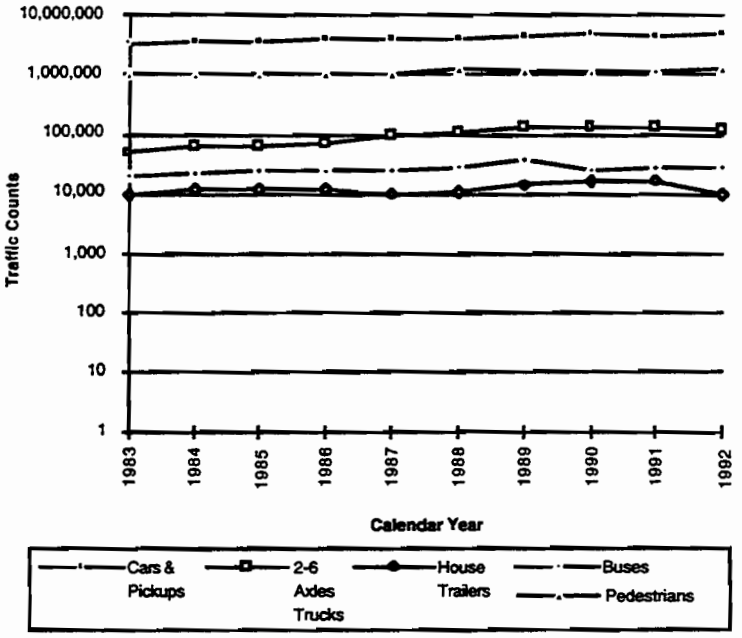

Figure 5.15. Annual southbound traffic at Hidalgo-Reynosa International Bridge (source: McAllen Hidalgo International Bridge)

5.3.4 Rio Grande City Port of Entry

This port of entry consists of two binational entry systems: Los Ebanos Ferry and Rio Grande City/Camargo bridge.

Los Ebanos Ferry: Los Ebanos Ferry travels between Gustavo Diaz Ordaz in Mexico and Los Ebanos in the U.S. The hand-pulled ferry, which operates from 8 a.m. to 4 p.m., is capable of carrying only three vehicles at a time. Although it is privately owned by the Reyna Estate, the border station facility, built in 1975, is owned by INS. Both the border station and the bridge operator's facilities on the U.S. side are portable buildings. Because the road leading to the river bank is unpaved, vehicle maneurvering can be difficult, especially during or after rain.

The Los Ebanos Ferry is also a popular tourist site for winter Texans. In most cases, tourists do not ferry across, preferring instead to watch ferry operations from the U.S. side of the border. For such entertainment, they pay the same toll required of ferry users.

There is currently one northbound primary inspection lane at the U.S. Customs facility for private vehicles. Because of the low capacity of the ferry (from 1990–1992, the average northbound traffic was around 42,000 vehicles per fiscal year), expansion is not required. There is one secondary inspection lane. Since no trucks are allowed to cross on the ferry, no facilities exist for trucks. The southbound U.S. toll facility includes one toll booth.

The government of Mexico owns Diaz Ordaz-Los Ebanos Ferry on their side, which is located about 3 miles (5 km) to the north of MEX 2. The first 1.2 miles (2 km) of the road from the ferry is unpaved. The road is paved (though poorly) once it enters the narrow roads of Diaz Ordaz up to MEX 2.

On the Mexican river bank, a staff of three operates the customs and toll collection facilities. There is one lane designated for vehicles for primary inspection in the southbound direction. In the northbound direction, tolls are collected from vehicles on land. There are no turnstiles for pedestrians.

Rio Grande City-Camargo Bridge: This bridge was built in 1969 to link Rio Grande City in the U.S. and Camargo in Mexico. On the U.S. side, the bridge is located toward the outskirts of Rio Grande City and leads to US 83. The bridge is about 6 miles (10 km) from Camargo, Tamaulipas, and links with MEX 2. It is a two-lane toll bridge privately owned by Starr-Camargo Bridge Company on the U.S. side.

On the U.S. side, there is currently one northbound primary inspection booth for private vehicles, which could be expanded to three. There are four secondary inspection booths with room for expansion to six. The narrowness of the facility exit lanes do not permit easy passage. During fiscal year 1992, about 25 percent of all privately owned vehicles passing through the U.S. Customs facility were subject to secondary inspection. There are no primary inspection booths for trucks. There are about six secondary inspection docks that need improvement. The referral rate to secondary inspection docks for trucks was 54 percent during fiscal year 1992. Northbound traffic counts are presented in Figure 5.16. Some facility expansion is needed for U.S. Customs; otherwise the available space is adequate for the operations of both the INS and USDA. The southbound toll facility includes one toll booth, with no designated truck booth.

The busiest times at the port of entry are said to be during weekends. During busy times, customs inspectors operate in tandem to expedite traffic. The import lot remains busy from late February through May, during which time fresh produce (broccoli, lemons, cantaloupe) is exported from Mexico. Other commodities passing through include cement and bricks. Many empty trucks also move through the facility to the grain elevator in proximity to the bridge site (35-40 per day). Truck traffic is said to be low (i.e., not more than 60–70 per day). Automobiles passing through the facility are mostly from the local area. Besides Camargo, there are five or six other communities on the Mexican side close to the bridge. These communities are mostly involved in ranching and goat raising. Southbound traffic counts are presented in Figure 5.17.

On the Mexican side, the road from Puente Internacional de Camargo to MEX 2 is about 4 miles (7 km) long. Heading south from the bridge, the road is rural, two lanes wide, curvy, and in fair condition. About 2 miles (about 3.5 km) from the bridge heading towards Camargo, the roads are narrow and in fair condition. This facility accommodates both vehicles and trucks in the southbound direction, with one lane for primary inspection for both trucks and vehicles. There is only one space for secondary inspection. The Mexican government owns the bridge on the Mexican side. The main Mexican administrative offices of this binational bridge entry system are located at the Miguel Alemán Bridge.

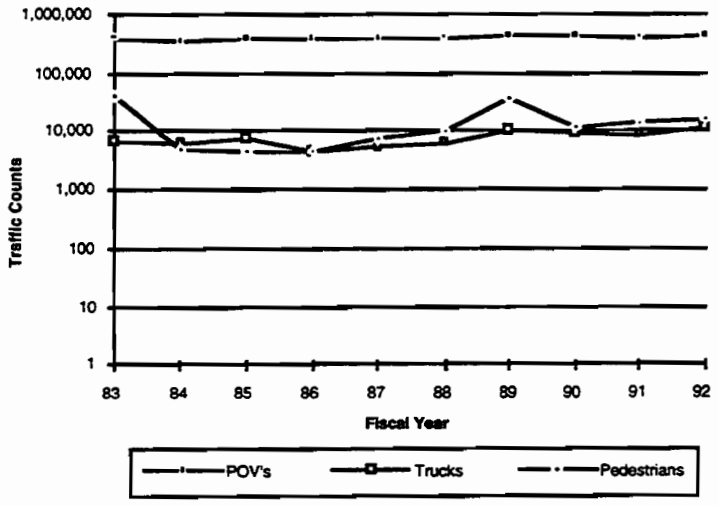

Figure 5.16. Northbound traffic at Rio Grande City-Camargo International Bridge (source: U.S. Customs Service)

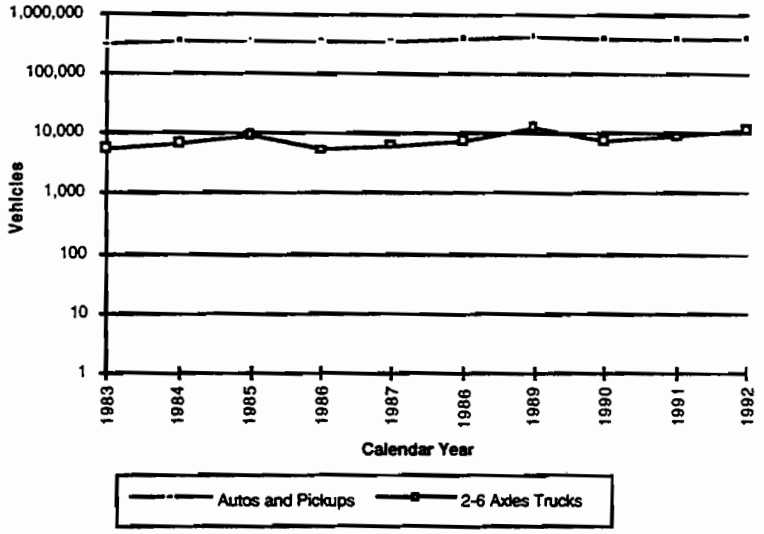

Figure 5.17. Annual southbound vehicular traffic counts at Rio Grande City-Camargo International Bridge (source: Starr Camargo Bridge Company)

5.3.5 Roma Port of Entry

This port of entry consists of two binational entry systems: Roma/Miguel Alemán Bridge and Lake Falcon Dam.

Roma/Miguel Alemán Bridge: This toll bridge connects the downtown areas of Roma in the U.S. with Miguel Alemán in Mexico. It is owned by Starr County on the U.S. side, and by SCT on the Mexican side. History: The Roma two-lane bridge was built in 1979 to replace an old two-lane suspension bridge. The old suspension bridge, with a 700-foot (213-m) span, was opened in 1927 between Roma and what was then called San Pedro de Roma (now Miguel Alemán). It was closed to traffic in 1979, when the new bridge was built adjacent to the old facility. Despite efforts to tear it down, the bridge still stands — and has even attained historic status: The span is listed in the National Register of Historic Places and was recently designated by the Texas Preservation Trust Fund as one of Texas' 10 most endangered historic properties.

With the bridge linking directly to US 83 on the U.S. side, Roma has become a bottleneck for traffic passing through on that highway. Motorists, for example, are said to endure hour-long delays in downtown Roma, especially on Fridays. Anxious to remedy this congestion, many city leaders have begun advocating a direct route be constructed from Monterrey to Corpus Christi, since it is the shortest distance between the two centers. They hope that this will enable Starr County to reap anticipated benefits from the Free Trade Agreement. However, some local observers have concluded that neither Roma nor its immediate area has the supporting infrastructure necessary to accommodate such development.

On the U.S. side, there are currently four primary inspection booths for privately owned vehicles, with no room for expansion. Two booths are typically open during daytime hours, with one more opened during peak periods. There are fourteen secondary inspection booths, with no

room for expansion. During the 1992 fiscal year, 23 percent of all privately owned vehicles passing through the U.S. Customs facility were subject to secondary inspection. Trucks move directly to the secondary inspection area when crossing the border into the United States. There are 18 secondary inspection docks in the import lot. During the 1992 fiscal year, 87 percent of all trucks were inspected in the secondary area. The border station facility is owned by Starr County, leased to GSA, and subleased to U.S. Customs, INS, and USDA. The southbound toll facility includes two toll booths, with no designated truck booth. There is apparently no room for expansion. The exit/entrance to the bridge is said to be too narrow to allow trucks to maneuver easily.

According to U.S. Customs, the origin of 50 percent of all travelers using the bridge is within a 25-mile (40-km) radius. The other 50 percent come from Monterrey, while very few come from other cities. The facility is mostly used by private vehicles; because Roma does not have transportation-related facilities (e.g., warehouses and cold storage), truck traffic has been diminishing. Adding to this decline is the fact that Roma streets were never designed to handle truck cargo (conditions are said to be even worse on the Mexican side). Commodities transported on the bridge are mostly brick, cinder blocks, and tiles. In a typical week, the busiest days are Friday through Sunday. Northbound and southbound traffic counts are depicted in Figures 5.18 and 5.19, respectively.

On the Mexican side, Puente Internacional Miguel Alemán (Roma Bridge) is about 1 mile (1.6 km) north of MEX 2. Heading south from the bridge, the road is one way through the central business district of Ciudad Miguel Alemán. After about 0.6 miles (1 km), the road is a two-way street until it intersects with MEX 2.

This facility accommodates both vehicles and trucks in the southbound direction. There are five lanes for Mexican customs primary inspection; three are assigned for vehicles carrying passenger(s) who do not have anything to declare, while a separate fourth lane is designated for vehicles having declarations. There are 15–20 spaces allotted for secondary inspection of vehicles. With respect to trucks, one lane is designated for primary inspection while two spaces are for secondary inspection. Of all the vehicles and trucks crossing the border in the southbound direction, 10–20 percent go through secondary inspection. In the northbound direction, there is one toll booth for vehicles and one for pedestrians. Trucks and vehicles are processed separately.

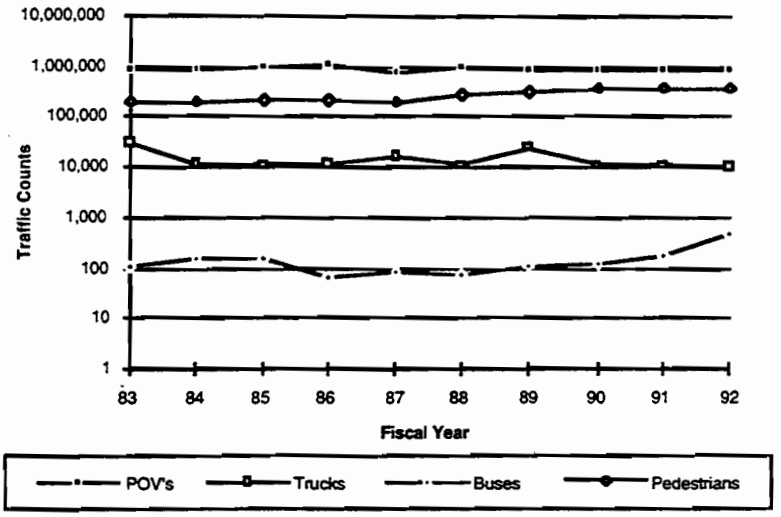

Figure 5.18. Northbound traffic at Roma International Bridge (source: U.S. Customs)

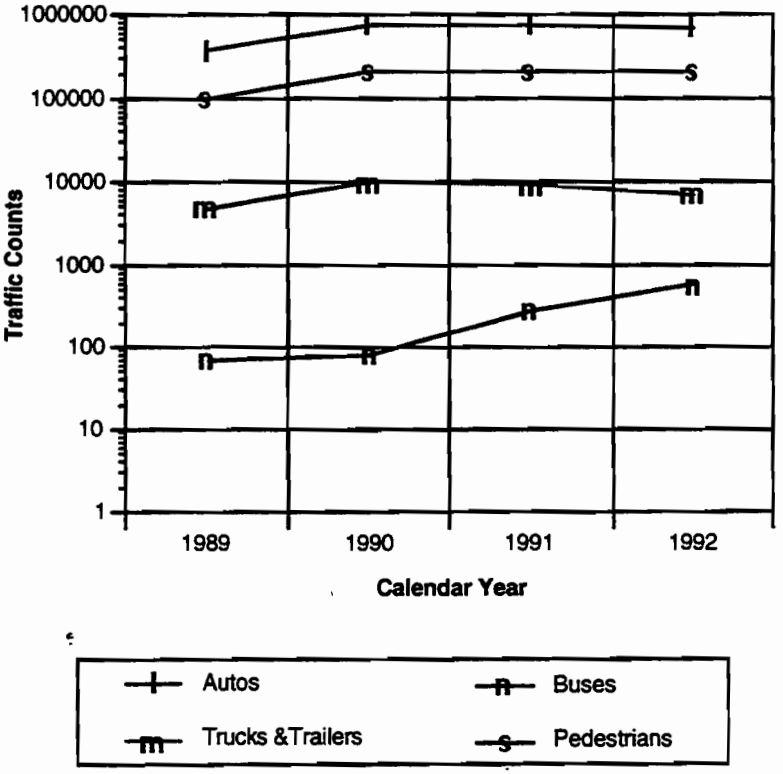

Figure 5.19. Annual southbound traffic counts at Roma International Bridge (source: Laredo State University)

Lake Falcon Dam: This toll-free binational dam entry system is a road on the damwall of Falcon Dam. The dam, owned by the two countries, is under the management of the International Boundary and Water Commission (IBWC). The facility was built around 1960 and is open 16 hours daily. The Mexican and U.S. Customs facilities are 5 miles (8 km) apart. There is a weight restriction on vehicles crossing the dam.

Even though traffic is very light and the location is in a remote part of the Texas-Mexico border, this binational entry system has proven convenient for travelers in Guerrero, Mexico, and in Zapata (U.S.). Only light-weight trucks pass through in either direction. Northbound traffic counts are presented in Figure 5.20.

On the U.S. side, there is currently one primary inspection booth for privately owned vehicles, with adequate space for another booth. There are four secondary inspection booths, with room for expansion to six booths. No separate facilities exist for the inspection of trucks by U.S. Customs.

On the Mexican side, this entry system is referred to as Puente Internacional de la Presa Falcón. The facility includes two booths for primary inspection, and five for secondary inspection in the southbound direction. Fifteen percent of all vehicles go through secondary inspection. In the northbound direction, there are neither toll booths for vehicles nor turnstiles for pedestrians (i.e., it is a free binational entry system).

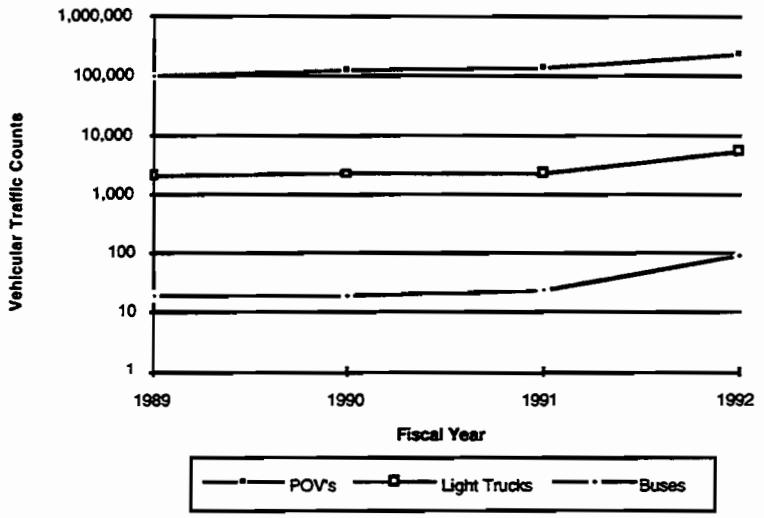

Figure 5.20. Northbound traffic counts at Falcon Dam (source: U.S. Customs Service)

5.3.6 Laredo Port of Entry

This port of entry consists of three binational entry systems: Juarez-Lincoln Bridge (Bridge No. 2), Convent Street Bridge (Bridge No. 1), and Colombia Bridge. Figure 5.21 shows the southbound traffic counts for the Laredo Port of Entry.

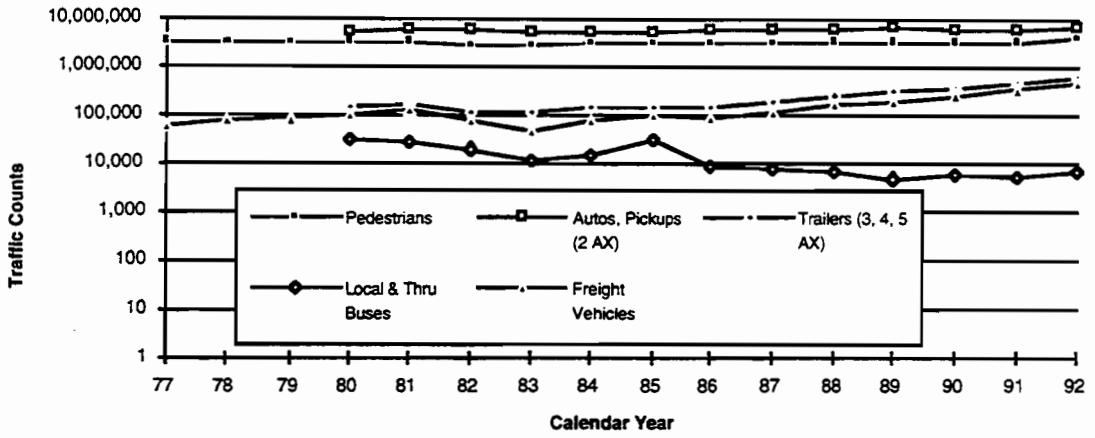

Figure 5.21. Annual southbound traffic counts for Laredo Port of Entry (source: Laredo Bridge System)

Juarez-Lincoln Bridge (Bridge No. 2): This toll bridge, which opened in 1976, links Nuevo Laredo in Mexico and Laredo in the U.S. It consists of six lanes, three in each direction. One of the lanes (the rightmost lane in each direction) is used exclusively for trucks. During periods of heavy freight traffic (weekdays between 5 p.m. to about 10 p.m.), four lanes are designated for southbound traffic and two lanes for northbound traffic. Because of a lack of appropriate facilities on the Mexican side, pedestrians are not allowed to cross. The bridge is owned by the City of Laredo and managed by the Laredo Bridge System on the U.S. side. The Mexican side is owned by the Mexican government and operated by CAPUFE.

On the U.S. side, the bridge is directly linked to Interstate Highway 35. There are currently twelve primary inspection booths for privately owned vehicles, with no room for expansion. During peak periods, nine lanes are opened. Typically there are seven to eight staffed primary inspection booths. There are 54 secondary inspection booths, with no room for expansion. During the 1992 fiscal year, 7 percent of all privately owned vehicles passing through the U.S. Customs facility were subject to secondary inspection. There are five primary inspection booths for trucks entering the import lot, of which four are typically staffed. The import lot, located between the river, the city, and the two downtown international bridges (Bridges No. 1 and No. 2), includes 43 docks for secondary inspection. The referral rate to secondary inspection for trucks was 12 percent during fiscal year 1992. The southbound toll facility includes six toll booths, with trucks using the leftmost lane. There is no apparent room for expansion. Because of frequent accidents, the rightmost southbound toll booth is currently closed to traffic. The bridge system is considering turning the two booths on the right into one booth for freight traffic.

All cargo crossing from Nuevo Laredo to Laredo must use Bridge No. 2, which handles both empty and loaded trucks. Both downtown bridges (Bridge No. 1 and Bridge No. 2) handle

cargo heading south into Mexico, as well as tractors going in either direction. Northbound truck traffic is light in the morning between 8 and 10 a.m. Afterwards, trucks are released by brokers in Mexico, resulting in a steady and continuous line of trucks crossing the bridge. While the U.S. import lot is open 24 hours, most traffic passes between 10 a.m. and 7 p.m. Late traffic must alert U.S. customs in advance. The capacity of the lot is 180 trucks; about 2,000 trucks are processed daily during typical weekdays. It is believed that the customs facility can accommodate up to 2,600 trucks per day. Trucks take approximately 6–15 minutes to cross the bridge, and approximately 1 minute to clear the primary inspection booth. Delays are encountered if the trucker does not have the necessary paperwork prepared. The import lot is currently under renovation that will increase the capacity to 200 trucks and improve intensive inspection. Northbound traffic counts are shown in Figure 5.22.

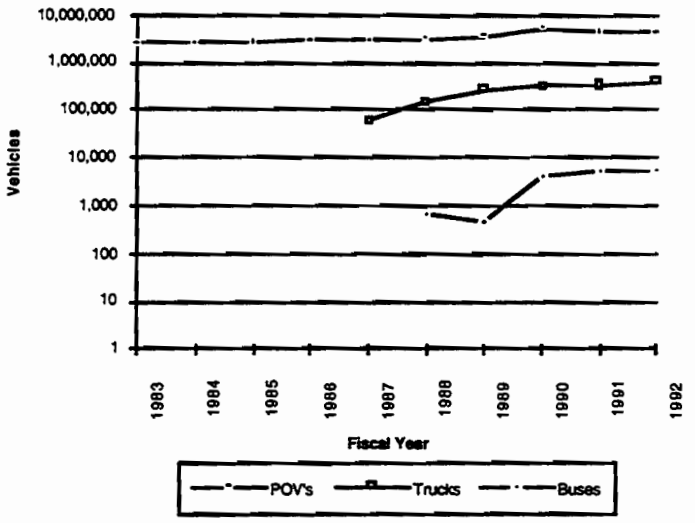

Figure 5.22. Northbound traffic counts at Juarez-Lincoln Bridge in Laredo (source: U.S. Customs Service)

On the Mexican side, the border facility of Puente Laredo II or Puente Juarez Lincoln consists of one building. The two non-commercial vehicular lanes on the bridge are processed through four primary inspection booths. Three booths are equipped with the red light-green light system, and the fourth (rightmost lane) is for voluntary declaration (declaración voluntaria). There are 15 parking spaces for secondary inspection. Approximately 6 percent of all autos go through secondary inspection, which takes anywhere from 1 to 25 minutes. Trucks turn right at the end of the bridge and are processed through four primary booths. Southbound truck traffic is allowed to cross from 7 a.m. to 8 p.m. (operating hours of the Mexican import lot that serves Bridges No. 1 and No. 2); otherwise non-commercial vehicles are allowed to use the truck-designated lane on the bridge. The import lot has a capacity for 50 trucks at one time and a

parking capacity for another 60 trucks. It is currently being expanded to accommodate 100 trucks, with construction scheduled for completion by the end of 1993. Approximately 10 percent of all trucks go through secondary inspection, which takes anywhere from 15 minutes to 3 hours. There are four toll booths in the northbound direction, with some expansions to the toll facilities underway on the Mexican side. An export lot is also under construction for commercial traffic.

Convent Street Bridge (Bridge No. 1): The Convent Street Bridge (Bridge No. 1, or simply the "Old Bridge") is a toll facility that links Convent Avenue in Laredo and Guerrero Avenue in Nuevo Laredo. It is a four-lane bridge used mostly by automobiles and pedestrians. The bridge is owned by the City of Laredo on the U.S. side and by the government of Mexico on the Mexican side. The original bridge, destroyed in a flood in 1954, was rebuilt in 1956 (opened in 1957). The border station, which is probably the oldest on the Texas-Mexico border, has been recently remodeled (completed in 1991). The heavy pedestrian traffic on this binational bridge entry system is a result of the bridge's proximity to downtown shopping areas and the fact that pedestrians are not allowed to use the Juarez-Lincoln Bridge.

On the U.S. side, there are currently four primary inspection booths for privately owned vehicles, though, according to the U.S. Customs' chief inspector, only three are being utilized. One booth remains closed for safety reasons. There are 22 secondary inspection booths. There is no room for expansion in the facility. During the 1992 fiscal year, 11.5 percent of all privately owned vehicles passing through the U.S. Customs facility were subject to secondary inspection. Currently, northbound commercial trucks are not channeled through the customs facility. Empty trucks and tractors are handled, but are required to pay a user's fee. The southbound toll facility includes three toll booths, with no designated truck booth. The City of Laredo is proposing to improve southbound traffic flow at the toll facility by redesigning the plaza area on Water Street and by adding another toll booth (for a total of four).

Customs operations at this binational bridge entry system deal with private vehicles, pedestrians, buses, empty trucks, and tractors. Northbound peak hours are from 6 to 9 a.m. daily, with a maximum delay of 10 to 15 minutes (for every vehicle going south, 25 to 35 vehicles go north). Southbound peak hours are from 4 p.m. to around 8:30 p.m. (for every vehicle going north, 25 to 35 vehicles head south). While customs inspections typically take 25 to 35 seconds at primary inspection points, drivers not having proper documentation available can extend this time considerably. Experienced inspectors are very good at limiting the driver's time spent at primary inspection. As is the case in other border stations, inspectors rotate every 30 minutes between primary and secondary inspection. A random referral rate is being exercised. Customs officials keep a shift report in which they record (1) number of lanes open per hour, (2) number of vehicles through primary inspection every hour, and (3) number of vehicles through secondary inspection every hour. These figures are then consolidated on a daily basis and entered into the CF16 report. Staffing is a 50/50 commitment with INS. Customs can respond to peak periods by having inspectors work overtime. Figure 5.23 shows northbound traffic counts for Bridge No. 1.

On the Mexican side, there are four southbound primary inspection booths for autos at Puente Laredo I (also referred to as Puente Miguel Alemán or Puente Viejo). Three booths are equipped with the red light-green light system, while the fourth is designated for voluntary declaration (declaración voluntaria). There are 20 parking spaces for autos secondary inspection. Trucks at the end of the bridge turn to the right, where the roadway turns into three lanes leading to three booths for random selection (selección aleatoria). Vehicles to be inspected proceed to the import lot (same import lot discussed for Bridge No. 2), which is open from 7 a.m. to 8 p.m. For northbound traffic, Laredo No. 1 has two toll booths.

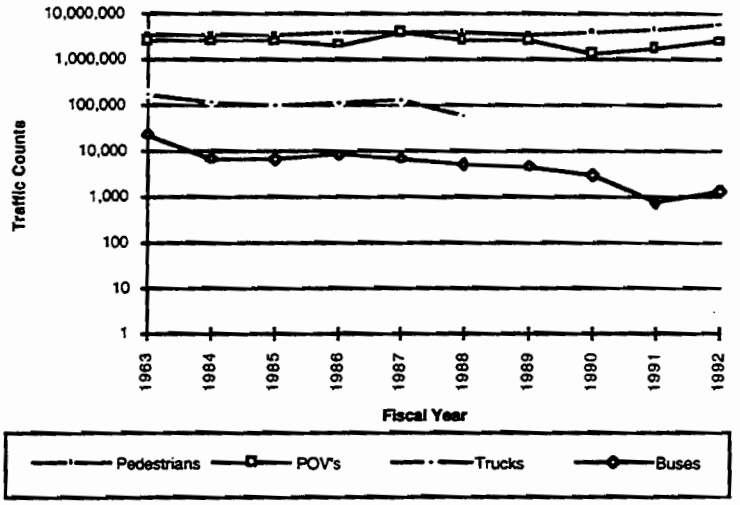

Figure 5.23. Northbound traffic counts at Convent Street Bridge in Laredo (source: U.S. Customs Service)

Colombia Bridge: Colombia Bridge (Solidarity Bridge) is located about 20 miles (32.2 km) northwest of Laredo (31.7 miles, or 51 km, upriver from Bridge No. 1). Located in Laredo's extraterritorial limits, the bridge is accessed by FM 1472 (Mines Road). This bridge links Dolores, Texas, in the U.S. with Colombia, Nuevo Leon, in Mexico. The bridge is the only link between the U.S. and the state of Nuevo Leon. It is a new eight-lane toll bridge that was completed in July 1991. Initiated by the State of Nuevo Leon in 1987, this bridge project is the first for which Mexico requested U.S. assistance. At first, the City of Laredo opposed the Mexican initiative, fearing it would divert economic activity from the city. But the benefits to be gained from a state-built, toll-free facility led Laredo officials to become involved in the project. The City of Laredo and the government of Mexico have an equal share in the bridge's ownership. The bridge is presently not fully utilized (monthly northbound traffic counts are included in Figure 5.24). Various reasons are cited for this lack of use, including inadequate road infrastructure on both sides of the border, scarcity of Mexican customs brokers, few brokers having licenses to operate in both Tamaulipas and Nuevo Leon, and the additional time and cost

involved in using the facility. As discussed in Chapter 6, many of these problems are currently being resolved. The operating hours of the facility are 7 a.m. to 11 p.m. daily.

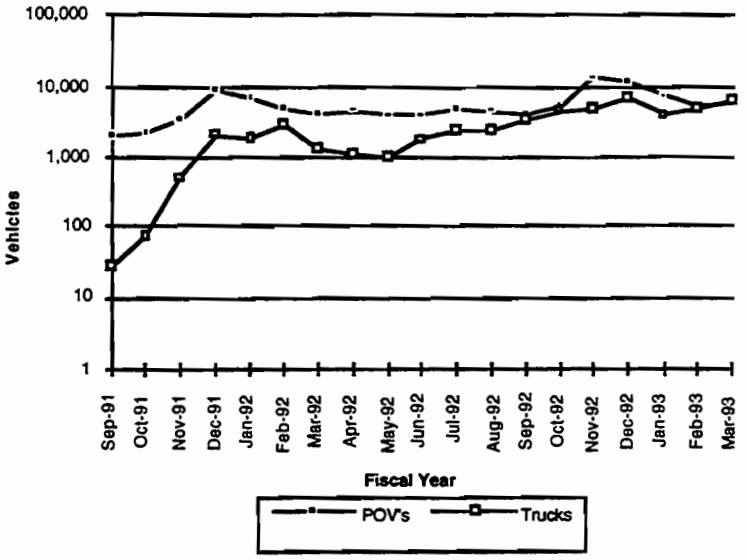

Figure 5.24. Monthly northbound traffic counts at Colombia Bridge in Laredo (source: U.S. Customs Service)

On-going construction of the facilities has been carried out over phases. Phase I involved the opening of four northbound primary inspection lanes for trucks, two northbound primary inspection lanes for non-commercial vehicles, and 50 docks of a 100-truck dock in the import lot. Phase II, completed in spring 1993, involved the opening of eight northbound primary inspection lanes for trucks, four northbound primary inspection lanes for non-commercial vehicles, and another 50 truck docks. Phase III, which is not expected to be completed anytime soon, consists of building a second import dock with an additional 100 truck docks. The existing four primary inspection booths for private vehicles could be expanded to twelve, and the existing six secondary inspection booths has room for expansion to 36 booths. During fiscal year 1992, about 94 percent of all privately owned vehicles passing through the U.S. Customs facility were subject to secondary inspection. There are currently eight primary inspection lanes for trucks, with room for twelve more. The import lot consists currently of 100 truck docks. The referral rate to secondary inspection docks for trucks was around 87 percent during fiscal year 1992. The southbound toll facility consists of six toll booths, with no designated truck booth.

The Colombia Bridge facility is impressive. Several of the facility's design elements on the U.S. side make it extremely efficient for both trucks and private vehicles. The bridge, being an eight-lane facility, offers adequate capacity. There is room for expansion, if needed, in the future. In addition, it has such features as dedicated truck lanes, adequate truck docks, adequate

staging area for cargo trucks, sufficient space for customs brokers, a dedicated break bulk area, a truck scale, a cargo containment facility, and x-ray equipment to facilitate inspections. Planners expect the facility to reach full capacity by 2010.

On the Mexican side, Puente Solidaridad or Puente Colombia consists of six southbound primary inspection booths for autos, and a secondary inspection area that has a 150-vehicle capacity. For trucks or commercial vehicles, there are five primary inspection booths; the import lot can hold 140 trucks. The referral rate to secondary inspection for non-commercial and commercial traffic is determined by the red light-green light system. On average, 8 percent of vehicular traffic go through secondary inspection (red light), with the rate determined at the federal level. It takes 5 to 7 minutes for a truck to be processed if a green light is activated; if a red light is activated, it takes a truck 30 minutes to 3 hours to be processed, depending on the type of commodity carried. In the northbound direction, there are six vehicular toll booths managed and operated by CAPUFE. The export lot consists of six primary inspection booths and can hold 60 trucks. The custom facilities are designed to handle up to 4,000 trailers a day in both directions.

5.4 SEGMENT 2

In Segment 2 there are fifteen binational bridge entry systems, including eleven auto/truck/pedestrian bridges or dams and four rail bridges. Fourteen binational entry systems are located within five ports of entry (La Linda is the only bridge not considered a port of entry). Table 5.3 lists the ports of entry in Segment 2, along with the number of binational entry systems associated with each port of entry.

5.4.1 Eagle Pass Port of Entry

The port of entry at Eagle Pass is composed of one binational auto/truck bridge entry system and one binational rail bridge entry system. Eagle Pass Bridge (auto/truck) is located approximately 100 miles (161 km) upstream from Colombia Bridge. The rail bridge, owned by Southern Pacific, is located approximately 0.65 mile (1.1 km) downstream from Eagle Pass Bridge.

Table 5.3. Number of bridges in each port of entry in Segment 2

Segment 2 Port of Entry	# of Vehicular Bridges or Dams	# of Rail Bridges	# of Combined Binational Entry Systems (Rail & Vehicular)
Eagle Pass	1	1	-
Del Rio	2	0	-
Presidio	1	1	-
Fabens	2	0	-
El Paso	4	2	-

Eagle Pass-Piedras Negras Bridge: Eagle Pass Bridge is a two-lane facility that connects the U.S. city of Eagle Pass, Texas, with the Mexican city of Piedras Negras, Coahuila. On the U.S. side, the bridge is owned by the City of Eagle Pass, and the border station facility is owned by GSA. Eagle Pass is open 24-hours a day, 7 days a week for autos and pedestrians; it is a toll facility with three southbound toll-booth lanes. According to GSA, a 1991 expansion and upgrade of the U.S. border station facility included: (1) increasing the existing 10-truck dock to a 25-truck dock (expandable to 50); (2) remodeling the automobile inspection area, expanding it to contain five primary inspection lanes and twenty secondary inspection lanes (there are two U.S. commercial primary inspection lanes); and (3) upgrading the administration building.

U.S. Highway 57 connects with Eagle Pass Bridge, providing a connection to Interstate Highway 35 and access to San Antonio. U.S. Highway 277 provides access to Del Rio to the north and a connection to US 83 to the east. In Mexico, MEX 57 provides access to Monterrey and MEX 2 provides access to Nuevo Laredo. Figures 5.25 and 5.26 show northbound and southbound traffic data, respectively.

On the Mexican side, Puente Piedras Negras (Eagle Pass Bridge) is owned by the government of Mexico and is managed by CAPUFE. The number of customs primary inspection lanes for privately owned vehicles (POVs) was recently expanded from three to four, and a dedicated truck lane was added. There are approximately ten parking spaces for POV secondary inspection (located on the streets adjacent to the bridge). An estimated 10 percent go through secondary inspection, which takes an average of 5 minutes. If an auto activates a green light, but the customs officials think it should be inspected (e.g., if the vehicle is carrying merchandise), it can be inspected upon orders from the customs administrator only. For trucks, there are approximately 12 to 15 parking spaces ("recinto fiscal de entrada") where the documents for random selection are presented. Trucks undergoing detailed inspection go into the import lot, which can hold approximately 60 vehicles.

Population growth in Piedras Negras over the past 10 to 20 years has had some impact on transborder traffic. For example, both truck traffic and rail traffic have shown significant increases. Much of the traffic moved by rail through Piedras Negras is attributable to automotive maquiladoras (GM and VW) located in the Saltillo area.

5.4.2 Del Rio Port of Entry

The port of entry at Del Rio includes two binational entry systems for vehicular traffic — Del Rio Bridge and Lake Amistad Dam — which connect the U.S. city of Del Rio, Texas, with the Mexican city of Ciudad Acuña, Coahuila. Del Rio Bridge is located approximately 65 miles (104.6 km) upstream along the Rio Grande from Eagle Pass Bridge. Amistad Dam is located approximately 13 miles (20.9 km) upstream from Del Rio Bridge.

Del Rio-Ciudad Acuña Bridge: Del Rio Bridge is a new four-lane (two southbound and two northbound) bridge constructed in 1988 to replace an older facility. Owned by the City of Del Rio on the U.S. side, this bridge is utilized by commercial trucks and private autos (it also has pedestrian sidewalks on both sides). It is a toll-facility open for non-commercial and commercial traffic 24-hours a day, 7 days a week.

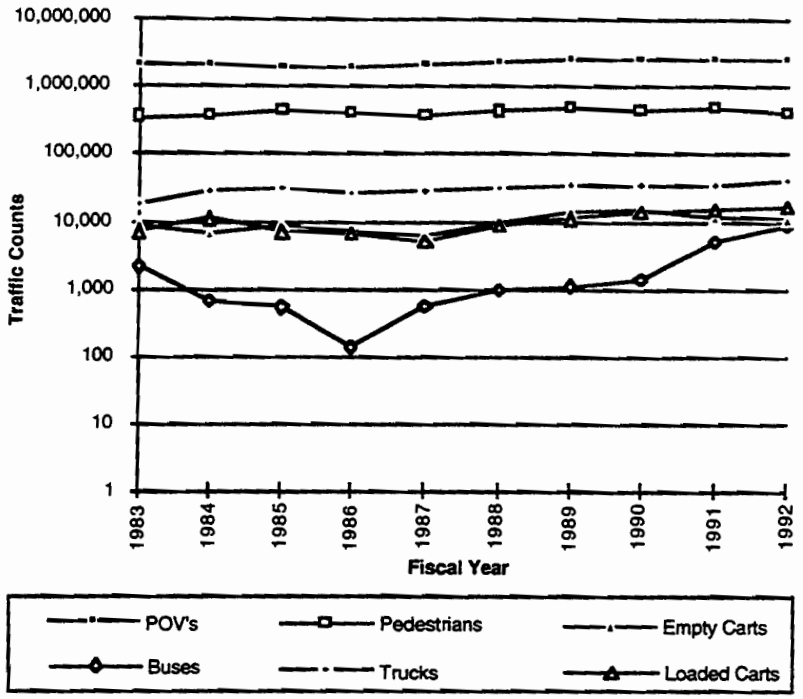

Figure 5.25. Northbound traffic counts at Eagle Pass International Bridge (source: U.S. Customs Service)

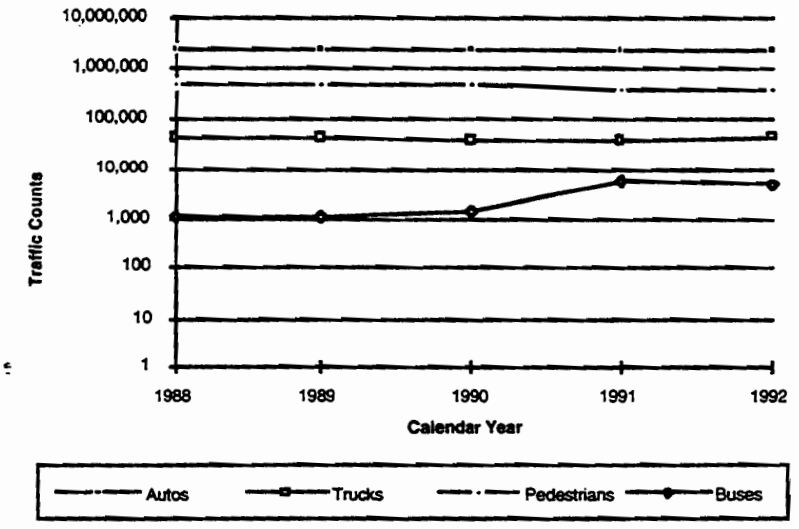

Figure 5.26. Annual southbound traffic counts at Eagle Pass International Bridge (source: Laredo State University)

The crossing of commercial traffic is permitted between the hours of 9 a.m. and 7 p.m., Monday through Friday. Although the import dock contains ten docks for secondary inspection of trucks, all docks cannot be utilized simultaneously because of limited space for truck maneuvering (the facility was upgraded in 1990 to provide for more maneuverability). There are two primary inspection lanes for commercial trucks, including one lane for line release or "quick release." Also in 1990, a new truck road from the bridge to the import lot was built; the non-commercial primary inspection lanes were expanded from two to four lanes; and the administration building was expanded (phase I of the proposed expansion of the border station facility). There are eight secondary inspection spaces for non-commercial vehicles or POVs.

On the Mexican side, Puente Internacional de Ciudad Acuña (the so-called Del Rio Bridge) consists of three primary inspection booths (two for autos and one for trucks). There are six secondary inspection lanes for autos, each one of which has a three-vehicle capacity (thus, the secondary inspection area can hold 18 vehicles). Inspection time varies depending upon each case, but the maximum is approximately 10 minutes. The import lot (open 8 a.m. to 8 p.m. on Mondays through Fridays, and 10 a.m. to 1 p.m. on Saturdays) can hold about ten trucks at one time. Inspection time per truck is on the average 1 hour and could be up to a maximum of 3 hours, depending on the carried cargo. Autos and trucks passing through secondary inspection number about 10 percent, depending on a random system established by Mexican customs called "semáforo fiscal." About 15 to 20 trucks are inspected daily. As is the case for all binational entry systems, the southbound facilities are owned and operated by Aduana Fronteriza (Mexican customs), which is part of the Secretaría de Hacienda y Crédito Público (Secretary of the Treasury and Public Finance). The northbound facilities, owned and operated by CAPUFE, consist of two toll booth lanes for autos, trucks, and pedestrians.

An environmental impact statement has been completed by GSA as a first step toward expanding the U.S. border station and import dock. Current plans (phase II) are to expand the import dock to 25 docks by 1996 and to build an import lot, import office, new hazardous material inspection area, bulk cargo compound, dog building and kennel, and an impound lot. The GSA's capacity model predicts that this would be adequate to about the year 2010. Phase III of GSA's master plan, which is not required until year 2010, consists of building a new border station facility and relocating part of Rio Grande Road. In addition, the City of Del Rio is planning to construct two additional southbound toll booths at the existing Del Rio Bridge (which will double the number of southbound toll-booth lanes).

The U.S. connection with Del Rio Bridge is U.S. Highway 277/State Highway Spur 239. U.S. Highway 277 connects with U.S. Highway 90, which provides access to San Antonio to the east and to west Texas to the west. MEX 2 provides access to Ciudad Acuña from Piedras Negras, and Coahuila State Highway 29 connects Ciudad Acuña with MEX 57. Northbound and southbound traffic counts are included in Figures 5.27 and 5.28, respectively.

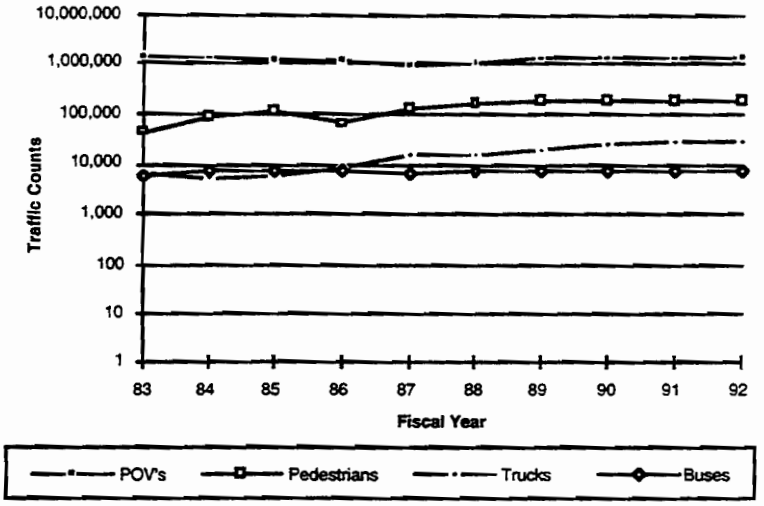

Figure 5.27. Northbound traffic counts at Del Rio International Bridge (source: U.S. Customs Service)

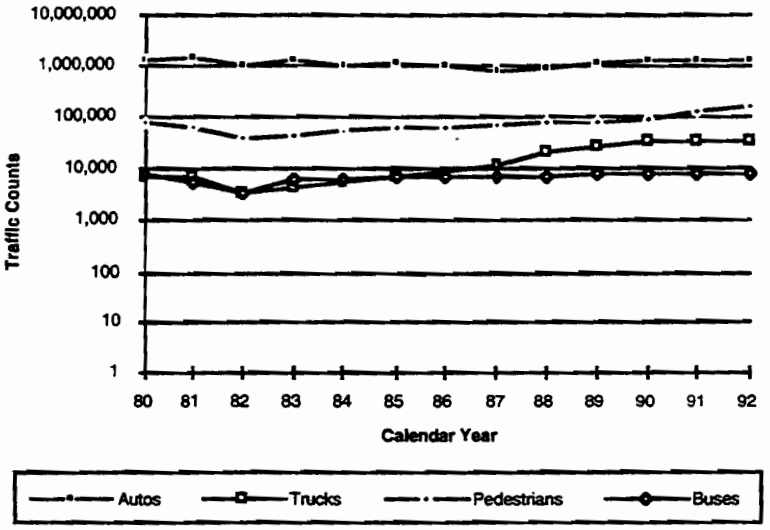

Figure 5.28. Annual southbound traffic counts at Del Rio International Bridge (source: Laredo State University)

Lake Amistad Dam: Built in 1969, this binational entry system consists of a two-lane road constructed atop the Lake Amistad Dam. It is jointly owned by the U.S. and Mexican governments. Lake Amistad Dam is toll-free and is staffed by both U.S. Customs and INS staff. The border station facility, owned by the INS, consists of one primary inspection booth and one

secondary inspection space (completed in August 1990). Traffic, which is restricted to non-commercial entries, is light: TxDOT's one-day traffic count records report an ADT of 124 in 1988 and an ADT of 164 in 1991. According to U.S. Customs northbound traffic counts, an average of approximately 27,000 vehicles crossed the dam per fiscal year from1989 to 1992.

Before the recent expansion of Del Rio's import lot, Cd. Acuña officials had suggested opening Amistad to commercial traffic, given the presence of maquiladoras on the northwest side of Cd. Acuña near Amistad. There are at present no current plans to construct a commercial-only binational entry system in the Del Rio/Cd. Acuña area. Lake Amistad, an international recreation area, is part of the Amistad National Recreation Area in the U.S. Supposedly, there is an initiative in Mexico to further develop its recreational area around Lake Amistad. Amistad Dam is accessed from Del Rio by U.S. Highway 277 connecting into U.S. Highway 90.

On the Mexican side, this facility consists of one lane for primary inspection of vehicles and no lanes for secondary inspections in the southbound direction. However, if an official finds a need for secondary inspection, the vehicle is inspected in that lane. Trucks are not accommodated at this binational entry system. In the northbound direction, there are neither toll booths for vehicles nor turnstiles for pedestrians. The Mexican government owns the entry system, which is called La Amistad (or Presa de la Amistad) on the Mexican side of the border.

5.4.3 La Linda Bridge

La Linda Bridge (also known as both Heath Crossing and Puente La Linda) is a narrow, two-lane facility located approximately 200 miles (321.8 km) upstream from Del Rio Bridge and approximately 13 miles (20.9 km) downstream from Big Bend National Park's southern boundary in Brewster County. La Linda Bridge is a privately owned, toll-free facility having neither U.S. or Mexican border station facilities. FM 2627 connects to this bridge, which then connects with U.S. Highway 385. TxDOT's one-day counts taken at the bridge in 1991 report an ADT of 49 autos, 0 trucks, and 12 pedestrians.

On the Mexican side there are two small villages: Santa Elena, with a population of 240, and Boquillas, where some 25 families live. Row boats serve as ferries between the two Mexican villages and Big Bend National Park on the U.S. side — points not considered official ports of entry and which have no federal inspection agencies. Figure 5.29 shows the location of La Linda Bridge, Santa Elena, and Boquillas.

Presidio-Ojinaga Bridge: This bridge, located approximately 180 miles (289.6 km) upstream from La Linda Bridge, connects the town of Presidio in the U.S. with Ojinaga in Mexico. The bridge and border station were constructed in 1987 to replace an older facility. On the U.S. side, the new bridge is owned by the State of Texas, with the new border station facility privately owned and leased to GSA. According to GSA, the property on which the U.S. border station facility is located is owned by the U.S. INS. Presidio is a toll-free facility on the U.S. side for traffic heading into Mexico, but is a toll-facility on the Mexican side for traffic heading into the U.S. Figure 5.30 shows northbound bridge volumes since 1983. (Southbound bridge volumes are not available, as there are no southbound toll facilities to collect such data.)

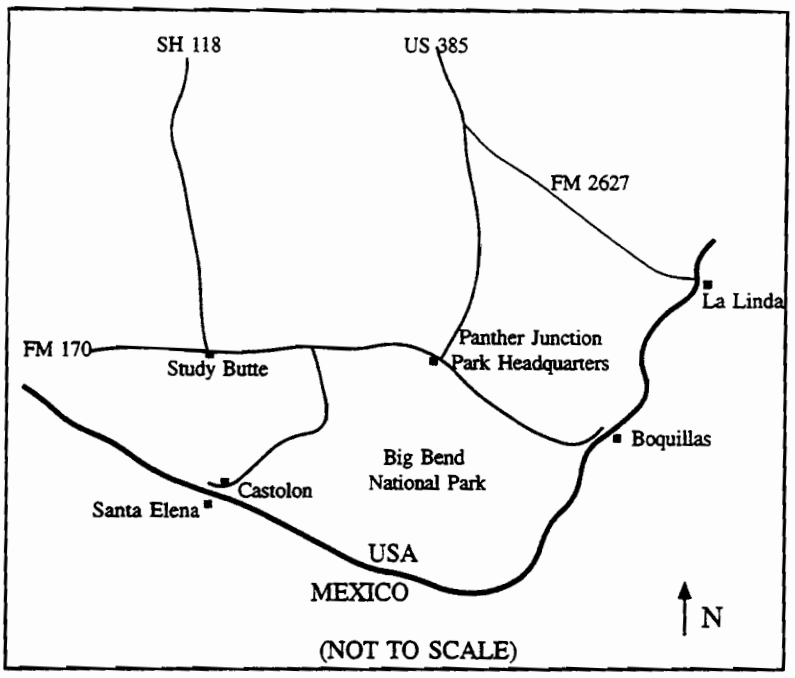

Figure 5.29. Big Bend National Park binational entry systems

5.4.4 Presidio Port of Entry

This port of entry consists of the one vehicular binational bridge entry system described below.

Presidio is a two-lane bridge with sidewalks on both sides for pedestrians. There are three U.S. primary inspection lanes for private vehicles, and another two lanes available (that do not have U.S. inspection agency booths) for expansion. There are nine secondary inspection spaces for private vehicles (expandable to fifteen spaces). While there are officially six truck docks in the import lot for commercial truck secondary inspection, the dock space itself is so limited that, according to a U.S. Customs official, only three trucks can be unloaded at one time.

Presidio port of entry is accessed by U.S. Highway 67 and FM 170 in the U.S. U.S. Highway 67 connects Presidio with U.S. Highway 90 in Marfa to the north, and FM 170 connects Presidio with Big Bend National Park to the east. In Mexico, the port is accessed by MEX 16, which connects Ojinaga to Chihuahua, and by Chihuahua State Highway 49, which connects Ojinaga to Cd. Camargo.

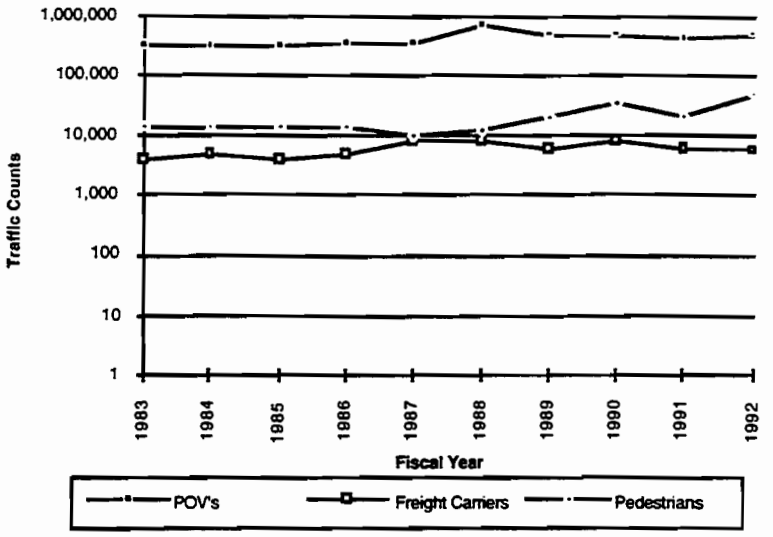

Figure 5.30. Northbound traffic counts at Presidio International Bridge (source: U.S. Customs Service)

On the Mexican side, the inspection facility of Puente Ojinaga or Presidio Bridge includes one booth for the primary inspection of POVs, and 20 parking spaces for the secondary inspection of POVs. Approximately 4 percent of all autos undergo secondary inspection, which normally takes 5 minutes. At the primary inspection booth, it takes 3 to 4 seconds for each vehicle to pass the red-green light selection. There is also one lane assigned exclusively to trucks (clearance documentation is required). The import lot ("patio de inspección fiscal") can hold about 10 trucks. Truck traffic in Ojinaga is very light (about 20 vehicles per day).

Northbound traffic leaving Mexico must pay a toll. The government of Mexico owns the bridge and CAPUFE operates and manages toll collection. There is one toll booth for northbound traffic.

While there is no proposal for a second bridge at Presidio, there have been recent proposals by Presidio County and by City of Presidio officials to transfer ownership of the U.S. side of the existing bridge from the State of Texas to the city and/or county. At such time, the bridge would become a toll-facility on the U.S. side (as it currently is on the Mexican side).

5.4.5 Fabens Port of Entry

Fabens port of entry is comprised of two binational bridge entry systems: Fort Hancock-El Porvenir Bridge and Fabens-Caseta Bridge.

Fort Hancock-El Porvenir Bridge: Fort Hancock Bridge (Puente El Porvenir, as it is called in Mexico) is owned by the IBWC. Built around 1955, it is a toll-free facility on both sides. It is located approximately 235 miles (378.1 km) upstream from Presidio Bridge. According to GSA, the property on which the U.S. border station facility is located is owned by the U.S. INS.

Fort Hancock is a narrow, two-lane bridge equipped with one sidewalk for pedestrians. The northbound lane is used for U.S. primary inspection of private vehicles and trucks; it has neither designated secondary inspection space nor an import dock. The operating hours of the bridge are from 6 a.m. to 9 p.m. Connection to IH-10 from Fort Hancock Bridge can be made via FM 1088 to State Highway 20 to State Highway Park Rd 148, and from there to IH-10. On the Mexican side, the inspection facility designated booth for primary inspection is the southbound traffic lane. Secondary inspection, if carried out, will be off the road. MEX 2 can be accessed from the bridge.

Fabens-Caseta Bridge: Fabens Bridge (Puente La Caseta, as it is called in Mexico), also a narrow, two-lane bridge equipped with one sidewalk, is located approximately 23 miles (37 km) upstream from Fort Hancock Bridge. Fabens Bridge is currently owned by the IBWC, was built in 1955, and is a toll-free facility on both sides. According to GSA, the land on which the U.S. border station facility is located is owned by the U.S. INS.

The northbound traffic lane serves as the U.S. primary inspection lane for private vehicles and trucks. There is also a covered secondary inspection space, with room for one vehicle to pull over if secondary inspection is required. This situation is duplicated on the Mexican side. A 21,000-lb (9,534-kg) weight limit is imposed on vehicles using the bridge (resulting in the recent discontinuation of commercial traffic crossings). There is no import dock with primary or secondary inspection facilities for commercial trucks. Fabens is open from 6 a.m. to 10 p.m. 7 days a week. Figure 5.31 presents northbound traffic count crossings through Fabens port of entry (Fort Hancock and Fabens Bridges). Figure 5.32 shows that, during fiscal years 1991 and 1992, monthly northbound vehicular traffic counts at Fort Hancock were approximately one-fifth the level of traffic at Fabens.

The connecting approach facility on the U.S. side is FM 1109, which leads to State Highway 20 (Alameda Avenue). From there, IH-10 can be accessed through the town of Tornillo. On the Mexican side, MEX 2 is accessible from the bridge after traversing the town of Caseta.

The traffic increases expected as a result of Fabens Bridge's proximity to the El Paso/Juarez area will eventually require a larger facility. Additionally, the building housing U.S. Customs and INS personnel is considered by all parties involved to be inadequate for U.S. inspection agency business. However, according to GSA, expansion cannot occur unless additional land is acquired. There have been proposals to replace Fabens Bridge and to build a larger inspection facility.

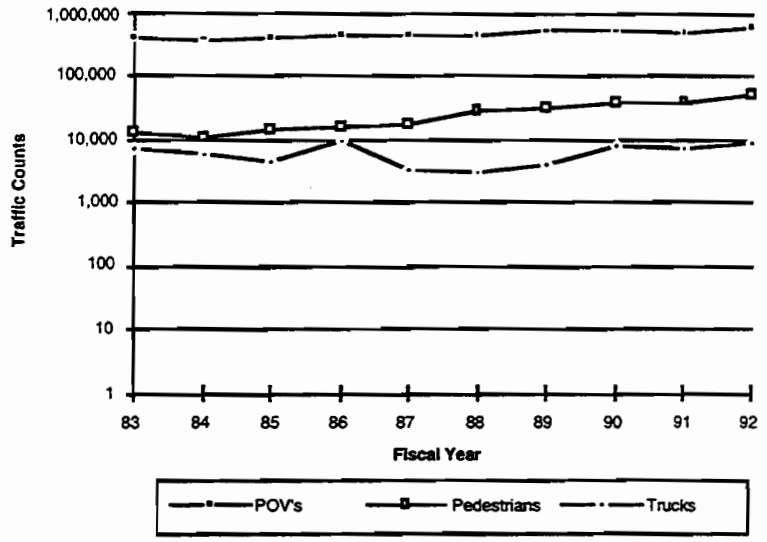

Figure 5.31. Northbound traffic through Fabens Port of Entry (source: U.S. Customs)

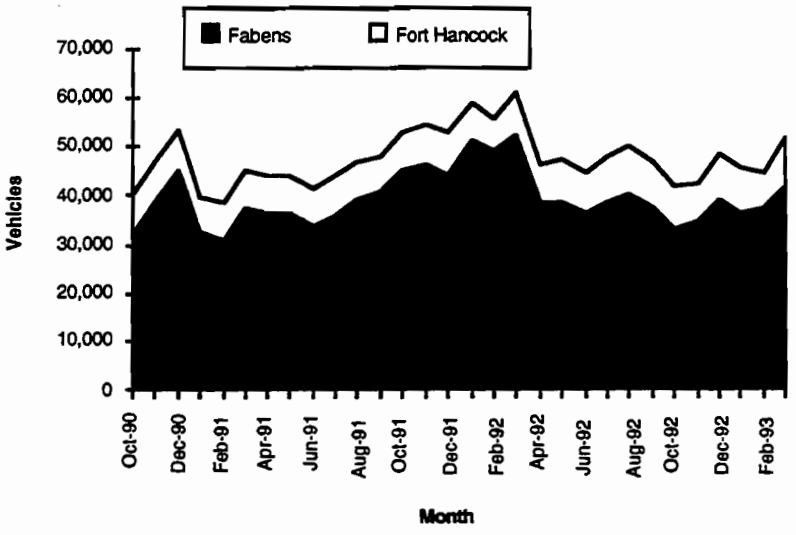

Figure 5.32. Northbound vehicular traffic counts at Fabens Bridge and Fort Hancock Bridge (source: U.S. Customs and INS)

5.4.6 El Paso Port of Entry

El Paso port of entry is the largest of all ports of entry along the Texas/Mexico border in terms of the total number of autos and trucks. The El Paso port of entry is comprised of four auto/truck/pedestrian binational bridge entry systems and two binational rail entry systems. Figures 5.33 and 5.34 show the northbound privately owned vehicles and trucks traffic counts in

total numbers and in percentages by port of entry, respectively, at eleven ports of entry along the Texas/Mexico border for fiscal year 1991 (October 1990 through September 1991).

The four vehicular binational bridge entry systems that comprise the El Paso port of entry include:

(1) Ysleta Bridge (Zaragoza Bridge)
(2) Bridge of the Americas (Cordova Bridge)
(3) Good Neighbor Bridge (Stanton Street Bridge)
(4) Paso Del Norte Bridge (Santa Fe Street Bridge)

Paso Del Norte, Good Neighbor, and Ysleta Bridges are owned by the City of El Paso. The Bridge of the Americas is currently owned by the IBWC. The two rail bridges are owned by Southern Pacific Railroad and Union Pacific Railroad. The following describes the four binational bridge entry systems.

Figures 5.35 and 5.36 show the annual northbound and southbound traffic counts at Ysleta Bridge. Figure 5.37 presents annual northbound traffic counts at Bridge of the Americas (BOTA). Southbound traffic data are not available for BOTA (since it is a free facility). Good Neighbor (Stanton Street) Bridge is a southbound-only facility for both vehicles and pedestrians (there are no U.S. inspection agency facilities at the bridge). Figure 5.38 shows the annual southbound traffic counts at Good Neighbor Bridge (GNB). Paso Del Norte (Santa Fe Street) Bridge is a northbound-only facility for vehicles, and a two-way facility for pedestrians. The northbound and southbound traffic counts at Paso Del Norte Bridge (PDN) are also included in Figures 5.39 and 5.40.

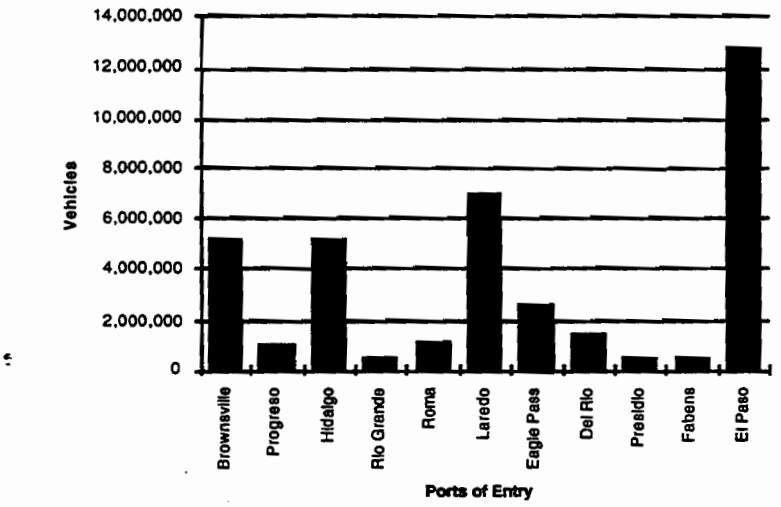

Figure 5.33. Northbound POVs and truck traffic counts through the Texas-Mexico ports of entry during fiscal year 1991 (source: U.S. Customs Service)

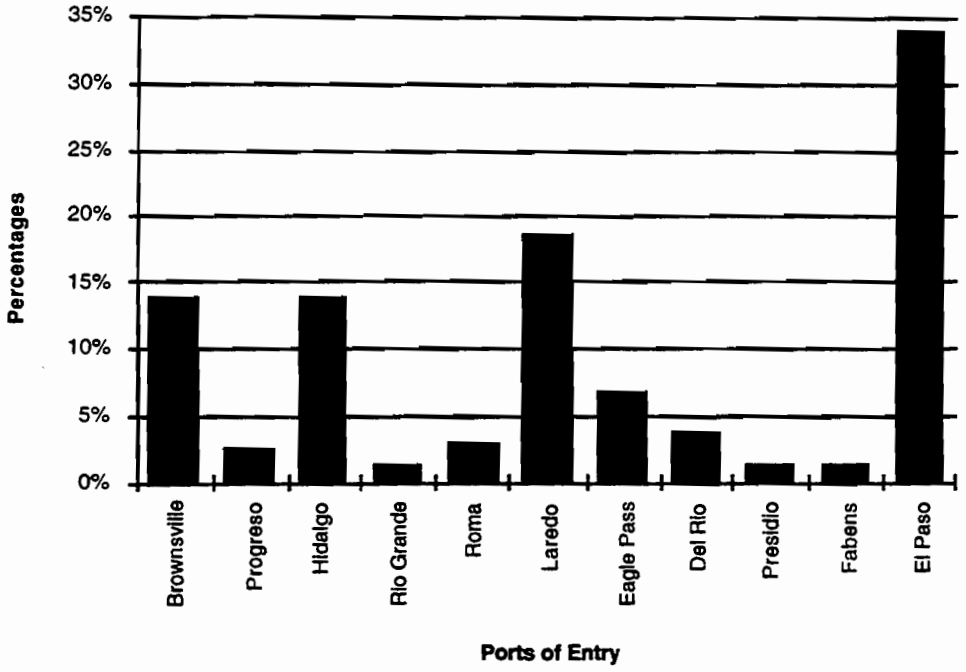

Figure 5.34. Northbound POVs and truck traffic percentages through the Texas-Mexico ports of entry during fiscal year 1991 (source: U.S. Customs Service)

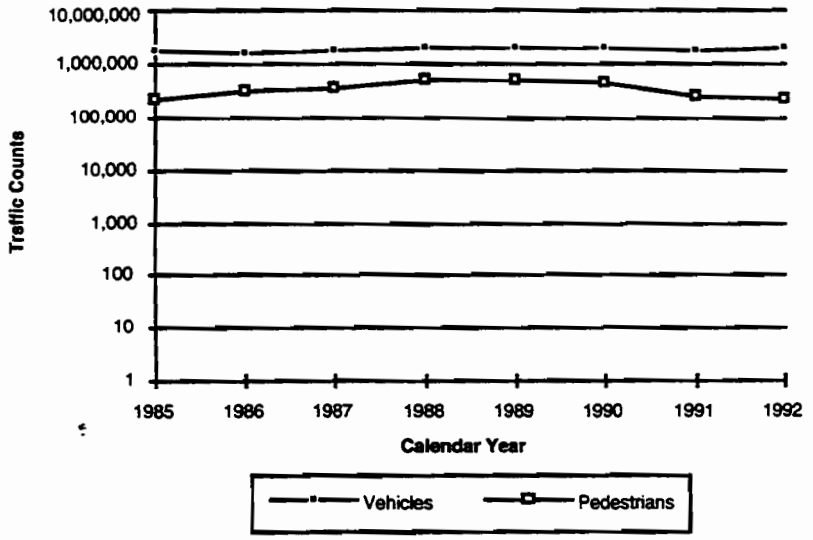

Figure 5.35. Annual northbound traffic counts at Ysleta-Zaragoza Bridge (1992 fourth quarter estimated) (source: U.S. Customs Service)

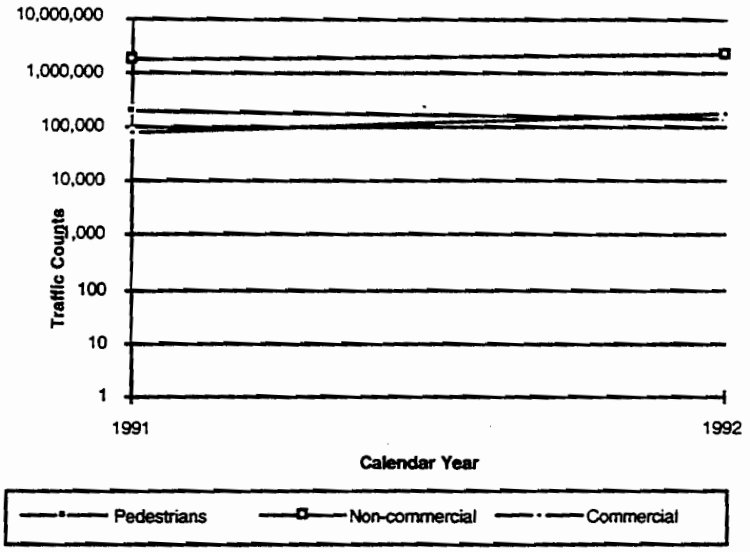

Figure 5.36. Annual southbound traffic counts at Ysleta-Zaragoza Bridge (source: City of El Paso and Laredo State University)

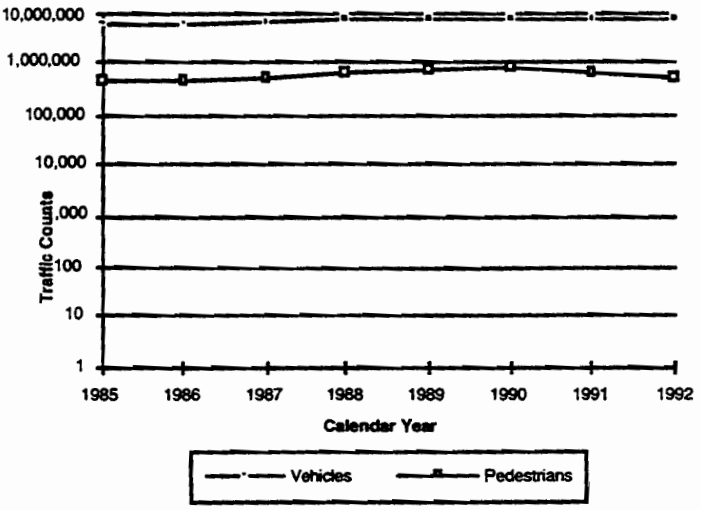

Figure 5.37. Annual northbound traffic counts at Bridge of the Americas (1992 fourth quarter estimated) (source: U.S. Customs Service)

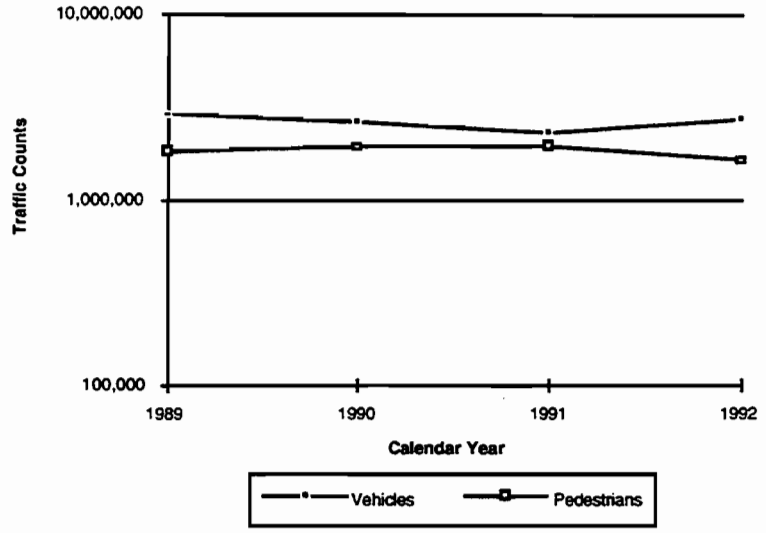

Figure 5.38. Annual southbound traffic counts at Good Neighbor (Stanton Street) Bridge (source: City of El Paso and Laredo State University)

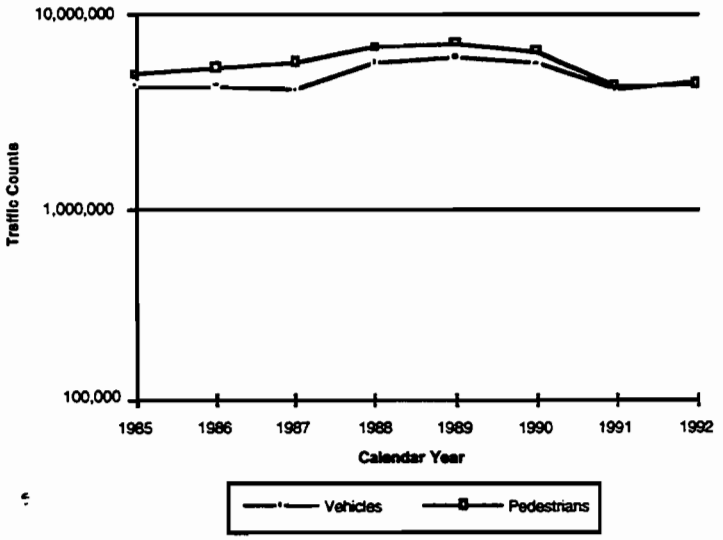

Figure 5.39. Annual northbound traffic counts at Paso Del Norte (Santa Fe Street) Bridge (1992 fourth quarter estimated) (source: U.S. Customs Service)

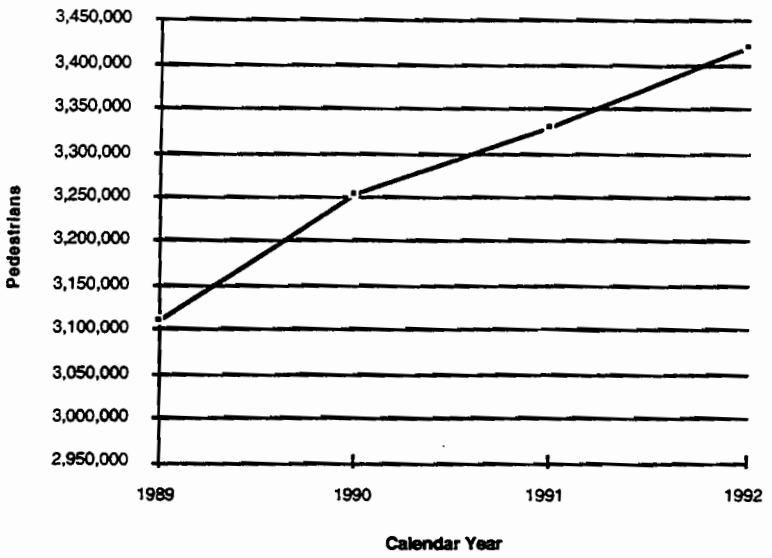

Figure 5.40. Annual southbound pedestrian traffic counts at Paso Del Norte (Santa Fe Street) Bridge (source: City of El Paso and Laredo State University)

Ysleta-Zaragoza Bridge: Ysleta Bridge is located approximately 21 miles (33.8 km) upstream from Fabens Bridge. This new toll bridge, owned by the City of El Paso, became operational in December 1990 (it replaced an older toll-free facility owned by the IBWC). The old IBWC Ysleta Bridge was not part of the 1963 Chamizal Treaty. According to GSA, the property on which the U.S. border station facility is located is owned mostly by GSA, while the City of El Paso owns a small piece of the site.

There are two separate four-lane bridges at Ysleta, one bridge (to the west) for private vehicles and pedestrians, and one (to the east) for commercial trucks, with sidewalks on either side of the non-commercial bridge for pedestrians. Located side-by-side, the bridges are commonly referred to collectively as the Ysleta Bridge. Ysleta is open 24-hours a day for private vehicles, pedestrians, and commercial traffic.

For private vehicles, there are eight U.S. primary inspection northbound booths, with four additional lanes available (though without booths). There are 26 secondary inspection spaces for private vehicles, with room for expansion to 36 spaces. There are six primary inspection lanes for commercial trucks, of which three are usually open, and 55 docks for secondary inspection of truck cargo. According to GSA, the secondary inspection dock is expandable to 110 docks. Also, there is an export lot at Ysleta that has 10 docks (expandable to 20) for export truck inspection.

The U.S. connecting facility at Ysleta is the Border Highway/Loop 375/Americas Avenue. A newly constructed interchange has been completed or is near completion at Ysleta Bridge and Loop 375. Ysleta Bridge can be accessed on the Mexican side from MEX 2.

The U.S. primary inspection lanes are staffed by U.S. Customs and INS inspectors.

Figure 5.41 shows the average staffing levels of the private vehicle primary inspection lanes at Ysleta over a 5-week period. The figures presented in Figure 5.41 are the average percent lane-hours staffed between the hours of 6 a.m. and 10 p.m., based on a maximum of eight primary inspection lanes available. (A lane-hour is calculated by multiplying the number of primary inspection lanes opened by the number of hours they are in operation. The maximum lane-hours for eight lanes during the 16-hour period is 128 lane-hours; the percentages shown in Figure 5.41 are based on this maximum.)

Figure 5.41 shows that the average percent lane-hours staffed at Ysleta is about 32. It is standard practice among U.S. inspection agencies to add or remove inspectors from the primary inspection lanes according to the level of border crossing traffic. Consequently, the average lane-hours staffed does not indicate the fluctuation of lane-hours staffed throughout a given day. For example, the number of lane-hours that the primary inspection lanes were opened during the 5 different weeks in 1992 and 1993 between the hours of 6 a.m. and 10 p.m. varied from 30.5 to 49 lane-hours, or 24 percent to 38 percent of the maximum 128 lane-hours. The number of lanes opened during these 5 weeks at a given time between 6 a.m. and 10 p.m. varied from one lane to four lanes. Figure 5.42 shows the staffing levels at 30-minute intervals for 7 days in January 1993 at Ysleta.

On the Mexican side, the inspection facilities of Puente Zaragoza (as Ysleta Bridge is called) consist of three lanes for autos' primary inspection, and approximately 30 spaces for autos' secondary inspection. There are five lanes for primary inspection of commercial traffic; the import lot can hold approximately 40 trucks.

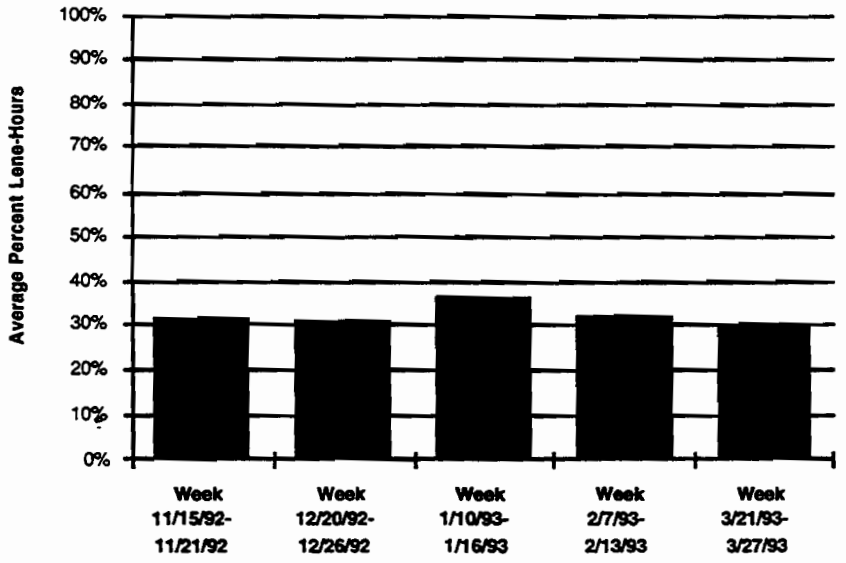

Figure 5.41. POV primary lane average percent lane-hours staffed from 6 a.m. to 10 p.m. at Ysleta (source: U.S. Customs Service)

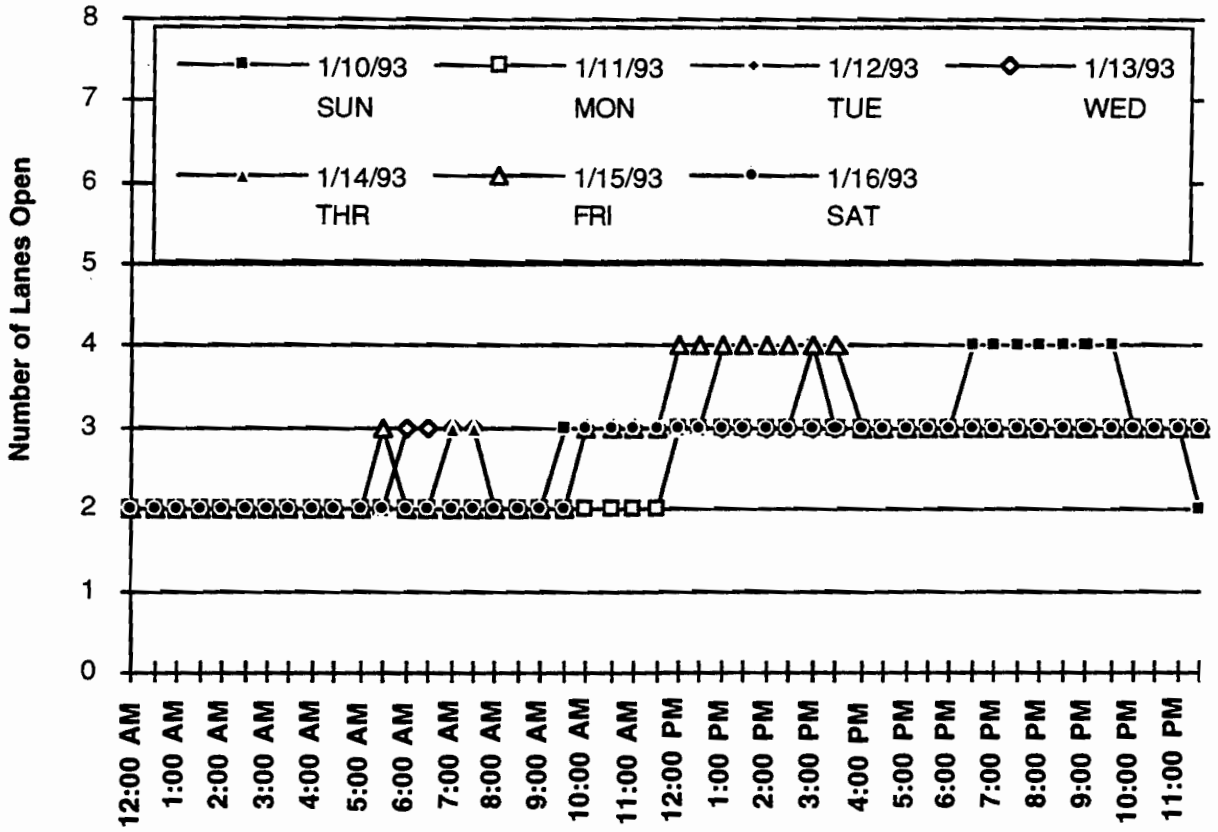

Figure 5.42. POV primary lane openings at Ysleta (source: U.S. Customs Service)

Bridge of the Americas: Bridge of the Americas (BOTA) is located approximately 8.3 miles (13.4 km) upstream from Ysleta-Zaragoza Bridge. The bridge is owned by the U.S. IBWC and by the government of Mexico (the U.S. section of the IBWC has a counterpart in Mexico). BOTA is a toll-free facility for private vehicles, commercial trucks, and pedestrians. According to GSA, the property on which the U.S. border station facility is located is owned by GSA. The bridge and border station facilities were opened around 1967; the U.S. border station facility was expanded and upgraded in 1992.

BOTA, along with the Paso Del Norte and Stanton Street Bridges (discussed in the following sections), was built as a result of the 1963 Chamizal Treaty ratified by the U.S. and Mexico. The Chamizal Treaty, which established a permanent boundary between the U.S. and Mexico in the immediate area of these bridges, was considered necessary to rectify the problem of the boundary shifts created by the seasonal variability of the Rio Grande's path. Under the Chamizal Treaty, BOTA was established as a free bridge.

BOTA is an eight-lane bridge equipped with two commercial truck lanes and pedestrian

sidewalks on both sides. Bridge damage caused by excessively heavy commercial truck loads has led officials to limit loads to under 20 tons (18 Mg). (There are plans to replace this bridge; see section 5.4.2.5.) On the U.S. side, there are 10 primary inspection lanes and 24 secondary inspection spaces for private vehicles. There are also 6 primary inspection booths for commercial vehicles and 75 spaces for secondary inspection of commercial traffic. According to GSA, the secondary inspection dock is expandable to 110 spaces (no further room for expansion is available for private or commercial vehicle inspection). U.S. Customs has requested that GSA acquire additional land around the current facility in order to expand the import lot and to provide more space for empty truck and bulk cargo inspection, hazardous materials containment, and additional staging. GSA is currently preparing the environmental assessment for this proposal. The commercial truck inspection facilities operate from 6 a.m. to 6 p.m., Monday through Friday, and from 6 a.m. to 2 p.m. on Saturdays; the facilities are closed on Sundays. BOTA is open to private vehicles and pedestrians 24-hours a day. Despite occasional congestion, many travelers, preferring a free facility, continue to use BOTA.

The U.S. approach facilities to BOTA are Interstate 110 and Paisano Drive (US 62). Interstate 110 provides direct access to Interstate 10. The Border Highway (Loop 375) passes underneath the bridge and can be accessed from BOTA. On the Mexican side, the bridge can be accessed by MEX 2.

The U.S. primary inspection lanes are staffed by U.S. Customs and U.S. INS inspectors. Figure 5.43 shows the average staffing levels of private vehicles' primary inspection lanes at BOTA for 4 days during 1992. The figures presented in Figure 5.43 are the average percent lane-hours staffed between the hours of 6 a.m. and 10 p.m., based on a maximum of ten primary inspection lanes available. (A lane-hour is calculated by multiplying the number of primary inspection lanes opened by the number of hours they are in operation. Thus, the maximum lane-hours for ten lanes during the 16-hour period is 160 lane-hours, and the percentages shown in Figure 5.43 are based on this maximum.)

Figure 5.43 shows that the average percent lane-hours staffed at BOTA (based on the four-day figures) is about 67. It is standard practice among U.S. inspection agencies to add and remove inspectors from primary inspection lanes according to the level of border crossing traffic. Thus, the average lane-hours staffed cannot indicate the fluctuation of lane-hours staffed throughout a given day. For example, the number of lane-hours that primary inspection lanes were opened during the 4 days in 1992 between the hours of 6 a.m. and 10 p.m. varied from 89 to 129.5 lane-hours, or 56 percent to 81 percent of the maximum 160 lane-hours. The number of lanes opened at a given time between 6 a.m. and 10 p.m. varied from three lanes to ten lanes. Figure 5.44 shows BOTA's staffing levels at 30-minutes intervals for 4 days in 1992.

On the Mexican side, Puente Cordova (or Puente Libre) consists of six lanes for autos primary inspection, 40 to 50 parking spaces for autos secondary inspection, four lanes for commercial vehicles primary inspection, and an import lot with a 50-truck capacity. This binational bridge entry system also has approximately 500 parking spaces for vehicles coming from the U.S. (where tourists can, for example, park while completing their paperwork).

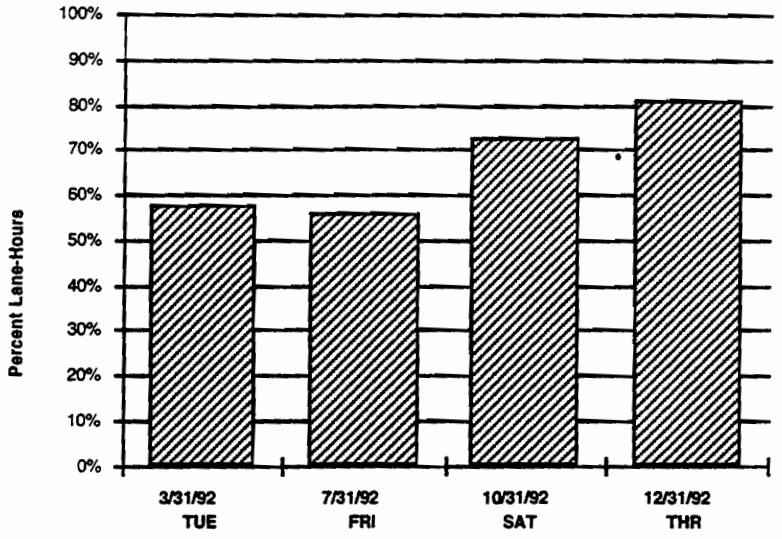

Figure 5.43. POV primary lane percent lane-hours staffed from 6 a.m. to 10 p.m. at BOTA (source: U.S. Customs Service)

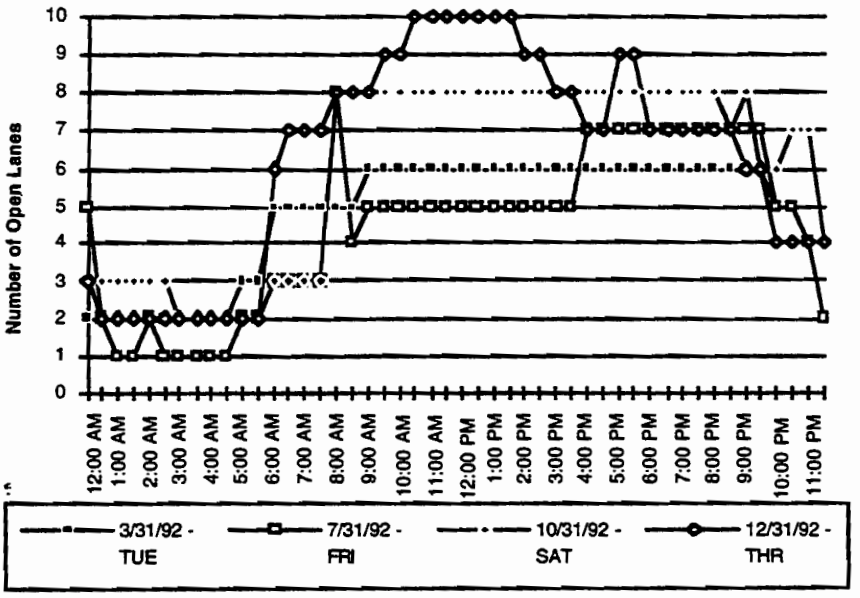

Figure 5.44. POV primary lane openings at BOTA (source: U.S. Customs Service)

Good Neighbor Bridge: Good Neighbor Bridge (GNB) is located approximately 3.3 miles (5.3 km) upstream from BOTA. As mentioned before, its construction (it opened in 1967) was a stipulation of the 1963 Chamizal Treaty. The City of El Paso owns the bridge (though it was originally owned by IBWC). According to GSA, the land on which the U.S. border station facility is located is owned by GSA. The border station facility is currently used by customs as an export lot for duty-free goods.

Established as a toll facility, GNB is a one-way, four-lane, southbound binational bridge entry system handling only southbound non-commercial traffic and southbound pedestrian traffic (there are sidewalks on both sides). One of the four traffic lanes crossing the bridge is used for turnarounds as necessary. Good Neighbor Bridge is open 24-hours a day.

On the U.S. side, there are four southbound toll booths. Since it is a one-way bridge in the southbound direction, there are no U.S. inspection agency facilities. There are proposals to convert one lane of Good Neighbor Bridge to a high-occupancy vehicle/transit lane (or possibly to a reversible commuter lane).

The U.S. connecting roadway to the Good Neighbor Bridge is Stanton Street (U.S. Highway 62/85) in downtown El Paso (the bridge is also called Stanton Street Bridge). The Border Highway (Loop 375) passes underneath GNB, and the bridge can be accessed on the U.S. side from the Border Highway.

On the Mexican side, GNB is known as "Puente Reforma." The facility there consists of two lanes for privately owned vehicles' primary inspection, and 30 parking spaces for secondary inspection. Puente Reforma can be accessed on the Mexican side from MEX 2.

Paso Del Norte Bridge: Paso Del Norte Bridge (PDN), the westernmost vehicle binational bridge entry system in El Paso, is located approximately one-quarter mile (0.4 km) upstream from Good Neighbor Bridge and 3.7 miles (6 km) downstream from the Texas/New Mexico/Chihuahua border monument. Like the GNB, PDN was a stipulation of the 1963 Chamizal Treaty. Originally owned by the IBWC, it is now owned by the City of El Paso. According to GSA, the land on which the U.S. border station facility is located is owned by GSA. The bridge and border facilities were opened in 1967; the border station facility was renovated in 1991.

Set up as a toll facility, PDN is a one-way, four-lane, northbound binational bridge entry system carrying non-commercial traffic (i.e., traffic that does not require U.S. Customs cargo inspection) and two-way pedestrian traffic (there are sidewalks on either side of the bridge). One of the four lanes is utilized for turnarounds as necessary. Paso Del Norte is open to vehicular and pedestrian traffic 24-hours a day. Because PDN is a toll facility, it carries about 32 percent less traffic than BOTA, a free facility.

There are ten U.S. primary inspection booths for the northbound traffic (one of the ten booths is reserved for turnarounds). PDN has 26 U.S. secondary inspection spaces, though no import lot. There are four northbound Mexican toll booths for the northbound traffic, including one booth utilized for turnarounds as necessary. There are proposals — similar to those for the

Good Neighbor Bridge mentioned earlier — to convert one lane of Paso Del Norte Bridge to a high-occupancy vehicle/transit lane (or possibly to a reversible commuter lane). However, this proposal is not supported by U.S. Customs at PDN.

The U.S. primary inspection lanes are staffed by U.S. Customs and INS inspectors. Figure 5.45 shows the average staffing levels of the primary inspection lanes at PDN over 4 weeks. Figure 5.45 shows the average percent lane-hours staffed between the hours of 6 a.m. and 10 p.m., based on a maximum of nine primary inspection lanes available (the tenth primary inspection lane being reserved for turnarounds). (A lane-hour is calculated by multiplying the number of primary inspection lanes open by the number of hours they are in operation. Thus, the maximum lane-hour count for nine lanes during the 16-hour period is 144 lane-hours, and the percentages shown in Figure 5.45 are based on this maximum.)

Figure 5.45 shows that the average of lane-hours staffed at PDN (based on the 4 weeks' monitoring) is about 60 percent. It is standard practice among U.S. inspection agencies to add and remove inspectors from the primary inspection lanes according to the level of border crossing traffic. Therefore, the average lane-hours staffed cannot indicate the fluctuation of lane-hours staffed throughout a given day. For example, the number of lane-hours that the primary inspection lanes were opened during the 7-day period from March 22, 1993, to March 28, 1993, between the hours of 6 a.m. and 10 p.m. varied from 81 to 101 lane-hours, or 56 percent to 70 percent of the maximum 144 lane-hours. The number of lanes opened at a given time between 6 a.m. and 10 p.m. varied from two lanes to seven lanes. Figure 6.46 shows the staffing levels at 30-minute intervals for 1 week in March of 1993.

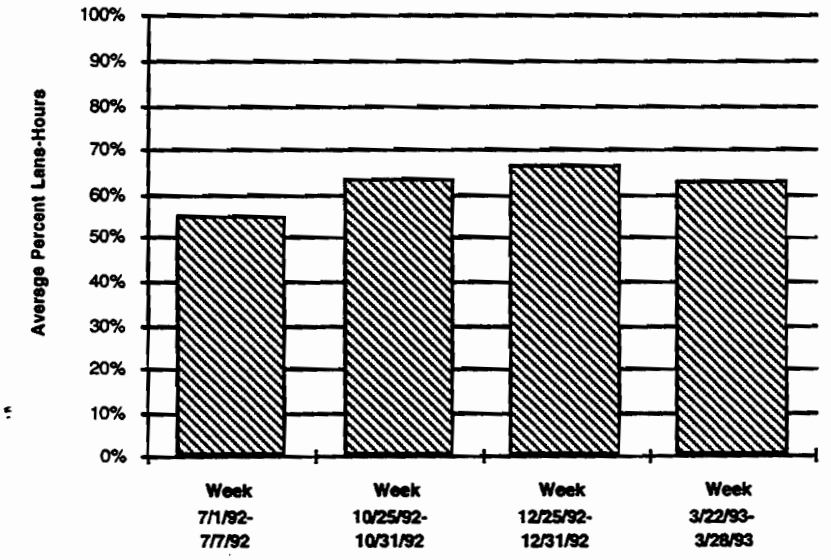

Figure 5.45. POV primary lane average percent lane-hours staffed from 6 a.m. to 10 p.m. at PDN (source: U.S. Customs Service)

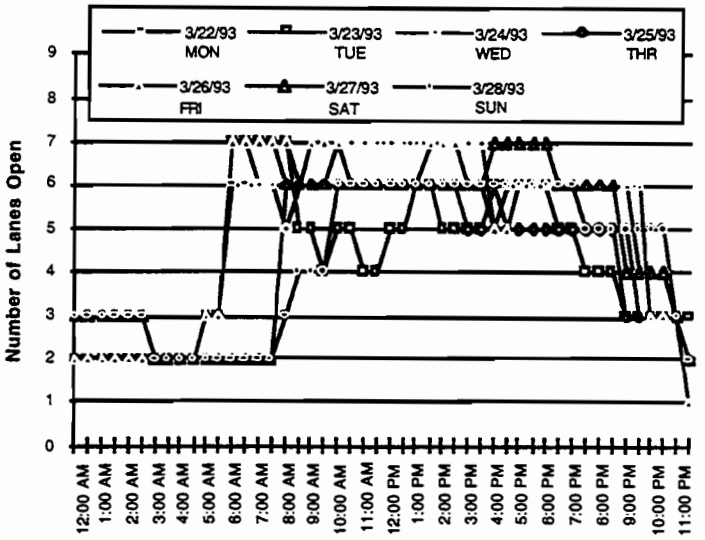

Figure 5.46. POV primary lane openings at PDN (source: U.S. Customs Service)

Paso Del Norte Bridge connects with El Paso Street (U.S. Highway 62/85) in downtown El Paso in the north/south directions. The Border Highway (Loop 375) passes underneath the bridge and currently feeds into Santa Fe Street west of PDN Bridge, which is also called Santa Fe Bridge or Puente Santa Fe in Mexico. The Border Highway, which can be accessed after crossing PDN, extends east to Ysleta port of entry and then north to Montana Avenue (U.S. Highway 180/62). An extension of Loop 375 is currently under construction northward from Montana Avenue to Trans Mountain Road. This extension is part of the proposed outer loop around El Paso. PDN can be accessed on the Mexican side from MEX 2.

Of all the bridges in El Paso, PDN processes the largest number of pedestrians. Much of this pedestrian traffic consists of Mexicans seeking U.S. immigrant visas. Because the only other processing center (San Ysidro, California) was shut down in September 1993, the number of U.S. immigrant visas processed in El Paso has increased substantially. The El Paso center processed 22,946 immigrant visas in 1990; 24,944 in 1991; 47,247 in 1992; and for the first 5 months of 1993, the total was 27,724, for an annual rate of over 65,000.

The physical plant capacity of PDN for INS staff is considered adequate. Although it was remodeled several months ago, INS does not have the staff to utilize the extra space. As a result, Mexican citizens seeking immigrant visas are periodically instructed to return to Mexico and told to come back at a later time (by appointment), since the size of the crowds there frequently are in violation of building occupancy codes established by the fire marshall.

5.5 SITES UNDER CONSTRUCTION

Pharr International Bridge, located in Segment 1, is the only binational bridge entry system under construction at the present time. There are no bridges or border station facilities in Segment 2 presently under construction.

5.5.1 Pharr International Bridge

According to Pharr city officials, the Presidential permit is in place and the diplomatic notes have been exchanged in preparation for the construction of this binational bridge entry system. Final arrangements are currently being made to ensure timely and coordinated construction of the facility. As of September 24, 1993, soil testing was underway on the U.S. side. The purpose of the proposed bridge is to relieve traffic congestion on the Hidalgo-Reynosa Bridge. At the 11th Binational Conference on Bridges and Border Crossings held in Ciudad Victoria, Tamaulipas (November 13–14, 1991), the Secretaría de Desarrollo Urbano y Ecología (Department of Urban Development and Ecology, or SEDUE) expressed his country's great interest in the Pharr Bridge project. SEDUE expects that this binational bridge entry system will provide relief to the excessive levels of commercial traffic currently using nearby Hidalgo Bridge. The facility is currently projected to be opened to traffic in 1996.

The proposed bridge will extend southward from U.S. Highway 281 in Pharr across the Rio Grande and its flood plain to an industrial area on the east side of Reynosa. The bridge access road will connect to MEX 2, the main Mexican highway between Reynosa and Matamoros, near Reynosa's airport. Four vehicular traffic lanes are planned for the bridge (two in each direction), as well as a pedestrian sidewalk. The bridge will be 2.98 miles (4.04 km) long, 57 feet (17 m) wide, and will be built of reinforced concrete using simple span construction. In addition to the bridge itself, the project includes the construction of approach roads on both the U.S. and Mexican sides of the border. The U.S. highway 281 projected extension in the southern direction along its present north-south axis will intersect the Rio Grande approximately 1.89 miles (3.04 km) to the south. Pharr Bridge is approximately 4.82 miles (7.76 km) downstream from the existing Hidalgo-Reynosa International Bridge. The City of Pharr is located about 7.14 miles (11.49 km) to the north along US 281 from this highway intersection, or 9.03 miles (14.53 km) from the highway/river intersection.

The Presidential permit for the City of Pharr was approved on December 20, 1978. The city has since issued a new series of special revenue bonds to finance the design and construction of the new bridge, and an environmental assessment (EA) was requested as part of the effort to activate that permit (Ref 30). In April 1991, an EA was prepared to assess the ability of the international bridge proper to meet the requirements of a Coast Guard Permit. Following the issuance of the Coast Guard Permit, the United States GSA requested that the EA be amended to include the customs and immigrations facilities associated with the binational entry system. This EA, completed in August 1992, was intended to fulfill the requirements of each of the agencies for the proposed international bridge at the extension of U.S. Highway 281 across the Rio Grande, the highway interchange and expansion, and the immigrations and customs facilities. The EA anticipates no significant detrimental impact on the biotic, social, physical, or economic environment.

According to U.S. Customs, the proposed GSA facility will closely follow the design of the Los Indios International Bridge Border Station. Included in the facility will be a cargo containment area, import dock, export dock, administration building, kennel, inspection area, and

impoundment area. An area in the facility will be designed to temporarily accommodate hazardous materials vehicles that are leaking or that require inspection or impoundment.

The owner of the bridge on the U.S. side will be the City of Pharr, while the Mexican government will be the owner on the Mexican side. The cost of the new facility will be $11 million, with a total project cost of about $20.7 million (Ref 1). The responsibility for the cost of the bridge will be divided between the City of Pharr and the Mexican government. The City of Pharr is responsible for funding all facilities on the U.S. side of the border; tolls will be collected from southbound vehicles to finance the 1.36-mile (2.19-km) bridge and all General Services Administration facilities. The approach road on the U.S. side will be built by TxDOT.

5.5.2 Mexican Perspective

The federal concession for this bridge is being assigned to the State of Tamaulipas. As of September 24, 1993, construction had not started.

5.6 PLANNED SITES AND PROJECTS

Planned sites are proposed binational bridge entry systems needed by a local community or organization, or existing entry systems that need to be replaced with new, wider, and structurally safer bridges. There are thirteen proposed international bridges, replacements, and expansion projects along the Texas-Mexico Border. This section reports the status of these proposed bridges. Table 5.4 lists the proposed bridges, replacements, and expansions, while Table 5.5 summarizes the status of Texas-Mexico bridge proposals from the Mexican perspective.

5.6.1 Segment 1

There are eight proposed binational entry systems in Segment 1. The following describes these systems.

Port of Brownsville Bridge: The site of the two proposed binational entry systems (rail and vehicular) is approximately 3 miles (4.8 km) south of the Brownsville Ship Channel near Los Suaces Ranch. Both systems would be located within a port-owned 1,000-foot (305-m) corridor extending from South Port Road to the Rio Grande. The systems would be accessed via a port-owned road and railroad. The following facilities are included in the proposed project on the U.S. side:

- A four-lane bridge for commercial trucks
- A single-track railroad bridge
- Two-lane roadway with shoulders connecting the vehicular bridge and South Port Road
- Single set of rail tracks and passing track connecting the railroad tracks adjacent to the channel and South Port Road to the rail bridge
- GSA and toll collection facilities

The Port Director of Brownsville indicated that the project may initially be implemented as a truck-only binational entry system. This truck entry system would alleviate traffic delays on the Brownsville-Matamoros bridges.

Table 5.4. Proposed binational entry systems and existing bridges improvement proposals along and adjacent to the Texas-Mexico border

Mex. State	Bridge U.S. Name / Mexican Name	U.S.-Mexico City or Town	U.S. County
Tamaulipas	1. Port of Brownsville		Cameron
Tamaulipas	2. Los Tomates	Brownsville-Matamoros	Cameron
Tamaulipas	3. B&M[1]	Brownsville-Matamoros	Cameron
Tamaulipas	4. Flor De Mayo	Brownsville-Matamoros	Cameron
Tamaulipas	5. Donna/Rio Bravo	Donna-Rio Bravo	Hidalgo
Tamaulipas	6. Anzalduas Bridge	McAllen, Mission, Hidalgo-Reynosa	Hidalgo
Tamaulipas	7. Mission Bridge	Mission-Reynosa	Hidalgo
Tamaulipas	8. Los Ebanos Bridge	Los Ebanos-Dias Ordaz	Hidalgo
Tamaulipas	9. Laredo/Nuevo Laredo Bridge No. 3	Laredo-Nuevo Laredo	Webb
Coahuila	10. Eagle Pass/Piedras Negras	Eagle Pass-Piedras Negras	Maverick
Chihuahua	11. Fabens Bridge[2]	Fabens-Caseta	El Paso
Chihuahua	12. Socorro Bridge	Socorro-San Isidro	El Paso
Chihuahua	13. Bridge of the Americas[3]	El Paso-Ciudad Juarez	El Paso
Chihuahua	14. Sunland Park, New Mexico	Sunland Park-Ciudad Juarez	Dona Ana

[1]Proposal for widening existing bridge since 1981
[2]Relocation of existing bridge;border station facilities inadequate
[3]Replacement of existing bridge; structural safety considerations

The commercial vehicle bridge will be a simple span, reinforced concrete structure consisting of four 12-foot (3.6-m) travel lanes (two lanes per direction), and two 6-foot (1.8-m) walkways (including barriers). The total length of the bridge will be approximately 0.14 miles (0.23 km). The bridge will be designed according to the latest edition of the American Association of State Highways and Transportation Officials (AASHTO) standard specifications and TxDOT requirements. However, the design load for the bridge would be based on the Mexican T3-S2-R4, 170,000-pound (77,180-kg) vehicle.

The railroad bridge will be a single-track structure located east of the commercial truck bridge. The bridge will be approximately the same length as the vehicular bridge (i.e., 18-feet or 5.4-m wide) and will include an emergency walkway.

The GSA border and import lot facilities will be constructed within the 1,000-foot (305-m) corridor on an approximately 40-acre (15.8-hectare) tract of land. Additional land is available for future expansion if necessary. The facilities, which will be leased or purchased by GSA, will

provide for a U.S. Customs station, facility space for the INS and the Department of Agriculture (DA), an import lot and dock facilities with 50 truck bays (expandable to 100), six primary truck inspection lanes (expandable to twelve), and northbound truck scales.

Table 5.5. Status of Texas-Mexico bridge proposals from the Mexican perspective

BRIDGE	Official Application	Intersecretariat Agreement	Final Bridge Location	Environ-mental Impact Analysis*	Final Bridge Design	Concession	Construction
Matamoros Area							
Puerto de Brownsville-Matamoros							
Los Tomates (Matamoros-Brownsville III)	ok	ok	ok		(1)		
Flor de Mayo (Matamoros-Brownsville)							
Reynosa Area							
Río Bravo-Donna							
Reynosa-Anzalduaz							
Reynosa-Mission							
Díaz Ordaz-Los Ebanos	ok	ok	ok				
Nuevo Laredo Area							
Laredo III	(2)	ok	ok		(3)		
Piedras Negras Area							
Piedras Negras-Eagle Pass	ok	ok	ok		ok	ok	
Ojinaga Area							
Boquillas del Carmen/Big Bend	ok						
Cd. Juárez Area							
Anapra/Sunland Park (in New Mexico)	ok	ok	ok				

*At this time there is no official requirement for an environmental impact study to approve a bridge proposal. However, the federal government, through SEDESOL, is working to include an environmental impact analysis in the approval process.

[1]The final bridge design has not been completed.

[2]The federal government is waiting for the state of Tamaulipas' new administration to ratify the bridge application

[3]There is a preliminary bridge design

The Port of Brownsville toll plaza and export area will also be part of the support facilities of the binational bridge entry systems. The site will include a toll plaza, southbound scales, and an export lot with ten truck bays (expandable to 25).

The vehicular binational bridge entry system will be connected to the Port via a port-owned road extending southward from South Port Road approximately 3 miles (4.8 km) to the Rio Grande. This road will consist of two 12-foot (3.7-m) lanes with two 10-foot (3.1-m) shoulders and double-striped median. The pavement design will accommodate the 170,000

pound (77,180 kg) design live load. The port will be accessed via South Port Road, an existing facility that provides access to the wharf, grain elevators, and petroleum storage tanks. South Port Road connects SH 48 and FM 511, both of which connect to US 77/83. From Mexico, the roadway will be extended to Carretera a la Playa, a two-to-four-lane highway to Matamoros.

Once necessary permits are issued and funding is assured, construction documents will be prepared and contractors will be selected for the U.S. side of the project. In Mexico, either the federal, state governments, or a private concessionaire will construct the access and ancillary facilities. Construction of the binational railroad bridge entry system and connection may be included in a later phase of the overall project.

The Presidential permit was submitted in 1991. The environmental impact study has been completed and was submitted recently. The environmental problems in the area pertain to the presence of three endangered species (among them the oscelot) found in the area. The port authority expects between 50 and 80 percent of Brownsville downtown truck traffic will divert to their bridge.

The Mexican government regards the bridge as a potential rival of the Mexican seaport of Altimara, which is 100 miles (161 km) south of the Port of Brownsville. For this reason, Mexico has expressed no interest in the facility (infrastructure development on the Mexican side involves roads and railroad relocation). Although the Port has indicated that they would be willing to fund the entire project (including the border station facilities), they have yet to locate a sponsor on the Mexican side.

The State of Tamaulipas is expected to be the owner/operator of the facility on the Mexican side, while Grupo ICA, a prominent Mexican construction company, will be responsible for construction of the facility — particularly the necessary infrastructure on the Mexican side. Although everything is in place for construction on the U.S. side, there is, as Brownsville Port Director James Kruse indicated, some concern about the Mexican side. A comprehensive transportation plan for the Brownsville/Matamoros area is needed to ensure the success of the Port of Brownsville Bridge. And the facility will require a road that bypasses Matamoros and connects the port facility with the twin plants on the western side of Matamoros.

Mexican Perspective: The federal government of Mexico has yet to receive an official bridge proposal. And both SCT and SEDESOL have indicated that they do not support construction of the bridge for various reasons, chief of which is that it would compete with the seaport of Altamira, as mentioned above.

The Grupo ICA effort to purchase land along the Rio Grande — land that encompasses the area in which the proposed bridge is to be located — is not part of the bridge proposal. ICA is creating a tourist resort in this area.

5.6.1.2 Los Tomates Bridge: Los Tomates Bridge has been considered by the U.S. for several years and has recently received the attention of the government of Mexico. The tentative site lies approximately 5 miles (8 km) east of Gateway Bridge in Brownsville. If built at the proposed site, the controlled access Highway US 77/83 will be extended to the international bridge. The U.S. part of the bridge will be jointly owned by Cameron County and the City of

Brownsville. The sponsor is currently evaluating its Supplemental EA report. The project, already funded by Congress, has received authorization for design. Further work on the inspection facilities must be delayed until after the sponsor concludes its National Environmental Policy Act requirements and after final diplomatic notes have been exchanged. The following provides a brief history of the project:

- Resolution passed by the City of Brownsville Commission on January 12, 1988, supporting construction of a third Brownsville-Matamoros International Bridge.
- Resolution passed on January 25, 1988, by Cameron County Commissioner's Court supporting construction of a third international bridge connecting Brownsville and Matamoros.
- Minute passed by the TxDOT Commission committing TxDOT to realignment of U.S. 77/83 to connect with the GSA complex.
- An agreement signed on November 10, 1988, between "The Secretariat" for the federal government of the Republic of Mexico, the County of Cameron, and the City of Brownsville established the technical basis for the construction of an international bridge.
- Environmental Assessment prepared by Traffic Engineers, Inc., for Cameron County and submitted in December 1991.
- The U.S. federal government has appropriated $18,000,000 for architectural design, engineering, and construction of the facilities.
- A proposed Environmental Assessment and Mitigation Plan has been prepared and was submitted in June of 1993 for comment to all federal and state agencies.
- Cameron County awarded the preliminary surveying contract to Orive Surveying, Inc., of Brownsville, Texas.
- GSA has carried out the conceptual architectural and design studies on Los Tomates.
- Cameron County Court has taken formal action regarding the bond issue, which will authorize the funds necessary for acquiring the right-of-way needed for the project.

The government of Mexico plans to move the levee toward the river on the Mexican side to reclaim land for development (Ref 28). If this is carried out, the U.S. has no choice but to do the same on the U.S. side (or risk flooding). Movement of the levee on the U.S. side will result in a reclamation of additional land by the City of Brownsville. The IBWC and its counterpart in Mexico, the Comisión Internacional De Limites y Aguas (CILA), signed an order on November 8, 1991, for positioning the levees and signaling the completion of the necessary hydrology studies.

The City of Brownsville Planning Department reports that construction is scheduled to begin the latter part of 1995. GSA has indicated that they can have their facilities ready by early 1996.

The proposed Los Tomates Bridge is located in Brownsville at River Mile 51.3. The project is designated a joint venture between Cameron County and the City of Brownsville. The

project includes a 1.3-mile (2.1-km) extension of US 77/83 Expressway by TxDOT to the GSA complex. The bridge is approximately 0.32 miles (0.52 km) long, as measured from the levee to the center of the Rio Grande.

The proposed bridge structure will be designed to carry double H20-S16 loads. The bridge structure will be 65 feet (19.8 m) wide and will carry two travel lanes in each direction and two pedestrian walkways. The design specifies a single bridge, though the facility can be expanded by adding another span.

Mexican Perspective: According to Mexican officials, there are unresolved environmental issues on the U.S. side. On the Mexican side, the federal government is waiting for the State of Tamaulipas to ratify the bridge application. At this point there is no bridge design.

5.6.1.3 Flor de Mayo Bridge: Although this bridge is included in the 20-year transportation plan for Brownsville, all efforts are currently directed towards the completion of the Los Tomates Bridge. Consequently, completion of the Flor de Mayo Bridge is not expected soon. Some preliminary design work has been undertaken, and a site at the end of an extension of FM 802 had been proposed (though later land availability considerations forced a change to Flor de Mayo Road; see Figure 5.47).

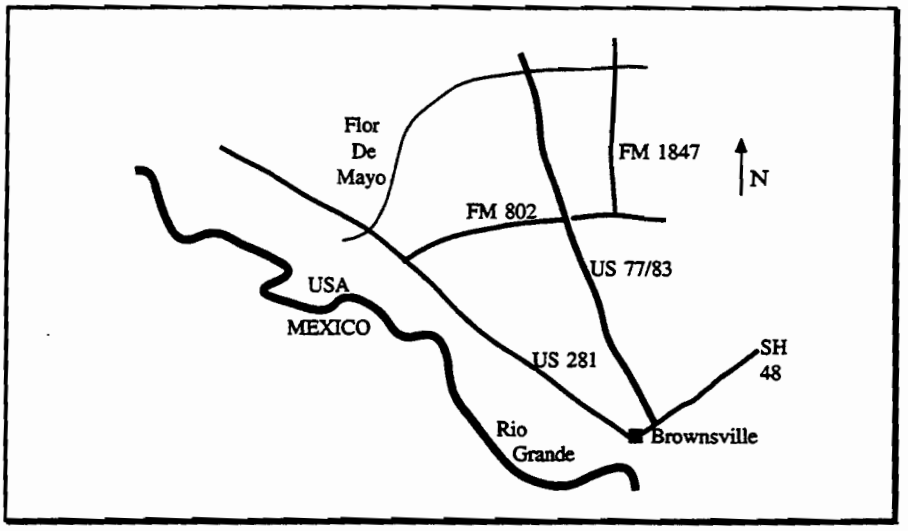

Figure 5.47. Location of Flor De Mayo Road relative to FM 802 (not to scale)

Mexican Perspective: According to interviews, neither SEDESOL nor SCT has heard of this proposal; it is not included in the Foreign Relation's (Border Division) agenda.

5.6.1.4 Donna Bridge (Donna-Rio Bravo): The City of Donna has proposed a four-lane bridge approximately 14 miles (22.5 km) east of Hidalgo and 7 miles (11.3 km) west of Progreso to connect directly with the Mexican city of Rio Bravo. Donna is located approximately 10 miles (16.1 km) north of the river, 6 miles (9.7 km) east of McAllen, and 4 miles (6.4 km) west of Weslaco.

Although a Presidential permit was issued for construction of the bridge in 1979, the government of Mexico has not been receptive to the project (Mexican officials informed the U.S. government in 1984 that Mexico has no plans for a bridge at this location). The city of Donna, led by the current city manager, Mr. Roberto Diaz de Leon, is now actively pursuing the bridge. As planned, Donna will connect with Rio Bravo on the Mexican side, a mostly agricultural city with a population of approximately 100,000. Because of frequent congestion on the present Hidalgo-Reynosa Bridge, many have expressed a need for an alternative binational bridge entry system. The City of Donna has contracted with the Christie Bridge Corporation to construct the bridge (the city, under this contract, is freed of financial obligation and of any liability during construction). According to local sources, Christie Bridge Corporation will use the Presidential permit to build on the U.S. side.

The bridge will connect FM 493 on the U.S. side with MEX 2 on the Mexican side. The proposed site is in a flood plain area.

Mexican Perspective: SCT and SEDESOL regard this bridge as a possible future project — that is, a long-range project that will be considered once the Pharr-Reynosa Bridge (under construction) has attained its projected traffic levels, and once Mexico has recovered its investment in that facility. The Mexican municipal and state approvals for this bridge have been obtained.

5.6.1.5 Anzalduas Bridge: There is agreement among the cities of McAllen, Mission, and Hidalgo to build the Anzalduas Bridge at a site approximately 3.1 miles (5 km) upstream from Hidalgo-Reynosa Bridge. The recent incorporation of Granjeno as a city, however, has put the plans for the bridge on hold. Granjeno (population approximately 500) wants to be part of the agreement and to share in any revenues. In opposition to this, the city of Mission is contesting the validity of Granjeno's status as a city. And the landowner donating the land for customs facilities and access roads has threatened to withdraw the gift if Granjeno is part of the agreement. Meanwhile, Texas Attorney General Dan Morales has filed a petition to halt what he has judged to be an illegal incorporation. (State law requires communities within extraterritorial jurisdiction of other cities to first ask these cities for permission to incorporate.) Yet even if the Granjeno matter is resolved, other hurdles remain:

- GSA does not want to commit so soon to another facility so close to the new Pharr Bridge (under construction).
- There does not appear to be full support for the bridge in Mexico, where much additional infrastructure must be provided.

A rail bridge is also included in the plans for this site. Although the exact location has not yet been determined, tentative plans suggest it will be upstream from the vehicular bridge.

The Presidential permit has been submitted (December 1992) and an environmental assessment is underway. Plans call for an eight-lane bridge that will accommodate both commercial and non-commercial vehicular traffic. The bridge will connect FM 494 on the U.S. side and MEX 2 on the Mexican side (near the foreign trade zone). The proposed location is

dependent, however, on the government of Mexico constructing a road from Monterrey/Reynosa Highway (MEX 40) to the bridge location.

As an alternative to the proposed bridge near Granjeno, the cities of Hidalgo, Mission, and McAllen are also considering building the bridge west of Chimney Park, a mobilehome park subdivision about 2 miles (3.2 km) south of US 83.

Mexican Perspective: In terms of priorities, SEDESOL ranks this bridge below the Pharr-Reynosa Bridge and above the Donna-Rio Bravo Bridge.

5.6.1.6 Mission Bridge: Mission City Manager Michael Talbot reported that all plans for this bridge are currently on hold, pending the outcome of the Anzalduas Bridge litigation. If the latter does not materialize, the city of Mission will again actively pursue this bridge. The Presidential permit submitted by the City of Mission was approved on December 20, 1978, for both a rail and a four-lane vehicular binational bridge entry system.

The local proponents of this proposed crossing have joined with the cities of McAllen and Hidalgo in supporting construction of the aforementioned Anzalduas crossing. The government of Mexico has informed the U.S. government (December 1984) that they have no plans for a bridge at this location. New connecting infrastructure is required: In the U.S., a new road is needed to connect with FM 1016, while in Mexico a new road is needed to link with MEX 2.

Mexican Perspective: According to both SCT and SEDESOL, the status of this bridge proposal is the same as that for the Donna-Rio Bravo Bridge: It will be considered once the Pharr-Reynosa Bridge attains projected traffic levels.

5.6.1.7 Los Ebanos Bridge: A four-lane Los Ebanos Bridge has been proposed as a replacement for the existing ferry at a site upstream from the Los Ebanos ferry. The facility, to be owned by the Reyna estate, is awaiting approval from the State Department, which has requested additional information from the sponsors. Issues that remain unresolved at the present time include: (1) historical concerns related to the existing ferry; (2) a suitable border station site outside the flood plain; (3) the interest to preserve local habitat suitable for threatened and endangered species in the area; and (4) possible impacts to the local community. It is said that the ferry will be preserved according to an agreement made between the bridge owners and the state historical commission. The bridge owners will carry the cost of staffing the ferry with U.S. Customs. According to a U.S. Customs official, it is possible but some laws must first be changed allowing this transaction.

The sponsor has indicated that progress is being made to resolve all environmental issues. For example, an environmental impact study has concluded that the bridge will not impose adverse environmental impacts. The consultant for this bridge is Malcolm Pirnei, Inc., of San Antonio.

While the U.S. government has not been supportive of this bridge proposal, the government of Mexico has expressed an interest in the facility (at the Bilateral Meeting in Nogales, Arizona, in July 1992), but is awaiting U.S. resolution of environmental issues.

The bridge will link FM 886 on the U.S. side and MEX 2 on the Mexican side. A

connecting road must be provided from the bridge to MEX 2.

Mexican Perspective: SEDESOL rates this bridge as a mid-term priority. Currently the project lacks clear direction.

5.6.1.8 Bridge No. 3: A third bridge is proposed by the City of Laredo at a location about 5 miles (8 km) upstream from downtown Bridge No.1 (Convent Street) and approximately 3 miles (4.8 km) from IH-35. This binational bridge entry system is still in the planning stages, with other local sites also being considered (e.g., an alternative location south of the city has been proposed by the Laredo Chamber of Commerce).

Because of the present underutilization of Colombia Bridge, U.S. authorities have given this project low priority. At the July 1992 Bilateral Meeting in Nogales, Arizona, the State Department indicated that U.S. inspection agencies questioned the need for the entry system. For example, GSA, after reviewing the Presidential permit application and the environmental assessment study prepared by the city, concluded that traffic counts do not currently support construction of a third bridge in Laredo (especially indicative were the low traffic volumes that are currently processed at Columbia Bridge). Yet both the City of Laredo and the government of Mexico feel that there is a need for a third bridge to reduce congestion in Laredo/Nuevo Laredo. Nuevo Laredo is also very much in favor of this project (especially since the Laredo/Colombia Bridge was approved). Colombia Bridge is seen as an interior link, while Bridge No. 3 is seen as a local traffic reliever.

The City of Laredo submitted a Presidential permit for an eight-lane bridge on September 23, 1991. New infrastructure will be required for this bridge: On the U.S. side, an extension of FM 3464 is needed to connect with FM 1472; on the Mexican side, a new road is needed to connect with MEX 2.

According to the IBWC Commissioner, if the proposed bridge is approved the IBWC will request that the lower parking lot between Juarez/Lincoln and Convent Street be removed from the flood plain. To protect the Rio Grande/Rio Bravo from further pollution, the U.S. and Mexico have signed an agreement that requires each country to guarantee that future bridges will not discharge waste and surface runoff into the river.

There is also a proposal by Union Pacific Railroad and the National Railways of Mexico to relocate the rail lines in both Laredo and Nuevo Laredo and to build a new rail bridge. The current considered location, in northwest Laredo, would connect the existing rail line near Mines Road to the west with the new bridge site (proposed Bridge No. 3). Similarly, in Nuevo Laredo the rail line will travel west and will connect with the main FNM line west of the city.

Mexican Perspective: The Mexican government is awaiting ratification of the bridge application by the new administration of the State of Tamaulipas. There is a preliminary design for this bridge; according to SCT and SEDESOL, there is also support for the project.

5.6.2 Segment 2

According to border city officials, GSA, and U.S. Customs, there are several binational bridge entry systems and/or expansions of border station inspection facilities planned or proposed in Segment 2.

5.6.2.1 Eagle Pass /Piedras Negras Bridge: Both Eagle Pass and Piedras Negras city officials have been advocating for years the construction of a second bridge to connect these cities. Their preferred site is approximately 0.5 miles (0.8 km) south of the existing vehicular bridge, and approximately 600 feet (183 m) north of the existing Southern Pacific Railroad Bridge. According to Eagle Pass city officials, the extensive environmental assessment work completed thus far has resolved most of the environmental questions.

Nonetheless, the GSA, along with several U.S. inspection agencies, has recently concluded that a second bridge in Eagle Pass is not warranted at this time (the low traffic volumes cannot justify the expense). GSA recently completed an expansion of the inspection facilities at the existing location.

Eagle Pass does not dispute GSA's findings According to city officials, the major thrust behind the proposal for a second bridge at the site being advocated by both Eagle Pass and Piedras Negras officials is the traffic congestion problem on the approaches to the existing bridge in Piedras Negras, and the lack of right-of-way to expand these approach facilities.

Maverick County officials have recently expressed interest in constructing a bridge — but at a site different from that being proposed by city officials. The county's preferred site is on the north side of Eagle Pass, where Loop 277 intersects with Business 277. Maverick County officials dispute the assumption of Eagle Pass City officials that Mexico will consider only the southern location as a site for a second bridge.

Mexican Perspective: There has not been an exchange of diplomatic notes. The IBWC has not resolved the issue on the U.S. side regarding the possible relocation of the water treatment plant that affects the bridge proposal. On the Mexican side, the concession has been granted, the right-of-way acquired, and the design completed. Mexico is awaiting a decision to relocate the water treatment plant on the U.S. side. The construction schedule is pending.

5.6.2.2 Del Rio Port of Entry: City of Del Rio business leaders and city officials, together with Val Verde County officials, have expressed interest in a second bridge in Del Rio, though a Presidential permit has not been pursued. One preliminary proposal is to construct a commercial truck-only bridge near Amistad Dam. However, citizens of Del Rio have not favored a new bridge. Many feel that the competition such a bridge would represent for Del Rio's existing auto/truck bridge (constructed in 1988) might jeopardize timely payment of the bonds required to build the bridge.

Another proposal calls for the construction of a rail bridge connecting the existing rail line spurs in Del Rio and Ciudad Acuña. Southern Pacific, however, asserts that such a plan is unwarranted, citing the fact that the existing binational rail entry system in Eagle Pass/Piedras Negras has more than adequate capacity for the rail line.

5.6.2.3 Fabens Bridge: There are three sites within the El Paso port area targeted for new binational bridge entry systems. The first location in the El Paso area is at Fabens Bridge, located approximately 21 miles (33.8 km) downstream from Zaragoza Bridge in the City of El Paso. The proposal is to move the existing bridge and border station inspection facilities to another nearby location. The existing Fabens Bridge, owned by the IBWC, is located outside the

El Paso city limits and extra-territorial zone (ETZ) boundary. The GSA, U.S. inspection agencies, and the City of El Paso all favor the move. They report that existing border station facilities are inadequate for U.S. inspection agencies.

Because the City of El Paso would like to assume ownership of a new bridge at Fabens, the IBWC has indicated that it is willing to relinquish ownership once the Presidential permit process has been completed. As of March 1993, the IBWC had not received word from the City of El Paso regarding transferal of ownership of Fabens; nor has there been a Presidential permit submitted. As with any binational entry system with Mexico, the government of Mexico would need to give approval and allocate funding for its half of the facility.

5.6.2.4 Socorro Bridge: Another proposed binational bridge entry system in the El Paso area is a facility to be located approximately 5 miles (8 km) downstream from Zaragoza Bridge in the City of Socorro. The sponsor for this facility — the City of Socorro — has undertaken neither transportation nor environmental analyses; a Presidential permit has not been submitted.

5.6.2.5 Bridge of the Americas: There is a proposal to replace the deteriorating Bridge of the Americas (BOTA) located within the city limits of El Paso. The replacement bridge would include six to eight lanes for autos, as well as separate one-lane spans on either side for commercial trucks only.

Complicating this proposal, however, is an unresolved issue: BOTA , built as a result of the 1963 Chamizal Treaty between the U.S. and Mexico, is obligated to remain a toll-free facility on both sides of the border. An amendment to this treaty stipulation must be agreed upon before BOTA's replacement can become a toll facility.

IBWC, currently the owner of the Bridge of the Americas, has indicated a desire to transfer BOTA ownership and maintenance responsibilities (Fabens and Fort Hancock as well) to an interested party (such as the City of El Paso). The U.S. section of the IBWC has proposed to the Mexican government that the BOTA replacement be permitted to charge a toll, with the revenue used only to pay for capital and maintenance costs; Mexican officials have yet to respond. According to City of El Paso officials, there is a possibility that Mexico will propose that BOTA be kept a toll-free facility for private vehicles and pedestrians, and that commercial truck traffic be charged a "maquila fee."

5.6.2.6 Sunland Park, New Mexico: The City of Sunland Park, New Mexico, has proposed a border bridge be constructed in New Mexico approximately 3 miles (4.8 km) west of El Paso. Sunland Park is envisioned by its proponents as providing relief to El Paso's downtown bridges, specifically the non-commercial traffic. New Mexico State Highway and Transportation Department has conducted traffic analyses for both the proposed Sunland Park crossing and the new Santa Teresa crossing.

CHAPTER 6. STATUS OF ROAD NETWORKS

6.1 INTRODUCTION AND OBJECTIVE

Much of this study involved assessing the status of all proposed and under-construction highways in Texas and in the four bordering Mexican states on the Texas-Mexico border. This assessment was supplemented by a field survey of all the major routes to and from both sides of the Texas-Mexico border. This chapter describes the data collected and the results obtained.

6.2 ROUTE RECONNAISSANCE (HIGHWAY CONDITION SURVEY)

This section presents the survey of road conditions — an exercise also termed "route reconnaissance" — for the highway infrastructure that links ports of entry on the Texas-Mexico border to major U.S. and Mexican highway corridors. This reconnaissance surveys major U.S. and Mexican highways leading to the Texas-Mexico border. The reconnaissance data include travel times, delays, number of lanes, road conditions, and other relevant observations.

6.2.1 Methodology

This section briefly describes the data collection procedures used for conducting the route reconnaissance. The data collection activities included conducting travel time and delay studies, and documenting a roadway's physical and operational conditions. The information collected will be used as input for the development of the project's transportation model.

Travel Time and Delay Studies: The travel time and delay studies were conducted on weekdays to determine typical vehicle speeds and to identify locations, types, and durations of typical traffic delays on a route. Because of the extensiveness of the roadway network included in the study, a single sample of travel time and delay was conducted for each route. (Note: While this single sample provides an interesting "snapshot" of the travel conditions, the ideal situation would be to repeat the survey at different weekdays, times of the day, and seasons of the year. This would provide a clearer assessment of the travel conditions and at the same time would give a more accurate indication of the "average" and "peak" travel times and delays to use in a trip assignment method.)

A test car methodology was used to conduct the travel time and delay studies. In this method, the test car was operated within subjectively determined "average" parameters (i.e., the vehicle was driven according to the driver's judgment of the average speed of the traffic stream).

Spreadsheets having the following columns were used in this study.

1. *Check Points:* includes the place, intersection, town, elapsed mile or kilometer road posting, or any other geographical marker where the reading is taken.
2. *Odometer Reading:* the car odometer reading (kilometers in Mexico, miles in the U.S.).
3. *Elapsed Odometer Reading:* the difference between the new odometer reading and the previous one.

4. *Time:* the time recorded whenever a change in the road occurs at a specific point.
5. *Elapsed Time:* the difference between the new time reading and the previous one.
6. *Delay:* includes the type of delay in that section of the road. Types of delay include: signal, stop sign, railroad crossing, toll, construction, school bus, bump, school zone, animal crossing, left turn, computer setup, sharp curve, filling gas, detour, and traffic jam.
7. *Area Type:* the type of area in that section (e.g., urban, residential, commercial, central business district, rural, or industrial).
8. *Number of Lanes:* the number of road lanes, which could be a four-lane divided, four-lane undivided, six-lane divided, six-lane undivided, eight-lane divided, two-lane, ascending (climbing) lane, and turning lane.
9. *Lane Width:* the width of each travel lane in feet.
10. *Speed Limit:* the posted speed limit for a segment of the road measured in kilometers per hour in Mexico, or miles per hour in the U.S.
11. *Width of Shoulder:* the width of the roadway shoulder in feet.
12. *Road condition:* could be poor, fair, good, construction, or no construction.
13. *Other Observations:* includes any other observations or comments on the road.

Two researchers were used to conduct each survey (one person drove while the other entered the necessary data on the spreadsheet). For each route, the survey started and ended outside city limits (since conditions inside the urban area are not representative of the rest of the network). At each checkpoint, the odometer reading, time, and road condition were recorded. Checkpoints adopted for the survey corresponded to some change in the road or pavement condition, speed limit, delay, major road intersections, or other points of interest. Once such a change was observed on the road, the driver reported the odometer reading while the passenger recorded the current time and change in condition. The segments surveyed in the U.S. are shown in Table 6.1, while the segments of the roadways surveyed in Mexico are shown in Table 6.2 and in Figures 6.1 and 6.2.

Roadway Operational and Physical Conditions: An inventory of operational and physical characteristics — conducted as part of the route reconnaissance — was recorded on the field form. Operational characteristics included the number of travel lanes, type of roadway facility, area type, and posted speed limit. Physical conditions of the roadway being studied included travel lane, shoulder width, and pavement condition.

The assessed pavement condition was based on a three-level scale: good, fair, and poor. A "good" condition was assigned to those pavements having very good ride qualities and minor distresses (pavements having minor cracks, potholes, and less than adequate ride qualities that overall was not representative of the whole section described were also included in this category). A "fair" condition was assigned to pavements having cracks, patches, and some potholes, which, overall, affected ride quality and travel speeds. A "poor" condition was assigned to those pavements whose severe distress required reduced travel speeds.

In most cases, road conditions and characteristics for the opposite travel direction were identical, unless otherwise noted. The location of customs checkpoints or toll booths (e.g., in the direction of travel or in the opposite direction) was also noted.

6.2.2 Condition of Major U.S. Roads

The following describes briefly the major U.S. roads included in the study. The U.S. route reconnaissance was conducted by Wilbur-Smith Associates staff, who provided the related data in this report.

Table 6.1. Existing and surveyed U.S. highway network

ROUTE	FROM/TO (CITY)	LENGTH miles (km)	SURVEY miles (km)
US 77	Robstown / Brownsville	143 (230 km)	139 (224 km)
US 83	Harlingen / Laredo	164 (264 km)	164 (264 km)
SH 359	Laredo / San Diego	99 (159 km)	96 (154 km)
SH 285	Hebbronville / Riviera	57 (91.7 km)	57 (92 km)
SH 44	Encinal / Corpus Christi	128 (206 km)	128 (206 km)
US 281	Alice / Pharr	109 (175 km)	108 (174 km)
US 281	Brownsville / Hidalgo	55 (89 km)	55 (89 km)
SH 16	Hebbronville / Freer	39 (62 km)	39 (63 km)
FM 1472	Laredo / Colombia-Solidarity Bridge	20 (32 km)	20 (32 km)
US 59	Laredo / Freer	65 (104 km)	58 (93 km)
IH 35	San Antonio / Laredo	155 (249.5 km)	135 (217 km)
US 83	Laredo / Junction	210 (338 km)	206 (330 km)
US 90	San Antonio / Del Rio	154 (248 km)	143 (232 km)
US 90	Comstock / Van Horn	273 (439 km)	237 (381 km)
IH 10	San Antonio / Sonora	178 (286 km)	154 (248 km)
IH 10	Fort Stockton / Ozona	109 (175 km)	106 (171 km)
US 67	Presidio / Fort Stockton	154 (248 km)	112 (180 km)
US 277	Carrizo Springs / Del Rio	100 (161 km)	98 (158 km)
US 277	Del Rio / Sonora	91 (146 km)	86 (138 km)
US 377	Junction / Del Rio	126 (202 km)	126 (203 km)
SH 57	Eagle Pass / Moore	99 (158 km)	95 (153 km)
SH 163	Ozona / Comstock	81 (130 km)	81 (130 km)
US 285	Fort Stockton / Sanderson	65 (104 km)	63 (101 km)
US 385	Fort Stockton / Big Bend H.Q.	127 (203 km)	122 (196 km)
Rt 12 & 13	Big Bend Roads	49 (79 km)	44 (71 km)
FM 170	Presidio / Study Butte	67 (108 km)	67 (108 km)
US 118	Study Butte / Fort Davis	104 (167 km)	101 (163 km)
SH 17	Marfa / Balmorhea	60 (96 km)	60 (97 km)
	Total	3,081 (4,960 km)	2,900 (4,669 km)

Table 6.2. Existing and surveyed Mexican highway network

ROUTE	FROM/TO (CITY)	LENGTH miles (km)	SURVEY miles (km)
MEX 54	Monterrey / Cd. Mier	94 (151 km)	79 (127 km)
MEX 85	Monterrey / Nuevo Laredo (Libre)	137 (220 km)	32 (51.5 km)
MEX 40	Monterrey / Reynosa	135 (217 km)	132 (212.5 km)
MEX 2	Nuevo Laredo / Reynosa	133 (214 km)	133 (214 km)
MEX 2	Reynosa / Matamoros	60 (96 km)	59 (95 km)
TAM 3	Rio Bravo / Jct MEX 101	55 (88.5 km)	53 (85 km)
TAM 6	Jct MEX 2 / Nuevo Progreso	8 (13 km)	8 (13 km)
TAM 5	Matamoros / Jct TAM 4	20 (32 km)	20 (32 km)
MEX 101/180	Matamoros / Cd. Victoria	187 (301 km)	182 (293 km)
TAM 4	Jct MEX 101 / Jct MEX 2-Empalme	36 (58 km)	31 (50 km)
MEX 97	Jct MEX 101 / Jct MEX 002	68 (109 km)	67 (108 km)
MEX 85	Cd. Victoria / Monterrey	172 (277 km)	160 (257.6 km)
	Diaz Ordaz / Jct MEX 40	16 (26 km)	16 (26 km)
MEX 40	Monterrey / Saltillo	48 (77 km)	29 (46.7 km)
MEX 57	Saltillo / Monclova	115 (185 km)	103 (166 km)
MEX 57	Monclova / Piedras Negras	149 (240 km)	144 (232 km)
MEX 2	Piedras Negras / Ciudad Acuña	50 (80.5 km)	43 (69 km)
MEX 2	Piedras Negras / Nuevo Laredo	105 (169 km)	99 (159 km)
MEX 29	Morelos / Ciudad Acuña	62 (100 km)	60 (96.6 km)
MEX 85	Monterrey / Nuevo Laredo (Toll)	137 (220.5 km)	118 (190 km)
MEX 16	Chihuahua / Ojinaga	143 (230 km)	131 (211 km)
MEX 45	Chihuahua / Ciudad Juárez	212 (341 km)	201 (323.6 km)
	Total	2,142 (3,449 km)	1,900 (3,059 km)

Robstown – Brownsville (US 77)

The highway facility located between Robstown and Harlingen is designated U.S. 77; it becomes US 77/83 to Brownsville when it merges with US 83 at Harlingen. Highway US 77/83 provides a north-south link from Brownsville to Corpus Christi. The roadway north of Harlingen is primarily a four-lane divided highway, with the exception of segments passing through small towns (where a five-lane facility is provided). Travel lanes are 12 feet (3.66 m) wide and in good condition; paved shoulders are typically 10 feet (3.05 m) wide. A highway bypass has been constructed around the Kingsville urbanized area.

South of Harlingen, US 77/83 is a limited-access facility that terminates in Brownsville. The area is generally characterized as rural (with the exception of Harlingen and Brownsville, which represent urbanized areas). The posted speed limit is 55 mph (88.5 km/h), though limits drop when the highway passes through some small towns. Traffic observed during the route

study was characterized as moderate (i.e., it included some heavy trucks). Northbound heavy trucks encountered potential delays at the U.S. Border Patrol Inspection Station located north of Raymondville and at traffic signals in Brownsville.

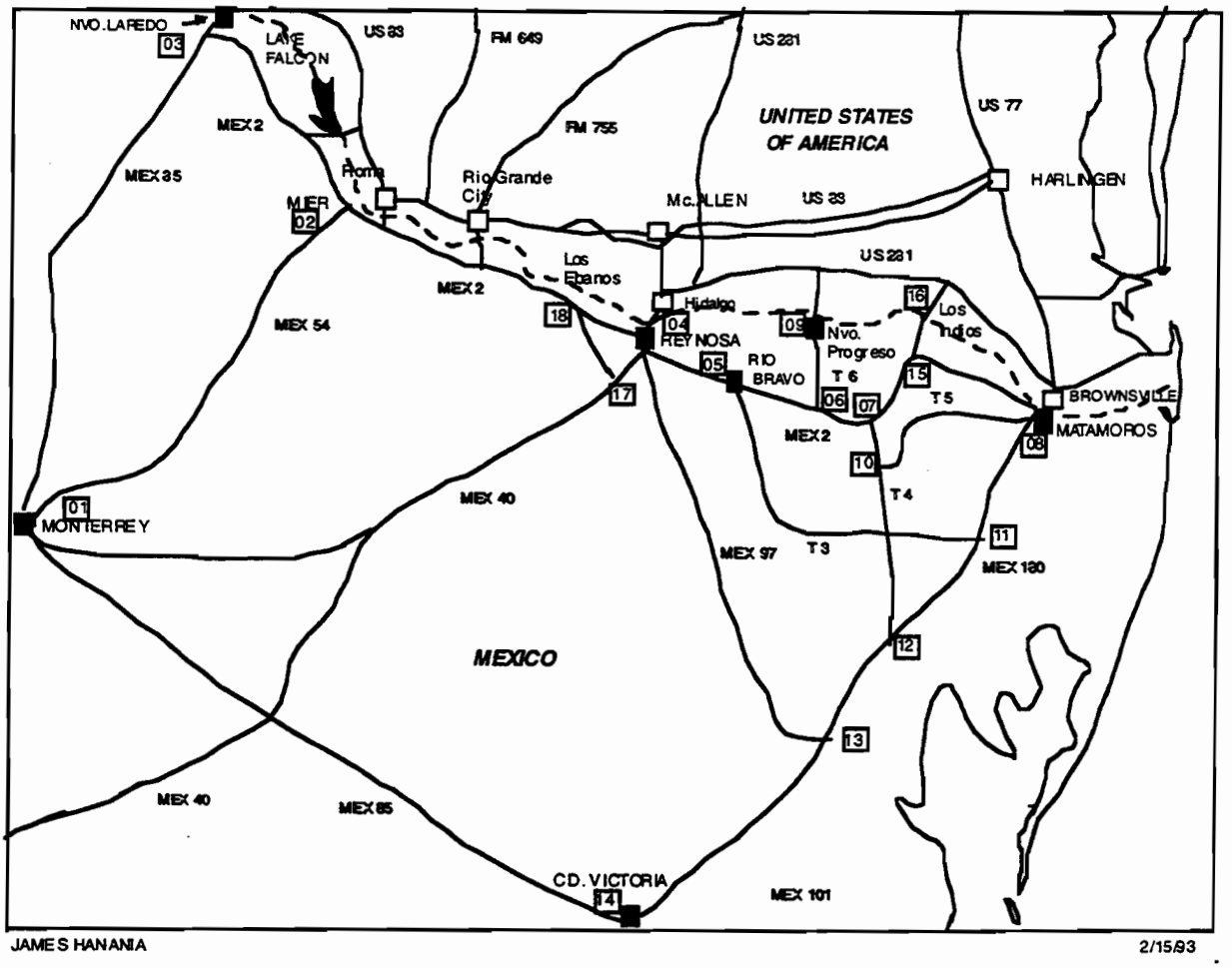

Figure 6.1. Roadways surveyed in Mexico (Segment 1)

Harlingen – Laredo (US 83)

Highway US 83 is an east-west, four-lane, limited-access facility located between Harlingen and Mission; grade-separated interchanges at major roads provide access to small cities along the route. Between Mission and Laredo, the roadway is primarily a four-lane highway generally following the alignment of the Texas-Mexico border and the Rio Grande.

Highway US 83 links six binational entry systems, including a ferry at Los Ebanos, a bridge in Rio Grande City and Roma, a roadway over the Falcon Reservoir Dam, and two

bridges in Laredo. The speed limit, generally 55 mph (88.5 km/h), drops when the road passes through small towns. Traffic signal delays were noted in Roma and Laredo, and a temporary U.S. Border Patrol Inspection Station located north of Falcon created minor delays. Traffic observed during the study was characterized as moderate, with some heavy trucks. Travel lanes are 12 feet (3.66 m) wide with 8- to 10-foot (2.44-3.05 m) paved shoulders. The pavement is generally in good condition, and the area type is primarily rural.

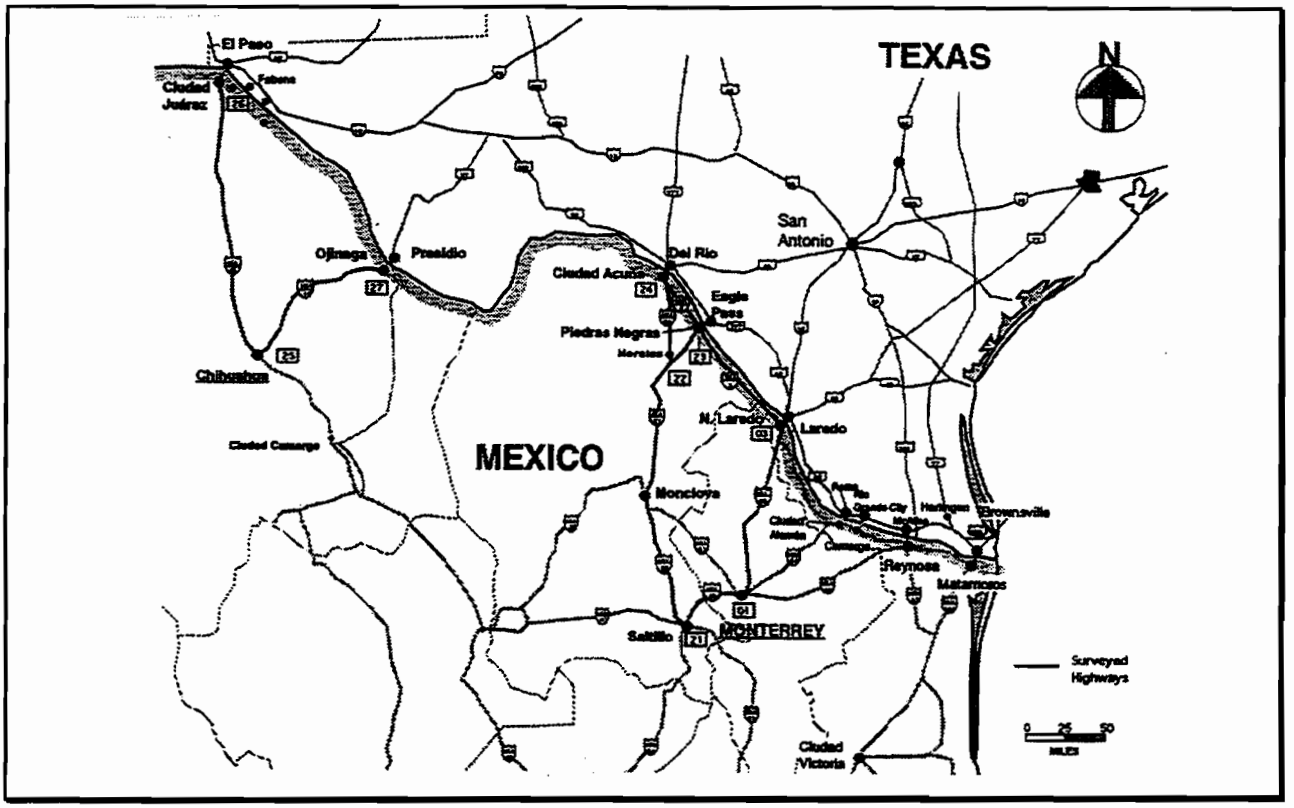

Figure 6.2. Roadways surveyed in Mexico (Segment 2) (1 mile=1.61 km)

Laredo – San Diego (SH 359)

State Highway 359 located between Laredo and San Diego is a two-lane highway with 12-foot (3.66-m) travel lanes and 8- to 10-foot (2.44-3.05 m) paved shoulders. The pavement surfaces are generally in good condition. The posted speed limit varies between 55 mph (88.5 km/h) and 30 or 40 mph (48.3-64.4 km/h) through small towns. A U.S. Border Patrol Inspection Station is located west of FM 2050. Traffic observed during the study was considered very light.

Hebbronville – Riviera (SH 285)

State Highway 285 is an east-west, two-lane highway located in a rural area. Travel lanes are generally 12 feet (3.66 m) wide with 8- to 10-foot (2.44-3.05 m) shoulders in good condition. A short section of the route has 10-foot (3.05-m) wide lanes with no shoulder and is in fair

condition. Traffic observed during the study was considered very light, with no trucks observed.

Encinal – Corpus Christi (SH 44)

State Highway 44 appears to have varying traffic service functions between Encinal and Corpus Christi. Between IH-35 (Encinal) and US 59 (Freer), the roadway facility appears to be marked for two 15-foot (4.57-m) wide travel lanes with no shoulders. The pavement is in fair condition and the area has very little development outside of Freer. Very little traffic was observed during the study; the posted speed limit is 55 mph (88.5 km/h).

Between Freer and San Diego, the facility in urban areas is a four-lane highway and two lanes in rural areas. Travel lanes are 12 feet (3.66 m) wide with 8-foot (2.44-m) shoulders and in good pavement condition. Traffic in this section was considered minor, with some heavy trucks observed. Between San Diego and Corpus Christi the facility varies from a four-lane divided to a five-lane undivided highway. Travel lanes are 12 feet (3.66 m) wide with 8-foot (2.44-m) shoulders. Traffic signal delays were noted in Alice and in Robstown. Posted speed limits are 55 mph (88.5 km/h) in rural areas and 30-45 mph (48.3-72.4 km/h) in urban areas. SH 44 changes to a four-lane limited access facility in Corpus Christi.

Alice – Pharr (US 281)

The road between Alice and Pharr, designated US 281, is a north-south facility running parallel to US 77. The roadway has four travel lanes between Alice and Falfurrias, but widens to five lanes in urban areas. Between Falfurrias and Edinburg, the facility is a four-lane divided highway, and a four-lane limited access facility from Edinburg to Pharr. Travel lanes are 12 feet (3.66 m) wide with 10-foot (3.05 m) shoulders.

The posted speed limit of 55 mph (88.5 km/h) falls to 35 mph (56.3 km/h) in some small towns. Traffic monitored during the study was considered light, with some heavy trucks observed. A U.S. Border Patrol Inspection Station is located on the northbound side near the town of Rachel. The area type can be categorized as rural.

Brownsville – Hidalgo (US 281)

US 281 generally follows the Texas-Mexico border and the Rio Grande alignment from Brownsville to Hidalgo. This facility links four binational entry systems, including those in Brownsville, Los Indios, Progresso, and Hidalgo. The roadway is primarily a two-lane facility in a rural area. The posted speed limit is 55 mph (88.5 km/h), though it falls to 45 mph (72.4 km/h) in numerous small towns. Traffic monitored during the study was considered light, with some heavy trucks carrying produce observed. Travel lanes are 12 feet (3.66 m) wide, with shoulders varying between 6 and 10 feet (1.83 and 3.05 m). Pavements are generally in good condition.

Hebbronville – Freer (SH 16)

State Highway 16 is a north-south roadway with two 12-foot (3.66-m) travel lanes and 8-foot (2.44-m) paved shoulders. The posted speed limit is 55 mph (88.5 km/h), the area is rural, and limited traffic was observed.

Laredo – Colombia/Solidarity Bridge (FM 1472)

The Colombia/Solidarity Bridge is the City of Laredo's third binational bridge entry system located north of the city. FM 1472, currently a two-lane facility, is under construction for widening. Major warehouse development has occurred along this route near the city's urban area.

Laredo – Freer (US 59)

US 59 in the Laredo urbanized area is a four-lane primary arterial facility with traffic-signalized intersections. The posted speed limit is 35-45 mph (56.3-72.4 km/h) in urbanized areas. A U.S. Border Patrol Inspection Station is located east of the city. In the rural area between Laredo and Freer, the road consists of two 12-foot (3.66-m) wide traffic lanes separated by a 4-foot (1.22-m) painted median. The road surface is in good condition and has 10-foot (3.05-m) wide shoulders. The posted speed limit is 55 mph (88.5 km/h) in rural areas.

San Antonio – Laredo (IH 35)

Interstate Highway 35 provides the primary travel link between San Antonio and Laredo. The highway is a four-lane, limited-access facility with grade-separated interchanges at major cross routes and access roads to towns and cities along its route. The area type is primarily rural and the posted speed limit is 65 mph (104.6 km/h). Traffic was considered moderate, with many heavy trucks observed.

Laredo – Junction (US 83)

US 83 in this section is a north-south facility extending from IH-35 north of Laredo to IH-10 east of Junction. The roadway is primarily a two-lane highway with 12-foot (3.66-m) travel lanes and 8-foot (2.44-m) shoulders. The roadway widens to four lanes in urbanized areas that include Carizzo Springs and Uvalde. The posted speed limit is 55 mph (88.5 km/h) and reduces to 40 mph (64.4 km/h) through cities along the route.

The section between Laredo and Uvalde is generally a flat rural area whose traffic is light (with some heavy trucks). This section's pavement condition is rated as "good," with the exception of locations near LaPryor, which are in fair condition (so rated because of their rough, potholed surfaces). The section from Uvalde to Junction, which passes through the Texas Hill Country area, has passing lanes and both horizontal and vertical curvature in the roadway alignment. This section includes the Garner State Park and Frio River Recreational area. A few sections of the roadway have no shoulders, and numerous low-water crossing warning signs are posted. Observed traffic in this section was very light.

San Antonio – Del Rio (US 90)

This highway, extending east to west, is primarily a four-lane facility aligned between San Antonio and Uvalde. In the San Antonio urbanized area, the highway is a limited-access facility. Five travel lanes are provided through Castroville, Uvalde, and Del Rio. A grade separation of the interchange at SH 173 is under construction. A section near FM 2200 consists

of two travel lanes that we judged to have pavement in "fair" condition (rough surface).

The section between Uvalde and Brackettville consists of two travel lanes. Twelve-foot (3.66-m) wide travel lanes are provided along the entire section, and paved shoulders are 6 to 10 feet (1.83-3.05 m) wide (when provided). The posted speed limit is generally 55 mph (88.5 km/h) in rural areas, though it falls to 30-45 mph (48.3-72.4 km/h) in urban areas. Traffic was moderate, with some heavy trucks observed during the study. Traffic signal delays were noted in the urbanized areas of Hondo, Uvalde, and Del Rio.

Comstock – Van Horn (US 90)

This section of US 90 extends from Comstock west to Van Horn. Travel lanes are 12 feet (3.66 m) wide, with 3- to 6-foot (0.9-1.83-m) wide shoulders. Construction and surface repaving was in progress through Valentine, where the posted travel speed was reduced from 55 mph to 30 mph (88.5 to 48.3 km/h). Truck traffic observed during the study was considered light. The pavement was generally in "good" condition along this primarily rural facility.

San Antonio – Sonora (IH-10)

Interstate Highway 10 provides a primary east-west travel corridor from San Antonio to El Paso. The roadway is a four-lane divided facility with 12-foot (3.66-m) wide traffic lanes and 8-foot (2.44-m) shoulders. Grade separation structures are located at interchanges providing access to towns and cities along the route. The posted speed limit is 65 mph (104.6 km/h) and pavement is in "good" condition. Traffic monitored during the study was considered moderate, with some heavy trucks observed.

Fort Stockton – Ozona (IH-10)

This section of Interstate Highway 10 provides primarily east-west travel from Fort Stockton to Ozona. The roadway is a four-lane divided facility with 12-foot (3.66-m) wide travel lanes and 8-foot (2.44-m) wide shoulders. Grade-separated structures are located at interchanges providing access to towns and cities along the route. The posted speed limit is 65 mph (104.6 km/h) , and the pavement's condition is rated as "good." An overlay project was underway 14.5 miles (23.34 km) east of Fort Stockton, stretching for almost 18.5 miles (29.77 km). Traffic monitored during the study was light to moderate, with some heavy trucks observed.

Presidio – Fort Stockton (US 67)

US 67 in this section is a north–south facility extending from FM 170 north to US 90 east for 35 miles (56.3 km), and then north again to IH-10 west of Fort Stockton. The roadway is primarily a two-lane highway with 12-foot (3.66-m) travel lanes and 3- to 6-foot (0.91-1.83-m) shoulders. The posted speed limit is 55 mph. The pavement is in good condition and observed truck traffic was considered very light.

Carrizo Springs – Del Rio (US 277)

This section of US 277 is the extension of US 83 following the Texas-Mexico border

alignment. The roadway, primarily a two-lane highway in rural areas, widens to four-lanes in the major urbanized areas of Carrizo Springs, Eagle Pass, and Del Rio. Travel lanes are 12-feet (3.66 m) wide with 8- to 10-foot (2.44- to 3.05-m) paved shoulders. Posted speed limits are 55 mph (88.5 km/h) in rural areas, and 30–40 mph (48.3–64.4 km/h) in urban areas. The roadway pavement is generally in good condition. Binational entry systems in Eagle Pass and Del Rio are situated in urban areas, where traffic signal delays can be expected.

Del Rio – Sonora (US 277)

This section of US 277 extends north–south from Del Rio to Sonora. The roadway has some sections of horizontal and vertical alignment and is primarily a two-lane highway equipped with passing lanes. The travel lanes are 12 feet (3.66 m) wide with 6-foot (1.83-m) shoulders (shoulders are dropped in some locations). Construction for road widening was in progress on a short section near Loma Alta. Another section to the north had poor pavements and bad sight distance. The posted speed limit is 55 mph (88.5 km/h). Traffic demand observed during the study was considered minor, with some traffic signal delay noted in Sonora.

Junction – Del Rio (US 377)

US 377 crosses the western edge of the Texas Hill Country from Junction to Rocksprings. This section is a two-lane road with horizontal and vertical curvature in its road alignment. Portions of the roadway near the town of Telegraph were noted to have narrow travel lanes, low water crossing bridges, sharp curves, and poor pavements. Other parts of the road section have 12-foot (3.66-m) travel lanes with narrow shoulders. The route appears to be more scenic and recreational than utilitarian. Several recreational vehicles were observed traveling on this section during the study.

US 377 from Rocksprings to its intersection with US 277 is a two-lane road with passing lanes. Travel lanes are 12 feet (3.66 m) wide, with shoulders 3 to 6 feet (0.91 to 1.83 m) wide (when provided). Traffic demand observed during the study was considered minor, with some heavy vehicles using the facility.

Eagle Pass – Moore (US 57)

US 57 extends from its junction with US 277 east of Eagle Pass to its junction with IH-35 at Moore. The road is a two-lane facility, with 12-foot (93.66-m) wide lanes and 8- to 10-foot (2.44- to 3.05-m) wide shoulders. Passing lanes are provided in the section from Eagle Pass to LaPryor. Pavement surfaces are in good condition. Four travel lanes are provided through LaPryor, where the posted speed limit is 40 mph (64.4 km/h). The area type is rural and traffic observed during the study was considered light.

Ozona – Comstock (SH 163)

SH 163 between Ozona and Comstock is a two-lane highway with 12-foot (3.66-m) travel lanes and 8- to 10-foot (2.44- to 3.05-m) paved shoulders that continue all the way to Juno. Pavement is generally in good condition in this typically rural area.

There are no paved shoulders from Juno south to Comstock. The pavement in this area is in poor condition from Juno south to Comstock, especially near flood gauge areas. Posted speed limits are 55 mph (88.5 km/h) in rural areas, and 30–40 mph (48.3–64.6 km/h) in urban areas.

Fort Stockton – Sanderson (US 285)

US 285 is a two-lane highway in a rural area. Travel lanes are generally 12 feet (3.66 m) wide, with 3- to 6-foot (0.91- to 1.83-m) shoulders. The pavement is in good condition. Traffic was very light, with no truck traffic observed. The posted speed limit is 55 mph (88.5 km/h).

Fort Stockton – Big Bend National Park (US 385)

US 385 is a two-lane, mostly rural highway. The posted speed limit varies between 55 mph (88.5 km/h) and 30 mph (48.3 km/h) through urbanized areas. Travel lanes are generally 12 feet (3.66 m) wide, with 3- to 6-foot (0.91- to 1.83-m) shoulders (where provided). Traffic observed during the study was very light, with no truck traffic evident. The pavement is generally in good condition.

US 385 becomes Route 11 inside Big Bend National Park and terminates at the Panther Junction Ranger Station. Route 11 is a two-lane facility in a rural area. Travel lanes are 10 feet (3.05 m) wide with no shoulders. The posted speed limit is 45 mph (72.4 km/h). The pavement is generally in good condition inside the park.

Big Bend National Park Roads (Route 12/Route 13)

Route 12 consists of a two-lane facility from the Texas-Mexico border west to Panther Junction Ranger Station. Route 13 continues west from the ranger station to Study Butte. The posted speed limit is 45 mph (72.4 km/h); there are no roadway shoulders inside the park.

Presidio – Study Butte (FM 170)

FM 170 is in very poor condition. The first 2.7 miles (4.35 km) from Presidio east are unpaved (though there is some construction underway). After the first 3 miles (4.83 km) the roadway turns very hilly, with very sharp curves. Sight distance is limited through the entire section. The travel lanes are 10 feet (3.05 m) wide and are not equipped with shoulders. Although the posted speed limit is 55 mph (88.5 km/h), the poor road conditions make it difficult to travel over 40 mph (64.4 km/h). Nonetheless, there was light truck traffic observed on FM 170.

Study Butte – Fort Davis (US 118)

US 118 between Study Butte and Fort Davis is a two-lane highway with 12-foot (3.66-m) travel lanes and 3- to 6-foot (0.91- to 1.83-m) shoulders. The posted speed limit of 55 mph (88.5 km/h) slows to 30 mph (48.3 km/h) as US 118 winds through Alpine and comes to a four-way stop at US 67/90 inside Alpine. Truck traffic was observed to be light to moderate near Alpine during this study. While pavements on this route are generally in fair condition, there are sections in poor condition, especially in those areas where flooding had occurred.

Marfa – Balmorlea (SH 17)

SH 17 is a north-south, two-lane highway in a rural area with 12-foot (3.66-m) wide travel lanes and 3- to 6-foot (0.91- to 1.83-m) wide shoulders (a short section from Marfa to SH 118 has no shoulders). The pavement condition is generally good. Traffic was light with no trucks observed. The posted speed limit is 55 mph.

6.2.3 Condition of Major Mexican Roads

The following is a brief description of each roadway surveyed.

Monterrey – Cd. Mier (MEX 54)

MEX 54 (Mexico 54) is mostly in a rural setting. For the most part, it is a two-lane, non-shouldered road in fair condition (paved shoulders exist only at major intersections). The road is mostly striped, but the paint is old and faded. There are no lights on the road, and only reflection poles are posted around curves. Posted signs include speed limits (mostly 49.7 mph [80 km/hr] and 37.3 mph [60 km/hr]) and no-passing signs installed at curves or in sections of limited visibility.

Observed traffic volume on this road was light. While no routine delays were encountered on the road, there were incidental delays caused by slow-moving vehicles in the no-passing zone. Apparently few trucks and trailers use this road.

About 6.2 miles (10 km) outside Cd. Mier, travelers can bypass the city and access MEX 2 (though MEX 2 can still be accessed within the city). Finally, the Mexican border patrol station on this road only briefly checks southbound traffic.

Monterrey – Nuevo Laredo (MEX 85 Libre)

MEX 85 passes through a primarily rural setting. As a toll-free road running from Monterrey to Nuevo Laredo, it is mostly in fair to good condition. The road proceeds as a two-lane highway for about 80.8 miles (130 km), and as a four-lane divided highway for about 54.1 miles (87 km) (it merges with the Autopista toll road). The shoulder along the highway ranges from 4 to 12 feet (1.22 to 3.66 m) wide. Lane width ranges from 12 to 14 feet (3.66 to 4.27 m). The speed limit ranges from 37.3 to 68.4 mph (60 km/h to 110 km/h). As observed during this study, the speed limit was reduced to 24.9 mph or 18.6 mph (40 km/h or 30 km/h) to facilitate patching and paving on some segments of the freeway. We observed heavy truck traffic on this road.

Monterrey – Reynosa (MEX 40)

MEX 40 is a wide, four-lane, double-toll divided freeway. For the first 21.8 miles (35 km) outside Monterrey, the freeway is in good condition, though for the most part, the road is two-laned, in only fair condition, and in a rural setting. At the time of the survey, one small section of the roadway was being patched, while another was being striped. Posted signs include speed limits — ranging from 49.7 mph (80 km/h) to 37.3 mph (60 km/h) — and no-passing signs (on curves and in areas where visibility is limited).

Delays on this road are most frequently caused by slow-moving vehicles in the no-passing zone. The Mexican border patrol station checks only southbound traffic. In Reynosa there are roads connecting to MEX 2 (to avoid the congestion in Reynosa, one can bypass the city to MEX 2). Infrastructure connecting to the Reynosa international bridge is considered poor.

Nuevo Laredo – Reynosa (MEX 2)

MEX 2, a border freeway, is situated mostly in a rural setting. The part of this road from Nuevo Laredo to Cd. Mier, about 74.6 miles (120 km), is in fair condition and carries very little traffic. Heavier traffic is evident on the section from Cd. Mier to Reynosa. From Cd. Camargo to Reynosa, the road's pavement condition varies between fair and poor. There are no border checkpoint stations on the road. Travelers pay a toll before reaching the intersection with Cd. Camargo.

Reynosa – Matamoros (MEX 2)

MEX 2 is mostly in a rural setting. It is primarily a two-lane road in fair to poor condition, especially from Reynosa to Nuevo Progreso. Beyond Nuevo Progreso, the road is old, cracked, and bumpy. The road is relatively busy and has no border checkpoint stations.

Rio Bravo – Junction MEX 101 (Tam 3)

This mostly rural road is in fair-to-poor condition. There are no shoulders and no border checkpoint stations along the road. Most of the traffic is local.

Junction MEX 2 – Nuevo Progreso (Tam 6)

This road is in a rural setting. For the most part, it is a curvy, two-lane road in poor condition (much pavement distress is evident). There are no shoulders along this road — though businesses in Nuevo Progreso are provided sufficient roadway parking space on both sides.

Matamoros – Junction Tam 4/Anahuac (Tam 5)

This roadway, also in a rural setting, is difficult to access from Matamoros (primarily because there are no signs). For the most part, it is a two-lane, non-shouldered road in poor condition. There are bumps in the roadway as it approaches villages; most of the traffic is local.

Matamoros – Cd. Victoria (MEX 101/180)

MEX 180/101, mostly in a rural setting, is a two-lane, non-shouldered roadway in fair condition. There was considerable truck, trailer, and bus traffic on the road (and wandering cattle as well). The northbound lane is in slightly better condition than the southbound lane.

Junction MEX 101/180 – Junction MEX 2/Empalme (Tam 4)

This road, situated in a rural setting, is non-shouldered and in poor condition. Most of the traffic is local and there is a border checkpoint station.

Junction MEX 101/180 – Junction MEX 2 (MEX 97)

MEX 97, situated mostly in a rural setting, is a two-lane, non-shouldered roadway in fair-to-poor condition. As the freeway is mainly used for commercial traffic, we observed many trucks and trailers (and cattle). Road striping is either old or nonexistent.

Cd. Victoria – Monterrey (MEX 85)

MEX 85 is mostly in a rural setting. It is primarily a two-lane road in fair-to-good condition, full of moderate-to-sharp curves. There is no shoulder along the freeway. About 65.3 miles (105 km) outside Monterrey, the road becomes a four-lane divided highway, with pavements in good condition. There was considerable truck, trailer, and bus traffic on the road.

Diaz Ordaz – Junction (MEX 40)

The roadway is in a rural setting and in fair-to-good condition. The lanes are 10 to 12 feet (3.05 to 3.66 m) wide and have no shoulders. There was little traffic on the road and no border checkpoint station.

Monterrey – Saltillo (MEX 40)

This is a four-lane divided highway in good condition. Median width is variable (up to about 0.62 miles [1 km]), a result of the mountainous terrain. The traffic observed was mixed (buses, trucks, and autos) and the traffic volume was medium (not a congested highway). There was ongoing construction of emergency stopping ramps — a requirement necessitated by the radically descending slope— for trucks traveling in the direction of Saltillo-Monterrey.

Saltillo – Piedras Negras (MEX 57)

This is a two-lane, non-shouldered highway in good condition. For about 55.9 miles (90 km) the highway travels through mountainous terrain. Traffic volume on this highway is light and consists mainly of automobiles.

Piedras Negras – Ciudad Acuña (MEX 2)

This is a two-lane, non-shouldered highway in good condition. Observed traffic volume on this road was light and consisted mainly of automobiles.

Piedras Negras – Nuevo Laredo (MEX 2)

This is a two-lane, non-shouldered highway in fair-to-good condition. Observed traffic volume on this road was light (mainly autos). From Colombia to Nuevo Laredo, the pavement is in fair-to-poor condition, showing cracks and potholes. The access road to the Colombia Bridge and the bridge itself had almost no traffic at the time of the survey.

Morelos – Ciudad Acuña (MEX 29)

This is a two-lane highway in good condition (there are no shoulders). Observed traffic volume on this road was light (mainly cars).

Monterrey – Nuevo Laredo (MEX 85 Toll and Nuevo Laredo-La Gloria)

This is a four-lane divided highway in good condition and with shoulders on both sides (interior and exterior). Traffic volume on this road was moderate and mixed (buses, trucks, and autos). From Nuevo Laredo to La Gloria the road is free; the road from La Gloria to Monterrey has both a toll section and a free section. The effective geometric design of the road allows for very good travel speeds. Tolls for road usage are as follows:

ITEM	PESOS	U.S. $
Cars and pick-ups	64.00	21.33
Passenger buses	128.00	42.66
Two-axle trucks	128.00	42.66
Three-axle trucks	160.00	53.33
Four-axle trucks	182.00	60.66
Five-axle trucks	224.00	74.66
Exceeding axle	32.00	10.66

Chihuahua – Ojinaga (MEX 16)

This is a two-lane, non-shouldered highway in fair-to-good condition. Observed traffic volume was light and mixed. The highway goes through mountainous terrain, necessitating reduced travel speeds in some sections. There are several sharp curves and steep slopes.

Chihuahua – Ciudad Juárez (MEX 45)

This is a four-lane divided highway in good condition and with shoulders for the most part. Traffic volume on this road was moderate and mixed (buses, trucks, and autos). There are two toll segments on this road: one comprising about 9.3 miles (15 km) and another about 50.3 miles (81 km). For both of these toll segments, there are toll-free, non-parallel alternative routes. The effective geometric design of the road allows for appropriate travel speeds. The toll charges for the first segment (9.3 miles or 15 km) are as follows:

ITEM	PESOS	U.S. $
Cars and pick-ups	13.00	4.33
Passenger buses	26.50	8.83
Up to three-axle trucks	39.50	13.16
Four-axle trucks	46.00	15.33
Five-axle trucks	56.00	18.66
Six-axle trucks	65.00	21.66
Seven-axle trucks	76.00	25.33
Eight-axle trucks	86.00	28.66
Nine-axle trucks	99.00	33.00

For the second segment (50.3 miles or 81 km):

ITEM	PESOS	U.S. $
Cars and pick-ups	26.50	8.83
Passenger buses	79.00	26.33
Up to four-axle trucks	105.50	35.16
Five-axle trucks	132.00	44.00
Six-axle trucks	154.00	51.33
Seven-axle trucks	168.00	56.00
Eight-axle trucks	184.00	61.33
Nine-axle trucks	197.00	65.66

6.3 ROADWAYS UNDER CONSTRUCTION

The highway infrastructure projects discussed below are primarily federal, state, and local efforts meant to improve highway corridors of national and local importance. Included are local border city initiatives aimed at alleviating traffic congestion, reducing pollution, and diverting truck traffic away from downtown areas.

The Texas Highway Trunk System, adopted in November 1990, is a planned four-lane divided rural highway system which, when completed in approximately 30 years, will complement the Interstate System. The Trunk System will provide direct access to every Texas city having a population of 20,000 or more.

With respect to the Texas-Mexico border, the Border Trade Alliance has developed a capital plan to improve roads and bridges along and leading to the border. On the Mexican side, there is an ongoing effort to provide an Urban Development Program for each of the major border cities. It is a combined effort of the federal government (through SEDESOL) and the different municipalities through their Urban Development Departments. Although Mexico has established a $20 billion capital plan for improving infrastructure, the success of the plan is dependent on the magnitude of private investment.

The following describes U.S. highways under construction. Table 6.3 summarizes additional TxDOT projects under construction in the border area.

Loop 590

Construction to establish and improve links between the Harlingen/San Benito Metropolitan area and the new bridge at Los Indios is currently in progress. Loop 590 on the U.S. side will connect the Los Indios bridge with Harlingen's industrial park. Presently, the most expedient truck route to Harlingen and San Benito is FM 2520 from US 281. Figure 6.3 shows the location of Loop 590.

Work on Loop 590 has been carried out in phases. Phase 1, a 0.8-mile (1.3-km) section from Los Indios International Bridge to US 281, was completed on June 24, 1992, at a cost of $447,744. Phase 2, extending 1 mile (1.6 km) from Loop 448 to Expressway 83/77, was completed on May 15, 1992, at a cost of $401,514. Phase 3, extending 1 mile (1.6 km) south

from FM 106 (and including Arroyo Colorado Bridge), was completed on March 26, 1993, at a cost of $2.4 million. Phase 4, extending from the end of Phase 3 to Loop 448, a 2.2-mile (3.5-km) section, was completed on July 26, 1993, at a cost of $1.7 million. Construction in Phases 1, 2, and 4 included two 12-foot (3.66-m) lanes in each direction, and two 10-foot (3.05-m) shoulders. A 14-foot continuous left-turn lane was constructed additionally in Phase 3.

Phase 5 extends from Expressway 83/77 to FM 800 (3.5 miles, or 5.6 km), and Phase 6 extends from FM 800 to US 281 (4.5 miles, or 7.2 km). Environmental clearance has been obtained for both phases, and right-of-way is currently being acquired by Cameron County (a construction schedule has also been developed). Estimated cost for completion is $2.5 million for each phase.

Phase 7 extends from FM 106 to FM 1595. This phase is not yet part of the current TXDOT Project Development Plan (PDP).

US 281

Extensive work is in progress on US 281. The US 83/281 Interchange project at Pharr will expedite traffic flow from Expressway 83 to US 281 by eliminating the need for the frontage road. As of September 30, 1993, the project was 80 percent completed and is expected to be finished by the end of February 1994. Highway 281 is being widened in Jim Wells and Brooks Counties (see Table 6.3).

FM 1472

FM 1472 is being widened to improve the highway links to Colombia Bridge west of Laredo. A section of FM 1472, from FM 255 to about 3.8 miles (6.1 km) east, is being widened to four lanes (divided). As of October 14, 1993, this section was 90 percent completed. Two 12.5-mile (20.1-km) sections east of the aforementioned section are to be let in December 1993 for widening (to four lanes, divided). Finally, a section extending from Del Mar Boulevard to 3.2 miles (5.2 km) northwest of IH-35 is under construction and is expected to be completed by September 1994. This last section will be four lanes divided, with a 16-foot (4.9-m) turning median lane. Each lane is 12 feet wide (3.7 m), with shoulders on each side 14 feet (4.3 m) wide.

FM 170 & Business US 67 (Presidio)

In Presidio, FM 170 is being reconstructed and U.S. business highway 67 is being seal-coated. On the Mexican side, there is one project under construction as part of the 1989-1994 National Highway Program.

Monterrey – Reynosa

The existing toll-free road from Monterrey to Reynosa is 140 miles (225 km), divided as follows: Monterrey to Cadereyta, 21 miles (33 km): Cadereyta to Reynosa, 119 miles (192 km). The toll road will be 128 miles (206 km), divided as follows: Monterrey to Cadereyta, 20 miles (32 km); Cadereyta to Reynosa, 108 miles (174 km).

The toll road from Monterrey to Cadereyta is currently in operation. Construction for the

toll road from Cadereyta to Reynosa, a planned four-lane divided highway, got underway in May 1991 and will be in two phases. The first phase, connecting Cadereyta to China to Reynosa, is 53 miles (85 km) and was completed in late spring 1993. The second phase, connecting China to Reynosa, is approximately 35 percent completed and is expected to be finished by April 1994.

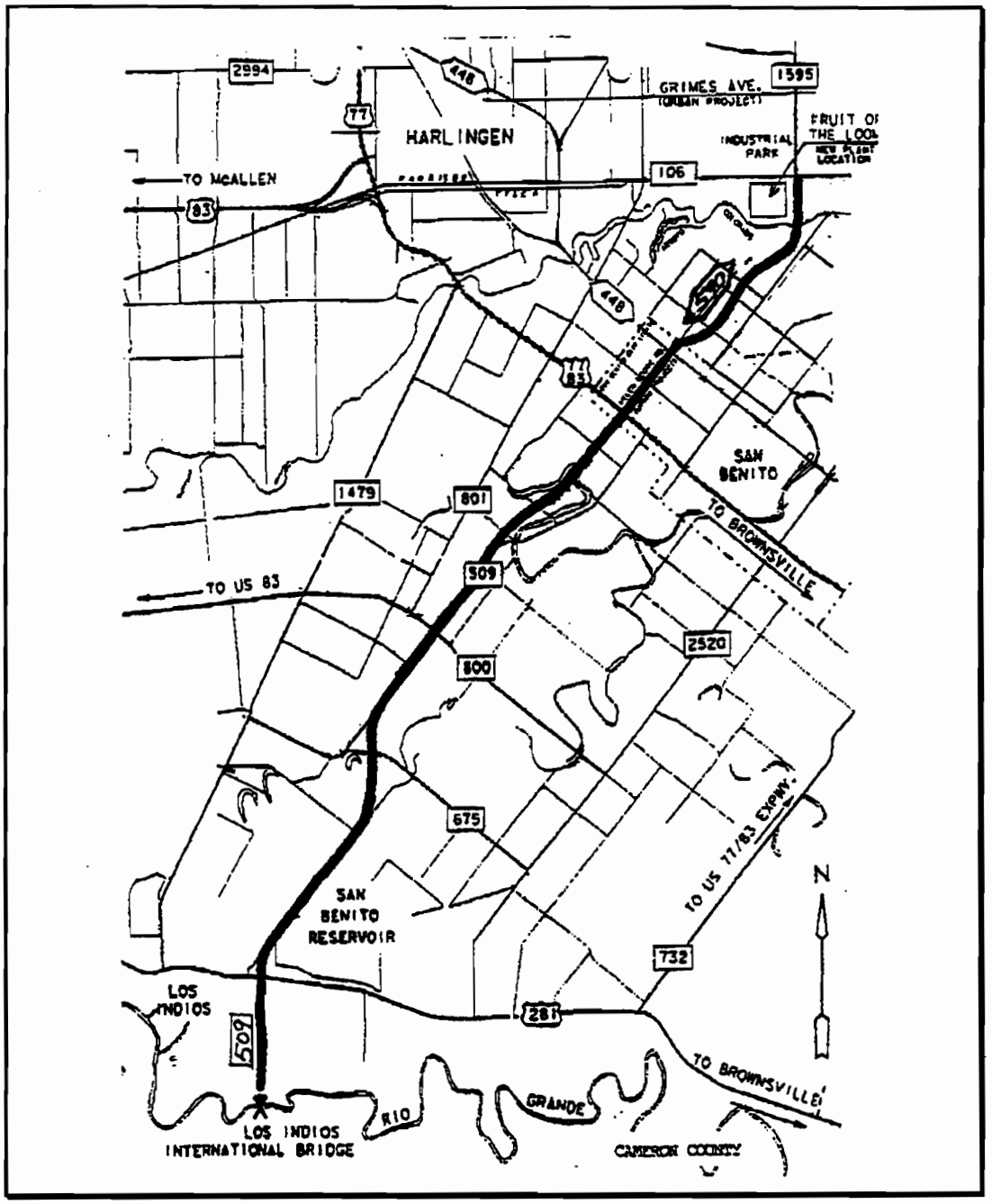

Figure 6.3 Location of Loop 590

Table 6.3. Summary of projects under construction in Texas

County	Hwy	From	To	Improvements	Length	Status
El Paso	LP 375	4.83 miles (7.77 km) North of US 62/180	0.58 miles (0.93 km) South of US 62/180	Construction of 4-lane control access facility through Fort Bliss	5.4 miles (8.7 km)	Under construction
El Paso	LP 375	3.1 miles (5.0 km) East of Railroad Drive	4.83 miles (7.77 km) North of US 62/180	Construction of 4-lane control access facility through Fort Bliss	3.0 miles (4.8 km)	Under construction
El Paso	LP 375	3.1 miles (5.0 km) East of Railroad Drive	0.98 miles (1.58 km) West of Railroad Drive	Construction of 4-lane control access facility through Fort Bliss	4.1 miles (6.6 km)	Under construction
El Paso	IH 10	At Art Craft Road		Construction of Interchange	1.5 miles (2.4 km)	Under construction
El Paso	LP 375	0.6 miles (1.0 km) East of Zaragoza Road	0.5 miles (0.8 km) West of Zaragoza Road	Grading, structures and surfacing	1.2 miles (1.9 km)	Under construction
El Paso	FM 76	0.1 miles (0.16 km) West of Zaragoza Road	0.8 miles (1.3 km) East of Loop 375	Widen grading, base and surface	2.6 miles (4.2 km)	Under construction
Webb (Laredo Area)	IH 35	Del Mar Blvd.	FM 1472	Widen existing frontage roads	0.5 miles (0.8 km)	Under construction
Webb (Laredo Area)	MH	On McPherson St. from Calton road	Del Mar Blvd. in Laredo	Widen to 4-lane with TWCLTL	2.5 miles (4.0 km)	Under construction
Webb (Laredo Area)	US 83	On Matamoros from IH 35	San Leonardo Street	Convert to 4-lane divided urban	1.8 miles (2.9 km)	Under construction
Webb (Laredo Area)	US 83	On Guadalupe from Zacata Creek	Martin Street	Convert to 4-lane divided urban		Under construction
Cameron	SH 100	US 77/83 Expressway	0.6 miles (1.0 km) West of FM 1847	Widen to 4-lane divided rural	5.8 miles (9.3 km)	Under construction
Hidalgo	FM 3420	SH 107, 0.5 (0.8 km) miles East of FM 2061	1.9 miles (3.1 km) South (Canton Road)	Widen to 4-lane divided urban	1.9 miles (3.1 km)	Under construction
Starr	US 83	3.4 miles (5.5 km) West of FM 1430	1.5 miles (2.5 km) East of FM 755	Widen to 4-lane divided urban	4.3 miles (6.9 km)	Under construction
Starr	US 83	Hidalgo County Line, West	0.7 miles (1.1 km) east of FM 2360	Widen to 4-lane divided rural	3.8 miles (6.1 km)	Under construction
Cameron	SH 48	At FM 511 and MP RR		Construction of grade separation	1.4 miles (2.3 km)	Under construction
Cameron	SH 4	FM 2519	FM 313	Widen to 4-lane w/TWCLTL	1.8 miles (2.9 km)	Under construction
Jim Wells	US 281	Live Oak County Line	0.683 miles (1.1 km) South of CR 327	Construction of 4-lane divided	8.5 miles (13.7 km)	Under construction
Jim Wells	US 281	0.285 miles (0.459 km) South of CR 327	1.653 miles (2.66 km) North of FM 3376	Construction of 4-lane divided	9.9 miles (15.9 km)	Under construction
Brooks	US 281	6.352 miles (10.2 km) South of FM 3066	2.3 miles (3.7 km) North of Las Cuatas Road	Construction of 4-lane divided	9.4 miles (15.1 km)	Under construction
Brooks	US 281	0.67 miles (1.08 km) North of Rachal	Las Cuatas Road	Construction of 2 additional lanes	4.7 miles (7.6 km)	Under construction
Hidalgo	US 83	At US 281 interchange in Pharr		Construction of interchange	2.1 miles (3.4 km)	Under construction

Source: TxDOT

6.4 PROPOSED ROADWAYS

This section discusses proposed highway projects expected to impact traffic flows and overall level of service at different binational entry systems. Each proposed U.S. highway or

highway section is discussed separately.

Santa Teresa Border Crossing to IH-10

Regarding the link between Santa Teresa Border Crossing and IH-10, there is one proposal by the Upper Valley Alliance and Concerned Citizens of Sunland Park to construct a route parallel to the U.S.-Mexico border from Santa Teresa past Sunland Park-Anapra (Figure 6.4). The second proposal by Texas, the New Mexico Transportation Department, the Federal Highway Administration, and the City of El Paso is to extend Artcraft Road (see Figure 6.4). Artcraft Road is about 2 miles (3.2 km) south of Woodrow Bean-Transmountain Road and 2 miles (3.2 km) north of Redd Road in the Upper Valley. This six-lane divided highway would start at Santa Teresa, cross Airport Road, McNutt Road, the Rio Grande and Doniphan Drive, and link with IH-10 at the existing Artcraft Road.

US 54 (New Mexico)

The New Mexico Department of Transportation is planning to spend $44 million during the next 5 years, with high priority on repaving US 54 to El Paso.

On the Mexican side, the following are proposed projects:

Reynosa – Matamoros: Proposed by the State of Tamaulipas, this road is under study by the federal government as a mid-term priority. No construction is underway at this point.

La Gloria – Colombia: The road will be constructed under terms of a negotiated extension of the concession for the Monterrey-Nuevo Laredo toll road. Financial setbacks have delayed the starting date for its construction (which will require 12 to 15 months). Fideicomiso Para el Desarrollo del Norte del Estado de Nuevo León (FIDENOR), an entity created to foresee the development of the northern part of the State of Nuevo Leon, indicated that the facility will be a free road, and that construction will likely begin at Colombia and proceed south.

Mexico City – Matamoros: The Governor of Tamaulipas, Manuel Cavazos Lerma, plans to build a superhighway connecting Matamoros with Tampico through Ciudad Victoria and eventually extending to Mexico City. Once completed, the trip from Mexico City to Matamoros will be 140 miles (225 km) shorter than the present trip between Mexico City and Nuevo Laredo. The project will be privately funded. To expedite the building of superhighways for this decade, the government of Mexico has begun to incorporate private funds for infrastructure construction.

Valle Hermoso – Los Indios Bridge: The Governor of Tamaulipas is committed to constructing a new road leading from Valle Hermoso to the bridge at Los Indios. Under present plans, half of this road will be built this year and the other half will be built in 1994.

Mexico 2 (To Sunland Park and Santa Teresa Ports of Entry)

The Mexican government is paving MEX 2 (Mexico border freeway) to the Santa Teresa-San Jeronimo border crossing. The existing paved/constructed section of MEX 2 stops about 4 miles (6.4 km) east of where the proposed Sunland Park port of entry would be located. Both Santa Teresa and the proposed binational entry system at Sunland Park are located approximately 10 miles (16 km) and 3 miles (5 km) west of El Paso, respectively.

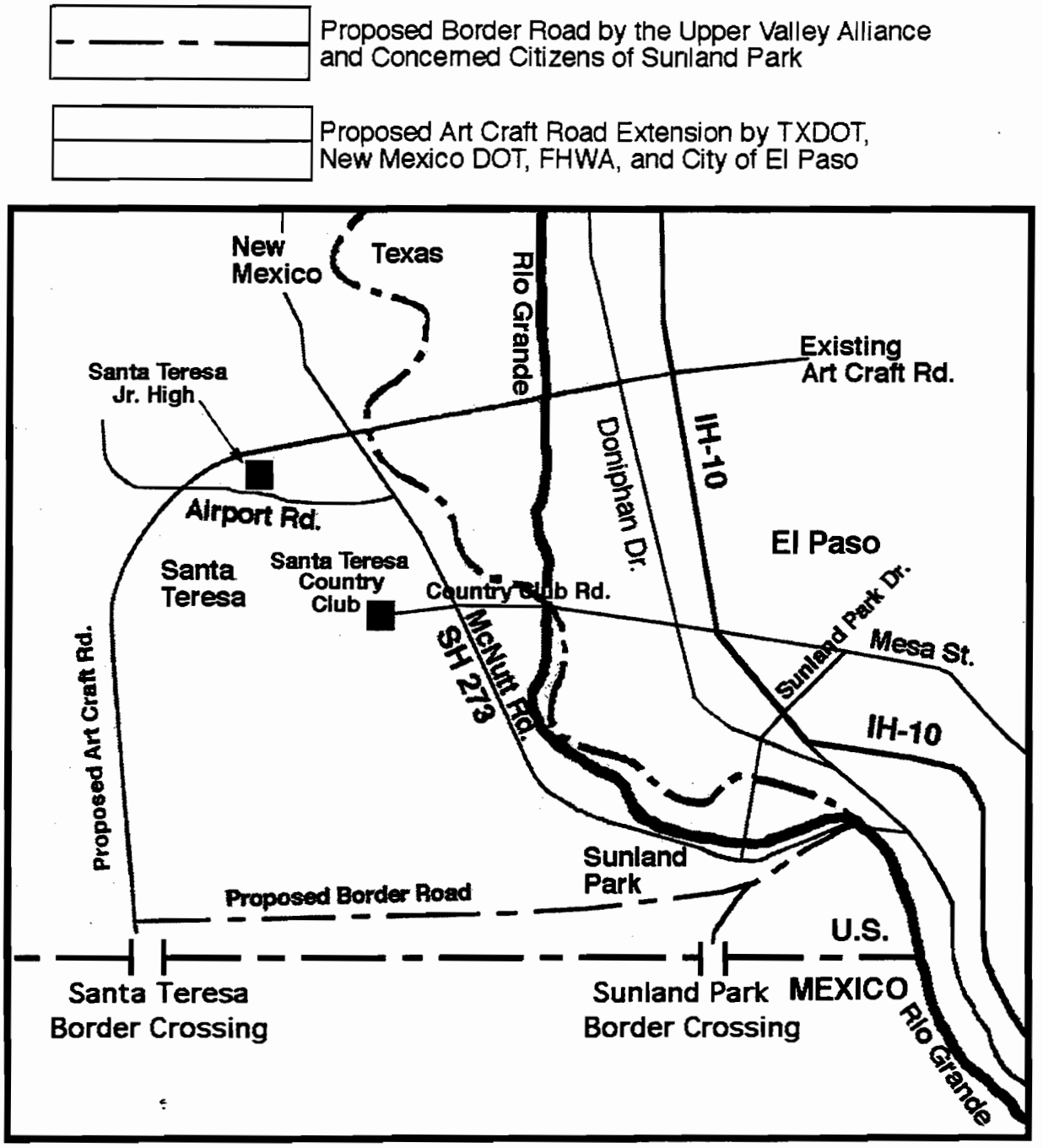

Figure 6.4. Proposals to link Santa Teresa Border Crossing to IH-10

Table 6.4. Summary of Level III projects

County	Hwy	From	To	Improvements	Length	Status
El Paso	LP 375	0.4 miles (0.64 km) West of Railroad Dr.	0.3 miles (0.48 km) East of Railroad Dr.	Construct Mainlanes over SPRR and Railroad Dr.	0.6 miles (1.0 km)	Level III
El Paso	IH 10, etc.	Paisano	East of LP 375, etc.	Changeable Message Signs and Surveillance Loops	Variable	Level III
Val Verde (Del Rio Area)	SP 239	Las Vacas Road	International Port of Entry	Widen to 4-Lane Divided	0.9 miles (1.5 km)	Level III
Val Verde (Del Rio Area)	SP 239	US 277 at Gibbs Street	Las Vacas Road	Widen to 4-Lane Divided	2.2 miles (3.5 km)	Level III
Webb (Laredo Area)	SP 400	Arkansas Blvd.	LP 20 East of Laredo	Construct 4-Lane Roadway	1.2 miles (1.9 km)	Level III
Webb (Laredo Area)	SP 400	IH 35	Arkansas Blvd.	Surfacing, etc. to Complete Project	2.1 miles (3.4 km)	Level III
Webb (Laredo Area)	FM 1472	3.2 miles (5.2 km) East of FM 255	3.4 miles (5.5 km) North of IH 35	Construct 4-Lane Divided Roadway	12.5 miles (20.1 km)	Level III
Webb (Laredo Area)	LP 20	SH 359	US 59	Construct 2-Lane New Location Highway	2.2 miles (3.5 km)	Level III Fed Demo
Webb (Laredo Area)	LP 20	IH 35	US 59	Construct 2-Lane New Location Highway	8.4 miles (13.5 km)	Level III Fed Demo
Webb (Laredo Area)	FM 3464	FM 1472	IH 35	Construct 4-Lane Divided Rural	1.5 miles (2.4 km)	Level III Fed Demo
Hidalgo (Valley Area)	BU 83-S	0.1 miles (0.16 km) East of Stewart Road in Mission	FM 1926 in McAllen	Widen to 4-Lane Divided Urban	3.5 miles (5.6 km)	Level III
Hidalgo (Valley Area)	BU 83-S	0.9 miles (1.5 km) East of US 281 in Pharr	San Antonio Street in San Juan	Widen to 4-Lane Divided Urban	0.5 miles (0.8 km)	Level III
Hidalgo (Valley Area)	BU 83-S	San Antonio Street, East	FM 2557 in San Juan	Widen to 4-Lane Divided Urban	0.9 miles (1.5 km)	Level III
Cameron (Valley Area)	LP 499	Arroyo Colorado Bridge	FM 106	Widen to 4-Lane Rural	0.5 miles (0.8 km)	Level III
Cameron (Valley Area)	LP 499	FM 106 in Harlingen	Rio Hondo Road	Construct 4-Lane C&G Section w/ LTL	1.4 miles (2.3 km)	Level III
Cameron (Valley Area)	Various			Brownsville Railroad Relocation Demonstration Project	Variable	Level III Fed Demo
Starr (Valley Area)	US 83	0.5 miles (0.8 km) East of FM 1430	3.4 miles (5.5 km) West of FM 1430	Widen to 4-Lane Divided Rural	3.9 miles (6.3 km)	Level III
Willacy (Valley Area)	US 77	0.4 miles (0.64 km) South of LP 448	0.4 miles (0.64 km) North of LP 448	Construction Interchange	0.8 miles (1.3 km)	Level III
Hidalgo (Valley Area)	FM 2061	2.1 miles (3.4 km) South of SH 107	0.2 miles (0.3 km) North of FM 3461	Widen to 4-Lane Divided Urban	2.6 miles (4.2 km)	Level III
Hidalgo (Valley Area)	SP 487	LP 374 in McAllen	US 83	Widen to 4-Lane Divided Urban	0.9 miles (1.5 km)	Level III
Cameron (Valley Area)	FM 506	US 83	BU 83-S	Widen to 4-Lane Urban Section	0.4 miles (0.64 km)	Level III
Cameron (Valley Area)	FM 106	LP 499 in Harlingen, East	FM 1595	Widen to 4-Lane Urban Section	1.9 miles (3.1 km)	Level III
Cameron (Valley Area)	LP 590	FM 508	FM 1595 in Harlingen	Construct New Loop	2.2 miles (3.5 km)	Level III
Cameron (Valley Area)	FM 509	FM 675	US 281	Construct Farm to Market Road	3.8 miles (6.1 km)	Level III
Cameron (Valley Area)	FM 509	US 77/83, SW	FM 675	Extend and Reconstruct FM Road	4.8 miles (7.7 km)	Level III
Live Oak	US 281	0.2 miles (0.3 km) South of US 59	2.2 miles (3.5 km) South of Spring Creek	Construct Additional 2 Lanes	5.2 miles (8.4 km)	Level III Fed Demo
Live Oak	US 281	2.2 miles (3.5 km) South of Spring Creek	Jim Wells County Line	Construct Additional 2 Lanes	13.2 miles (21.2 km)	Level III
Jim Wells	US 281	2.55 miles (4.1 km) North of Alice	300 ft. (91 m) South of San Diego Creek	Construct Additional 2 Lanes	2.6 miles (4.2 km)	Level III
Jim Wells	US 281	North of Alice	South of Alice	Construct Frontage Roads for Relief Route	8.5 miles (13.7 km)	Level III Fed Demo

6.5 CONCLUSIONS

The U.S. roadways surveyed included, for the most part, federal, state, and interstate highways. The federal and state highways are generally two-lanes in rural areas, and four-lanes in urban areas, with sound pavement, 12-foot (3.7-m) travel lanes, and, on an average, 8- to 10-foot (2.4- to 3.1-m) paved shoulders. The posted speed limit on these roads is 55 mph (88.5 km/h). Interstate highways, such as IH-35 and IH-10, are four-lane divided highways, in good condition, and have a posted speed limit of 65 mph (104.6 km/h). Most of the roadways surveyed are in rural areas, with grade-separated interchanges on major federal and state highways and on interstates. The U.S. Border Patrol, stationed at strategic locations, stops

northbound traffic for brief (1–2 minute) inspections.

In addition to providing ongoing maintenance, TXDOT is actively upgrading highway infrastructure by linking binational entry systems to major U.S. arteries. One of the agency's more ambitious efforts is the Texas Trunk System, a 30-year plan to link every Texas city (including border cities having over 20,000 population) to the Interstate System through new four-lane divided rural highways. The Border Trade Alliance is also sponsoring a plan to improve border roads and bridges.

Mexican freeways this study surveyed included free and toll roadways. In general, free highways are two-lane, in fair condition, and lack paved or improved shoulders. Toll roads, as well as a few free roads, are four-lane highways in good conditions and equipped with shoulders. Some overlay construction (undertaken to maintain and improve pavement conditions) was observed on some of the surveyed highways.

Lane widths are around 12 feet (3.7 m) for two-lane highways and around 14 feet (4.3 m) for four-lane highways. Shoulders, where available, vary considerably in width and quality. Although typically set at 50 mph (80 km/h), speed limits on surveyed highways range from 25 mph (40 km/h) to 68 mph (110 km/h), depending on the road condition and on geometric design. In areas having favorable road conditions and sound geometric design, travel speeds were greater than posted speed limits.

Road signals (e.g., speed limits, railroad crossings, highway number, etc.) are adequate. Gas stations and rest areas are scarce on highways, except for urban areas and villages. For example, MEX 2, a main border artery, has no gas stations between Nuevo Laredo and Cd. Mier, a 75-mile (120-km) stretch.

MEX 45 (Chihuahua/Ciudad Juárez) and MEX 85 (Autopista Monterrey/Nuevo Laredo), both major Mexican highways leading to the Texas-Mexico border, are considered among the best highways surveyed. The toll-free MEX 85 (Monterrey/Nuevo Laredo) is considered an adequate highway, with 40 percent of the total length four-lanes and 60 percent two-lanes, with a shoulder ranging in width from 4 to 12 feet (1.2 to 3.7 m).

Many highways are in need of pavement repair and maintenance. There is also much congestion on Mexican roads — a result of truck traffic in and around urban areas, insufficient urban planning, and the presence of factories in densely populated residential areas.

The surveyed roads in Tamaulipas are in relatively poor condition. And MEX 2 (Reynosa/Matamoros), especially between Nuevo Progreso and Matamoros, is punctuated with cracks and potholes. Mexican customs stops southbound traffic at stations 12 miles (19.3 km) from the border. The purpose is to inspect vehicles and cargo headed for the interior of Mexico.

The Mexican government is promoting an Urban Development Program that will connect all major border cities to major Mexican highways. The proposed and under-construction toll roads on the Mexican side will greatly improve the Mexican infrastructure.

CHAPTER 7. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

7.1 SUMMARY OF REPORT CONTENTS

This report describes the current Texas-Mexico border transportation infrastructure. It also includes a detailed description of the study methodology, as well as a bilingual glossary of terms and names. This report forms the basis for an understanding of how current border crossing mechanisms work — an understanding critical to the analytical work presented in subsequent reports for this project.

The findings and recommendations of this report can be classified into four general categories. The first category relates to the understanding of transportation problems at the Texas-Mexico border. The second relates to inspection procedures and to their interaction with the traffic circulation. The third discusses the different perspectives on the provision of new binational entry systems, while the fourth category relates to the border highway network. These findings are summarized in the next four sections, which correspond to these four categories.

7.2 TEXAS-MEXICO BORDER AREA OVERVIEW

The focus of this study has been the Texas/Mexico border region. This region includes the geographic area adjacent to the Rio Grande/Rio Bravo, with the Gulf of Mexico forming the eastern boundary and the Texas/New Mexico border forming the western boundary. The Rio Grande/Rio Bravo marks the natural border between Texas and Mexico, and all binational entry systems — whether bridges, dams, or ferries — are built over this river.

For organizational purposes, this study divided the border into two segments: Segment 1 extends from the Gulf of Mexico to Colombia Bridge (inclusive) west of Laredo, while Segment 2 extends from Colombia Bridge to the Texas/New Mexico border. Both segments were extensively researched during the study.

The data sources used in this study included field trips; meetings; existing data bases (State Comptroller, BRINSAP, and Border Base SEIS); field surveys (origin/destination and route reconnaissance); federal, state, and local agencies; previous studies or reports; libraries; and newspapers. In this study, the data collection effort went beyond the immediate study needs, since one of the project objectives was to create a comprehensive binational data base (one that includes data useful in transportation planning). The data were summarized, reduced, and stored in the TRANSBORDER data base, which is described in the second report of this series.

Much of the information collected during this first phase was qualitative and could not therefore be summarized in magnetic media data bases. The findings and recommendations in this category, presented as descriptive information, are associated with issues of infrastructure administration and with the current status of specific binational entry systems and their traffic patterns.

7.2.1 Texas /Mexico Binational Entry Systems

There are 23 existing vehicular entry systems. Included in this group are bridges, dams, and ferries; one bridge under construction; and thirteen proposed bridges (which include three proposed for expansion, replacement, or relocation). In addition, there are six rail bridges, one of which is a combined rail and vehicular bridge. (Each binational entry system is discussed in Chapter 5.) In order to be as comprehensive as possible, information was obtained from both the U.S. and Mexico. Based on the collected information and numerous site visits, the following were concluded:

(1) Most binational bridge entry systems generally follow the same layout. Every toll bridge consists of toll collecting facilities, which usually belong to the bridge manager or owner, in the southbound direction on the U.S. side and in the northbound direction on the Mexican side.[1] The inspection facilities are always in the northbound direction on the U.S. side and in the southbound direction on the Mexican side. The bridge owner/manager area usually consists of toll booths and designated offices. Inspection facilities consist of at least one building housing the offices of the inspection agencies' personnel, as well as pedestrian inspections. For privately owned vehicles there are always primary inspection booths followed by a secondary inspection area. The commercial lot usually consists of truck inspection docks or spaces, with at least one primary inspection booth at the entrance of the lot.

(2) All binational entry systems have seasonal traffic variations, with the traffic increasing especially during national and religious holidays. There are also daily and hourly variations: Commuters contribute to the increase of northbound traffic in the early morning hours. In the late afternoon, commuters going home contribute to the traffic increase in the southbound direction. Also, weekend traffic counts are usually higher than weekday counts.

(3) Binational bridges with accessible infrastructure and adjacent border sister cities have generally more vehicular and pedestrian traffic.

(4) Of the total northbound traffic that crossed the Texas/Mexico border in fiscal year 1992 (October 1991–September 1992), 63.2 percent represented privately owned vehicles, 34.3 percent represented pedestrians, and 2.5 percent represented commercial traffic.[2] Of the total southbound traffic that crossed the Texas/Mexico border in the 1992 calendar year (January 1992–December 1992), 61.6 percent represented privately owned vehicles, 35.6 percent represented pedestrians, and 2.8 percent represented commercial traffic.[3]

(5) Traffic on binational bridges located in urban areas is comprised mostly of non-commercial vehicles, followed by pedestrians, commercial vehicles, and, finally, buses, when applicable. Only two bridges service more pedestrians than vehicular traffic: Laredo Convent Street Bridge (Bridge No. 1) in downtown Laredo (primarily because

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[1] B&M northbound toll facilities are on the US side.

[2] U.S. Customs Service.

[3] Excluded are the counts from privately owned ferries at Los Ebanos, Lake Falcon Dam, and Lake Amistad Dam, and from the free bridges at La Linda, Presidio, Fort Hancock, and Fabens.

Laredo's Juarez-Lincoln Bridge, or Bridge No. 2, does not accommodate pedestrian traffic), and Paso Del Norte in downtown El Paso.

(6) Traffic on binational entry systems located in rural areas is comprised mostly of non-commercial vehicles, followed by commercial vehicles and pedestrians. An example of a rural binational entry system is Colombia Bridge west of Laredo.

7.2.2. Authorization and Financing of New Facilities

In both the U.S. and Mexico, a sponsor is needed to pursue the authorization procedure and secure financing to build a new international bridge. In the U.S., the sponsor submits an application for Presidential permit to the State Department, which in turn publishes a notice of application in the Federal Register. The Federal Register is circulated to solicit comments from other federal, state, and local agencies regarding the necessity of a new bridge and its impacts (environmental, political, etc.). The sponsor also provides the State Department with environmental studies and revisions as necessary, after receiving comments from the agencies mentioned above. If agencies express no additional concerns, the State Department issues a Presidential permit. Otherwise, the application and studies are referred to the President for further revisions.

On the Mexican side, a written proposal and preliminary studies are submitted to the Grupo Intersecretarial de Puertos y Servicios Fronterizos (GIPSF), coordinated by the Dirección General de Fronteras (DGF). GIPSF, which consists of representatives from several federal departments, consults with federal, state, and municipal authorities. GIPSF also approves or denies proposals to build, finance, maintain, improve, or remove binational bridge entry systems after comments are received from different public or private entities. Approvals granted by the U.S. and Mexican governments to build a new bridge depend on the national interest gained by each respective government.

During the process of obtaining permits, the two governments exchange diplomatic notes expressing mutual interest in establishing the new binational bridge entry system. Also, federal agencies in both countries coordinate efforts to meet treaty requirements.

Financing binational bridge entry systems consists of providing the necessary funds to build the bridge, toll facilities, inspection facilities, and connecting infrastructure in the U.S. and in Mexico. On the U.S. side, the bridge and toll facilities are usually financed by the bridge sponsor through the sale of revenue bonds, which are repaid through toll collections once the bridge is operational. United States inspection facilities are usually owned by the General Services Administration[5](GSA), which then leases space to various inspection agencies. At times, GSA leases the inspection facilities from another agency and subleases the buildings to various inspection agencies. The Southern Border Capital Improvements Fund has been providing funds for building the inspection facilities. In some cases the bridge sponsor might finance the inspection facilities and then lease them to GSA. The connecting infrastructure is usually financed by TxDOT.

On the Mexican side, the vehicular bridge and toll facilities are the responsibility of the Secretaría de Comunicaciones y Transportes (SCT). Rail bridges are the responsibility of Ferrocarriles Nacionales de Mexico (FNM). Normally, SCT prepares the bridge for concession. Once the concession is granted, funds are provided from the concessionaire. The provided funds, combined with funds from SCT and revenue bonds, are used to construct the bridge and toll facilities. During the concession period, the concessionaire (once the bridge begins operation) collects tolls to repay the bonds (and any other debts) and to maintain and operate the bridge. Once the period of the concession is completed, the bridge management is turned over to Caminos y Puentes Federales de Ingresos y Servicios Conexos (CAPUFE), which is a subagency of SCT. The Mexican inspection facilities are planned and designed by Secretaría de Desarrollo Social (SEDESOL), and funded by the Secretaría de Hacienda y Crédito Público (SHCP). The connecting infrastructure is funded by the federal, state, and local governments in the case of free roads. For toll roads, funds are available from three areas: concessionaire, SCT, and revenue bonds (in the same manner that bridge and toll facilities are financed).

In summary, the following was found regarding the building and financing of binational bridge entry systems:

(1) Sponsors of all international bridges have to go through approval processes in Mexico and in the U.S. The complexity of these processes varies according to the individual characteristics of each project. For example, environmental issues require specific impact studies. The steps followed in authorizing a new international bridge in Mexico are not necessarily similar to those followed in Texas, as discussed in Chapter 4.

(2) All binational entry systems must be supported by both countries in order to be built. Federal government support is granted if the bridge is considered to be in the national interests of both countries. A bridge will not be constructed if one country objects to its construction.

(3) In the U.S., financing could be supplied by local, state, federal, or a private agency. In Mexico, financing is usually supplied by the federal government, either directly or under concession. Under a concession, the funds to build the binational bridge entry system are obtained by private entities; the private entity then receives the bridge revenues for an agreed-upon period. After the concession period, the bridge is turned over to the government.

7.3 INSPECTION PROCEDURES AND TRAFFIC FLOW

International bridges at the Texas/Mexico border require numerous facilities and sufficient inspection staff. Any inspection procedure in a binational bridge entry system is a potential bottleneck; it was observed during field trips that simple measures can improve the situation of existing bridges and can prevent problems in new ones.

The following section discusses this problem, and makes specific recommendations for future improvement of the overall efficiency by taking into account the interaction between traffic circulation and inspection facilities' design and staffing.

7.3.1 Design of Inspection Facilities

Inspection procedures are delayed every time a truck or car goes through secondary inspection (i.e., needs to be unloaded and thoroughly inspected). New technologies, such as X-ray inspection machines (Figure 7.1), will help in processing commercial traffic at customs facilities. Such new technology will save time and administrative costs by eliminating the need to unload trucks for most secondary inspections. CTR found that some of these machines, already installed at some ports of entry, reduce inspection procedure time and require considerably fewer personnel. On the other hand, these machines are expensive and, because of radiation hazards, require large and expensive facilities. Consequently, they cannot be installed at every binational entry system.

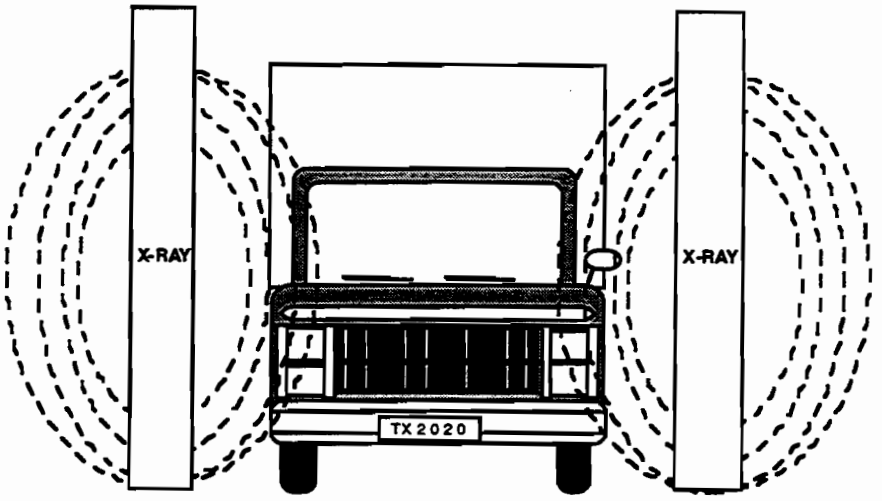


Figure 7.1. Utilizing new technologies for faster customs inspection

The physical lay-out of inspection facilities could also be improved by coordinating the locations of inspection booths. At several binational entry sites, the capacity of a facility on one side exceeds the capacity of the facility on the other side, a disjunction that results in frequent congestion. Better coordination between U.S. and Mexican agencies is needed to improve traffic circulation and inspection efficiency on both sides of the border.

The commercial lot design can be enhanced by relocating the primary inspection booths away from the bridge exits. In most binational bridge entry systems, the trucks' primary inspection booth is always immediately to the right of the bridge exit (see Figure 7.2A); some trucks occupy the right lane on the bridge in rush hours, causing traffic to back up on border city roads. The commercial lot primary inspection booths should be located further away from the bridge to provide a "waiting area" for trucks (see Figure 7.2B). The design of the newly constructed Colombia Bridge, for example, takes this problem into consideration.

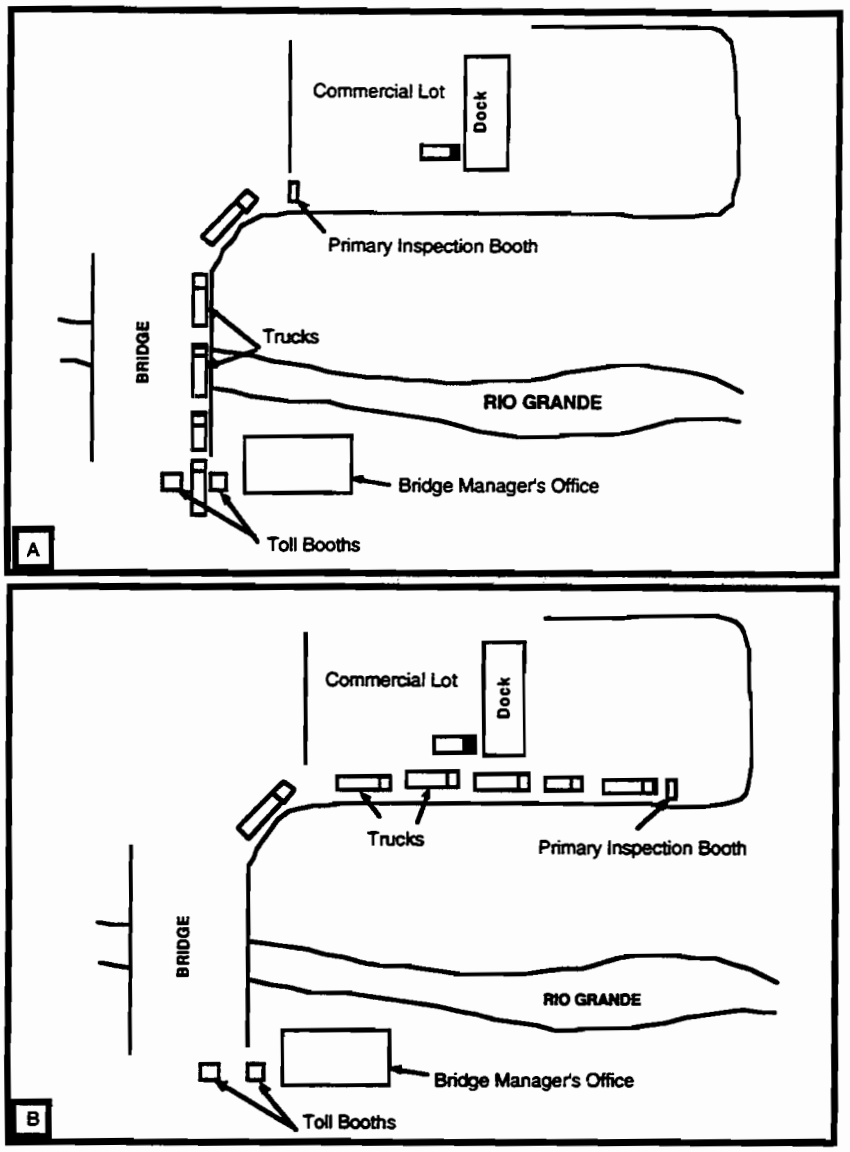


Figure 7.2. Commercial primary inspection relocation

7.3.2 Staffing of Inspection Facilities

Regardless of the facility design, the potential for congestion grows as the staffing capability decreases. If no inspections were necessary, the addition of new bridges with good access roads would be enough to improve the traffic circulation across the Rio Grande. This is shown in Figure 7.3, where the dashed line represents improvement in the level of service with the addition of new traffic lanes — up to the point where it reaches the asymptote that corresponds to free flow. However, the traffic flow across an international bridge can never be "free," as it will always be stopped for a number of inspection procedures. The staffing capabilities of U.S. and

Mexican inspection agencies are limited, and the solid line in Figure 7.3 shows the real situation created by the addition of more bridges in the border area. As long as federal agencies can fully staff the new facility, the traffic flow will improve and the actual situation (solid line) will be the same as the hypothetical situation (dashed line). As the staffing capability approaches its peak, however, the traffic circulation will show little improvement. When the number of binational entry systems exceeds the staffing capabilities, federal agencies will resort to relocating staff from one entry system to another, thus creating two inspection bottlenecks instead of one. As the staff members are spread thinner and thinner, the addition of new facilities will decrease rather than increase the level of traffic service. This situation is shown by the falling solid line in Figure 7.3.

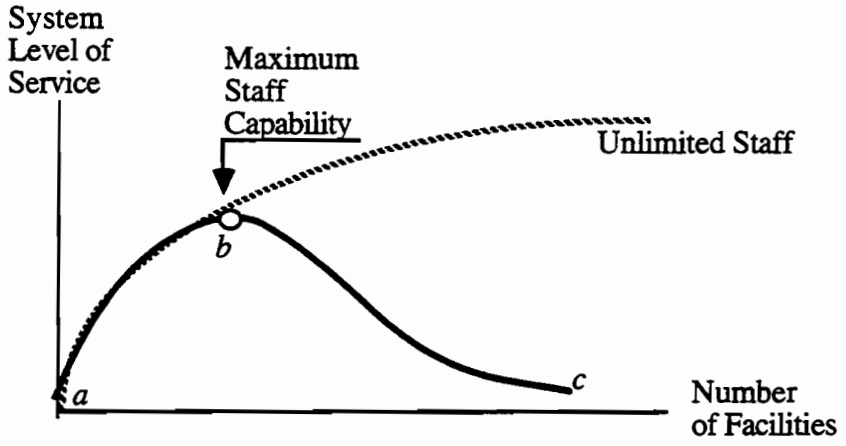


Figure 7.3. Staffing capabilities and level of service

According to several U.S agency (GSA and U.S. Customs) staff members, staffing is a major problem in the Texas/Mexico border area. This concern was shared by some of their Mexican counterparts. In addition, NAFTA will require more complex customs inspections and more personnel, owing to the need to verify the origin of product components for taxation. Indeed, this type of complex inspection has been routine at the Canadian border since the U.S./Canada free-trade agreement took effect. In order to qualify for preferential trade treatment under NAFTA, a product must clear an elaborate classification process, the main objective of which is to verify whether imported parts from non-NAFTA countries either have been significantly processed or if substantial regional value has been added.

7.3.3 Summary

There are two types of findings related to border-inspection procedures: those relating to the formalities of the inspection procedures on both sides of the border, and those relating to the influence of such procedures on traffic circulation. These findings are:

(1) The inspection procedures followed in the U.S. and in Mexico are generally similar in both countries. Commercial traffic, non-commercial traffic, and pedestrians are always inspected through separate facilities. Loaded commercial traffic is referred to a commercial inspection lot, privately owned vehicles are inspected through traffic lanes and booths, and pedestrians through turnstiles.

(2) U.S. and Mexican customs have separate primary and secondary inspection areas for traffic. Primary inspection areas are booths for initial questioning or checking. Secondary inspection areas are for more thorough inspections following primary inspection.

(3) Clearing commercial traffic with loaded merchandise through customs requires the involvement of licensed customhouse brokers, both in the U.S. and in Mexico. This requirement may confine truck traffic circulation to those areas where brokers are located.

(4) A system of red light/green light should always be used on top of the toll and customs primary inspection booths to indicate to approaching vehicles the staffed booths. It is difficult at some locations to figure out which booth is manned and which is empty.

(5) While high-tech inspection equipment has a significant potential to improve efficiency and traffic circulation, such equipment is expensive and its implementation must be restricted to selected binational entry systems.

(6) In most bridges, trucks naturally use the right-most lane, since they will eventually make a right turn into the commercial lot. Clearly designating this lane and perhaps installing a toll booth exclusively for trucks would prevent confusion caused by autos entering and exiting the truck line.

(7) The design of inspection facilities on one side of the border does not take into account the design of facilities on the other side, the result being that overall traffic circulation is controlled by the capacity of the smaller facility.

(8) New binational entry systems can improve overall transborder traffic flows only if the inspection agencies can fully staff the new facility (and without resorting to staff relocation). If the staff is spread too thinly, the addition of new facilities will worsen rather than ameliorate traffic circulation.

7.4 PERSPECTIVES ON ASSESSING NEEDS AND IMPACTS OF NEW BINATIONAL ENTRY SYSTEMS

Planning for a new binational entry system along the Texas/Mexico border must be seen from several perspectives. These various perspectives are correlated and intertwined, but the traditional way of providing binational entry systems implicitly considers these perspectives as

independent. This study has focused on gaining an overall understanding of border crossing operations and transportation needs, and on determining the need for and feasibility of additional bridges in various sectors along the border. This section of the report will discuss other perspectives used in analyzing the need for and impacts of new binational entry systems, and will compare these with the binational transportation planning perspective, the recommended perspective for analyzing the traffic demand and providing new infrastructure.

7.4.1 Local Perspective

The local need perspective for a new bridge is twofold: there is an economic perspective and a traffic circulation perspective. The first stems from the considerable revenues gained from border toll bridges, while the latter issues from the fact that this desirable source of revenue, the international traffic, may also be a source of city congestion.

In assessing the need for a new international bridge from the economic perspective of a toll bridge, the emphasis is on predicting whether enough traffic will use the proposed bridge in order to meet the bond financing obligations. This approach had been meeting the transborder transportation needs, but the increase in traffic, NAFTA, and the advent of new technologies render the traditional approach inefficient from a transportation planning perspective.

In assessing the need for a new international bridge from the perspective of local traffic circulation of the international sister cities (or sister regions) along the border, the emphasis is placed on the level-of-service of traffic flow in and between sister cities. Level-of-service is a qualitative measure describing perceived operational conditions within a traffic stream. A level-of-service definition generally describes these conditions in terms of such factors as speed and travel time, maneuverability, traffic interruptions, comfort and convenience, and safety. The specific parameters utilized in the "Highway Capacity Manual" to describe and assess the level-of-service do not apply to international traffic, and hence require a modified level-of-service concept specific to transborder traffic.

Traffic circulation within individual cities on both sides of the border is primarily an issue for the individual municipalities. However, internal traffic circulation is significantly affected by international traffic, and the need for a new bridge and its location can be addressed purely from this traffic circulation perspective, regardless of the viability of meeting a bond financing obligation.

7.4.2 Environmental Perspective

In addition to traffic circulation concerns, there are environmental and air quality perspectives relating to a new international bridge. Federal environmental legislation, including the 1990 Clean Air Act, requires that cities and regions exceeding the National Ambient Air Quality Standards develop congestion management plans and transportation control measures to alleviate air quality problems. Potential reduction of the overall city-wide level of emissions (including concentrations or "hot-spots" of emissions) could be used to justify and fund a new binational bridge.

Environmental concerns may also impede efforts to promote a new bridge. For example, the International Boundary Water Commission has no objection to building a new bridge, provided the structure does not elevate the water level upstream of the bridge. The flood plain map of the Rio Grande indicates that there are some locations where the cost of providing a new bridge may be prohibitive, and that another location a few miles away would result in a considerably smaller structure.

Wildlife concerns might also diminish the financial feasibility of a project, owing to the costs of bypassing a wildlife habitat. Because new bridges cannot interfere with known habitats, the additional structure length that may be required to bypass such habitats will in some cases increase the overall cost to prohibitive levels. In other cases, the location of a wildlife habitat and/or native vegetation sanctuaries may prevent the construction of the inspection facilities.

7.4.3 Inspection Agencies Perspective

As discussed earlier in this chapter, the provision and operation of a binational bridge entry system includes the provision and operation of several inspection procedures. These agencies have limited budgets and limited staffing capabilities that need to be optimized. Each additional border station represents a burden that these agencies may or may not be capable of addressing. From the perspective of these agencies, the fewer inspection points the better, with the ideal situation being a consolidation of the traffic into fewer multimodal binational entry systems.

7.4.4 Differences between Current U.S. and Mexican Perspectives

In the U.S., border communities customarily initiate the construction of new bridges crossing the Rio Grande, with the role of the federal government limited to the administration of the Presidential permit process. Consequently, such an initiative reflects a local perspective only (the toll bridge revenue stays in the city). In Mexico, while border communities may lobby for international bridges, the revenue from toll bridges is collected by a federal agency (CAPUFE), and the interest of Mexican border cities in additional bridges is usually indirect. Consequently, there have been and probably will continue to be cases in which an effort to build a bridge by a U.S. border city fails to gain the support of the Mexican sister city, because of the high costs associated with connecting infrastructure.

7.4.5 Binational Transportation Planning Perspective

Each of the perspectives discussed above is a valid dimension of the multidimensional problem of providing transportation infrastructure at the Texas/Mexico border. Table 7.1 summarizes these perspectives in terms of objectives sought with the provision or bypassing of a new binational bridge entry system.

Table 7.1. Summary of the different perspectives

Perspective	Objectives	Preferred Action
Local	- Maximize city revenues - Attract visitors to city - Improve traffic circulation	Build new bridges whenever they are profitable or may improve traffic circulation in the city.
Environmental	- Minimize pollution - Maximize biota preservation - Minimize changes in river channel and water level	Build new bridges only if they do not adversely affect the environment, or if they relieve "hot spots."
Inspection Agencies	- Minimize staff - Optimize equipment	Consolidate traffic into fewer bridges, preferably multimodal.
Transportation Planning	- Maximize level of service of traffic circulation along the entire border - Minimize infrastructure costs along the entire border	Permanent, ongoing binational planning efforts

Transportation planning requires a multidimensional perspective, one that attempts to optimize all the different perspectives and objectives into one solution. Efforts to develop binational transportation planning for the Texas/Mexico border are still evolving. The sector analysis and the super-crossing concepts developed in this project are approaches based on the binational transportation planning perspective. Successful implementation of binational planning will also depend on the ability of each party to subordinate individual interests for the greater good of the region.

7.4.6 Conclusion

Texas/Mexico border economic development and infrastructure needs are a matter of concern at the local, state, federal, and international levels. Accordingly, a significant number of studies have been conducted on this topic. Unfortunately, there has been some redundancy and repetition of effort when different agencies have undertaken similar studies (or even different studies that required the same type of information). We believe that some studies would produce better results if contracted together rather than independently. Binational coordination among agencies could, for example, reduce the labor-intensity of data collection and other efforts.

One of the first steps in any planning study is the collection of data used as input into various calculations and models that provide a basis for policy decisions. This step is usually the most time-consuming and expensive, requiring as it does substantial time and travel.

For transportation and urban planning, the data requirements include socioeconomic characteristics (e.g., population, number of households, average household income, average auto ownership, employment by industry, and land use), traffic volumes by vehicle type, geometric and

structural characteristics of roads, highways, and bridges (e.g., roadway width, right-of-way width, and number of lanes), and commodity trade flow data by mode and port of entry.

The data collection process requires the cooperation of public agencies not directly involved in either economic development or infrastructure planning. In particular on the Texas/Mexico border, cooperation from U.S. inspection agencies (e.g., U.S. Customs Service, the U.S. Immigration and Naturalization Service, and the U.S. Department of Agriculture) is vital to successful data collection. Currently, these agencies are being overwhelmed by redundant data requests from different organizations.

Another concern in the data collection process is the issue of proprietary information. It is not unusual for government agencies to contract a study where valuable data are collected, some of which are then considered to be proprietary information of the organization that was contracted to conduct the study. This situation results in part from the competition among the organizations hired to conduct the studies, and in part from the lack of specific language in the legal contracts signed by the organizations and the government. This also leads to duplication of efforts and inefficient use of public funds.

7.4.7 Summary

There are numerous agencies and interests involved in the provision and operation of binational entry systems, and the need for a new binational entry system along the Texas-Mexico border can be seen from several perspectives. These include:

(1) *Local perspective*: In the U.S. the local perspective on the need for a new binational entry system may stem either from an economic interest on the revenues of toll bridges, or from a need to improve traffic circulation in the city. In Mexico, the federal government usually owns the toll bridges, and the local economic interest in new binational entry systems is indirect.

(2) *Environmental Perspective*: This perspective may be used to justify a need for a new binational bridge on the grounds of reducing air pollution concentration ("hot-spots"). It may also hamper efforts to promote a new bridge, because of the need to protect native biota or river flood plains.

(3) *Inspection Agencies Perspective*: Because of their limited staff, agencies advocate fewer binational entry systems; the ideal situation would be to consolidate the traffic in fewer multimodal binational entry systems.

(4) *Transportation planning perspective* attempts to optimize all the conflicting perspectives and objectives into one solution, the main goal of which is to improve overall traffic circulation.

The next section recommends ways to encourage binational planning cooperation.

7.5 STATUS OF HIGHWAY NETWORK

The inventory of all existing, under construction, and proposed highways undertaken in this project included a highway condition survey of 2,900 miles (4,670 km) of U.S. highways and 2,000 miles (3,220 km) of Mexican highways. The findings of this survey are listed below.

(1) Federal and state roads in the U.S. generally have two lanes in rural areas and four lanes in urban areas, good pavement condition, 55 mph (89 km/h) speed limits, 12-foot (3.7-m) travel lanes, and paved shoulders.

(2) U.S. interstate highways are usually four-lane, in good condition, and have 65 mph (105 km/h) speed limits.

(3) The Texas Trunk System will, when completed in 30 years, provide four-lane divided rural highways, connecting Texas cities (over 20,000 in population) to the Interstate System. A total of approximately 10,000 miles (16,100 km) will be constructed.

(4) The majority of toll-free Mexican freeways are two-lane, 12 feet (3.7m) wide, in fair pavement condition, and have no paved or improved shoulders.

(5) Mexican toll roads and a few major highways are four-lane, 14 feet (4.3 m) wide, in good pavement condition, and have shoulders.

(6) Road signs in Mexico (e.g., speed limit, rail road crossings, and highway number) are adequate.

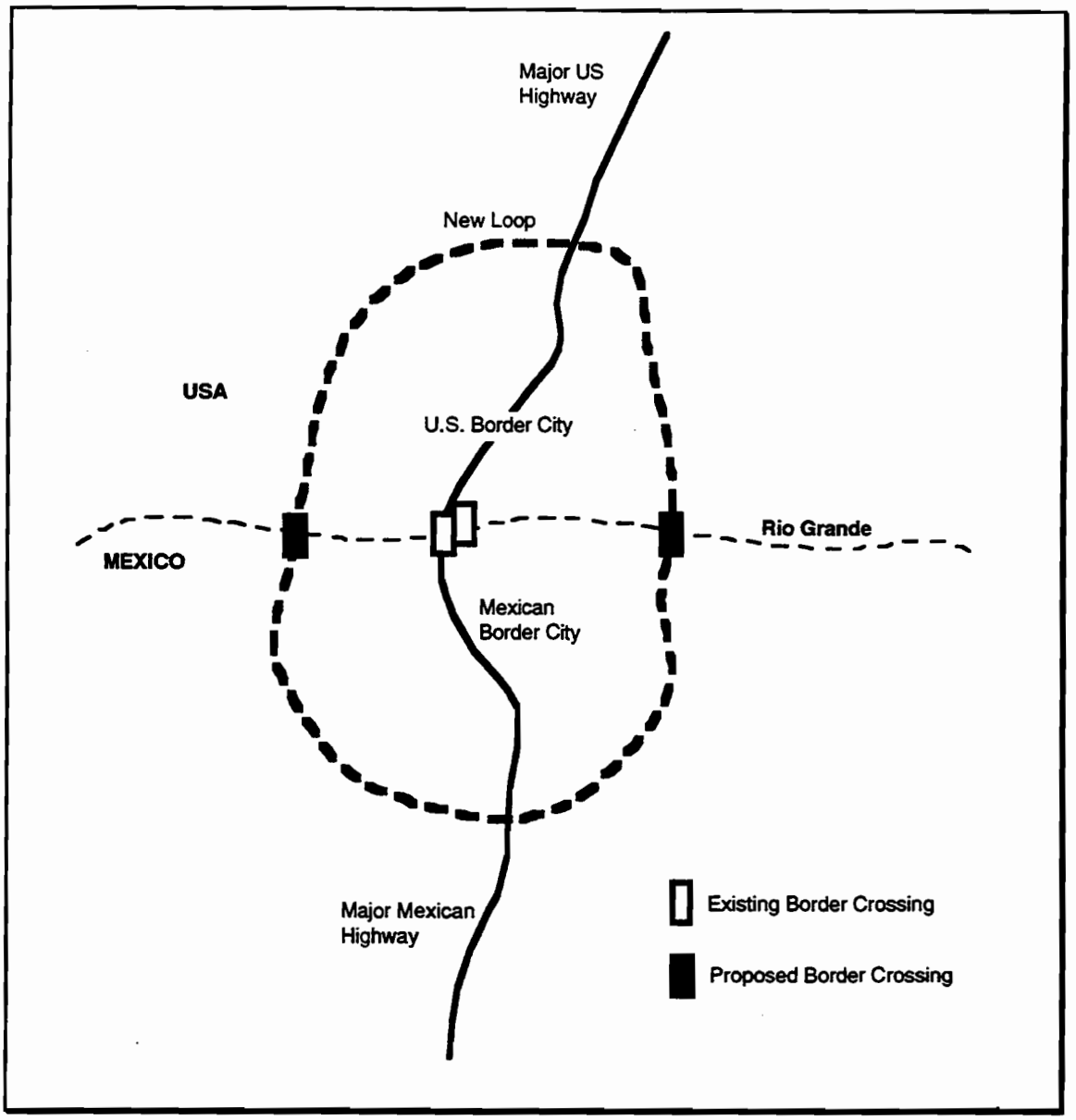
(7) In Mexico, gas stations and rest areas are scarce in rural areas.

(8) The Urban Development Program in Mexico will connect all major border cities to major Mexican highways.

(9) Because the major routes connecting the interiors of Texas and Mexico through the Texas-Mexico border link the major cities in both countries, they therefore influence traffic patterns.

Historically, most bridges connecting international sister cities along the Texas/Mexico border were constructed in the downtown areas of two cities. As cross-border traffic increased and as the downtown areas were developed, traffic circulation problems grew. Interviews with U.S. city officials from the Texas/Mexico border area indicate that many communities are concerned with traffic circulation, and that they are addressing the issue in various ways.

One method being considered by local officials to improve traffic circulation is to build loops around the core downtown area so that through international traffic, especially heavy commercial trucks that damage city streets, can be rerouted out of the downtown area. This approach generally results in the proposal of a new binational bridge located outside the downtown area that is primarily designated for commercial trucks, although not necessarily exclusively. As seen in Figure 7.4, such a configuration has the potential to relieve congestion, divert heavy trucks from downtown streets, and improve safety. The traffic demand for these loops is dependent on many factors, such as land uses on each side of the border and associated trip patterns (origin/destination). Designated truck routes requiring the use of such loops may improve the overall level of service.



7.4. Loop concept to relieve the congested downtown area

7.6 RECOMMENDATIONS FOR FUTURE STUDIES

7.6.1 The Binational Transportation Planning Committee

The recommendations for future studies in the Texas/Mexico border outlined in this section are based on the binational transportation planning perspective, and assume open channels of communication among all interested parties in both countries.

One possible way to successfully implement a binational transportation plan for the U.S./Mexico border would be to create a committee composed of federal, state, and local officials in the U.S. and Mexico to represent the various interested parties. The committee would also include representatives of research organizations to act as technical consultants. This binational, multi-agency committee would ensure that all responsible parties have their interests represented, and that they cooperate in data collection and/or release. This committee would also ensure that no public money is wasted in redundant studies and data collection efforts, and that any new proposed infrastructure serves the national interests of both countries and does not create serious burdens to any interested party. While the International Coordinating Committee Texas-Nuevo León is a pioneer attempt at the kind of committee recommended here, the ideal committee would encompass all border states in both countries, possibly with subcommittees for each pair of neighbor states.

The following sections identify studies that are needed to enhance the understanding of transportation needs along the border. While these studies can be undertaken by any agency interested in transborder transportation, their usefulness would be enhanced by having the cooperation of all agencies involved in border-crossing issues.

7.6.2 Border Travel Survey

Travel characteristics associated with households and businesses have traditionally shaped U.S. transportation planning. Such travel characteristics include origin and destination, trip production, and attraction rates by land use type, trip types by time of day, trip frequencies, route decision criteria, mode choices, and number of daily trips made per household.

Local and state officials have been collecting travel data at several locations along the border. For example, in 1991, the Brownsville Metropolitan Planning Organization conducted a truck travel survey, a workplace travel survey, a home travel survey, and an external travel survey. In Laredo, the Laredo Development Foundation has conducted a truck origin and destination survey; and, in El Paso, the Texas Department of Transportation will soon be conducting an extensive travel survey.

Because these studies are local in nature, their objectives are unrelated to binational transportation planning. It is thus recommended that a comprehensive travel survey be undertaken of the entire Texas/Mexico border. This border travel survey would first outline the type of data that should be collected (since federal, state, and local officials have different priorities). The results of such a survey would provide a broader understanding of traffic flows, origin and destination patterns, and travel times and frequencies. This survey should include seasonal origin and destination surveys that capture traffic flow patterns and which can identify significant seasonal fluctuation or change in origin and destination pairs.

7.6.3 Environmental Assessment of the U.S.-Mexico Border

The Presidential permit for a binational bridge entry system depends on approval of an assessment of environmental impacts of the proposed bridge. Currently, the parties interested in proposing a new bridge must sponsor and submit an environmental assessment study. Except for

the Rio Grande flood maps provided by the International Boundary and Water Commission, little borderwide environmental information exists.

Conclusions regarding the much-discussed environmental impacts of NAFTA must ultimately depend on assumptions and hypotheses based on post-NAFTA scenarios, the complexity and scope of which go well beyond the mere impacts of additional transportation infrastructure. A much simpler study is proposed here, one that would be jointly sponsored by such agencies as the Environmental Protection Agency, the Fish and Wildlife Bureau of Reclamation of the Department of Interior, the Texas (and other border states') Parks and Wildlife Departments, and by any other agency having environmental and/or border infrastructure concerns (and as many Mexican representatives as possible). The main study objective would be a border-wide assessment of environmental impacts of additional infrastructure over the Rio Grande, including air and water quality, flood plains, wildlife, and vegetation. While this study would not be comprehensive (individual environmental assessments would still be required for each proposed bridge), binational transportation planning would benefit tremendously from such an environmental impacts study.

7.7 SUMMARY OF RECOMMENDATIONS

Recommendations for improving overall traffic circulation in the border region include the following:

(1) Use a system of red-green light on top of the toll and customs primary inspection booths to indicate to approaching vehicles the staffed booths.

(2) Allot an exclusive commercial traffic lane and toll booth for those binational bridge entry systems having heavy commercial traffic.

(3) Consider a dedicated commercial lane for loops around border cities having heavy international truck traffic.

(4) Consider the inspection procedures' limitations when planning for a new binational entry system. Special consideration should be given to staffing capabilities on both sides of the border.

(5) Eliminate traffic congestion caused by trucks awaiting customs' secondary inspection by providing a waiting area away from the bridge, on both sides of the border.

(6) Establish a binational transportation planning program for the border area. This program should be managed by a committee that includes representatives of all organizations involved in border crossing procedures and transportation, as well as disinterested experts from research organizations.

(7) Conduct a border travel survey jointly sponsored by as many agencies as possible on both sides of the border. Data from this survey would prevent duplication of data collection efforts in future transportation planning studies, and could lay the groundwork for the establishment of a binational transportation planning program and related committee.

(8) Conduct a border-wide environmental assessment of new binational entry systems to determine their viability.

7.8 CLOSURE

Efforts to provide binational bridge entry systems at the Texas-Mexico border go well beyond simply designing, building, and operating a bridge. The binational environment, the requirement for several inspection procedures, and the different and sometimes conflicting priorities of all agencies involved make this an extremely complex problem — one that cannot be resolved using solutions that evolved from 19th century concepts.

There is a strong need for coordinated binational planning, and a possible solution may be the creation of an international committee comprised of representatives from all agencies involved in border crossing procedures, supplemented by independent research organization specialists having no direct interest in the provision of border infrastructure.

Additional studies, some of which are recommended in this report, will enhance our understanding of border transportation needs. While any of the recommended studies could be successfully undertaken by a single organization, much time and public money could be saved if these studies were conducted as multi-agency studies, preferably on a binational basis.

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GLOSSARY

GLOSSARY

AADT: Annual average daily traffic

AASHTO: American Association of State Highways and Transportation Officials (Associación Americana de Representantes Estatales de Carreteras y Transportes)

ABI: Automated Broker Interface (Interface Automatizada de Agentes Aduanales)

ACR: Automatic Cumulative Recorders

ADT: Average daily traffic

Aduana Fronteriza: Mexican Customs

AFIS: Automated Fingerprint Identification System (Sistema Automatizado de Identificación de Huellas Digitales)

AMS: Automated Manifest System (Sistema Automatizado de Manifestos)

APHIS: Animal and Plant Health Inspection Service (Servicio de Inspección Sanitaria de Animales y Plantas)

ATR: Automatic Traffic Recorders (Estaciones Automatizadas de Aforo de Vehículos)

AVC: Automatic Vehicle Classification (Estaciones Automatizadas de Clasificación de Vehículos)

Binational Entry System: A system comprised by the boundary between two countries, and the border stations and inspection facilities in both countries (Sistema Binacional de Entrada).

Binational Bridge Entry System: A binational entry system wherein two countries are linked by a bridge.

Binational Dam Entry System: A binational entry system where the two countries are linked by a dam.

Border Crossing: A binational entry system where the border is only an imaginary line (Cruze Fronterizo, Cruze Internacional).

BOTA: Bridge of the Americas, El Paso, Texas (Puente Cordova, Juarez)

BRINSAP: Bridge Inventory, Inspection, and Appraisal Program (Programa de inspección e Inventario de Puentes)

CAPUFE: Caminos y Puentes Federales de Ingresos y Servicios Conexos (Federal Toll Roads, Bridges and Related Services)

Caseta: Booth

Cd.: Ciudad (city)

CES: Centralized Inspection Station (Estación Centralizada de Inspección)

CET: Contraband Enforcement Team (Agentes de Control de Contrabando)

Chih.: Chihuahua

CILA: Comisión Internacional de Límites y Aguas (International Boundary and Water Commission)

CIS: Central Index System (Sistema Central de Información)

Coah.: Coahuila

CRA: Charles Rivers Associates

CTR: Center for Transportation Research (Centro para la Investigación del Transporte)

DBMS: Data Base Management System

DEA: Drug Enforcement Agency (Agencia de Control de Drogas)

DGF: Dirección General de Fronteras (General Office of Borders)

DOT: Department of Transportation (Departamento del Transporte)

DPF: Departamento de Puertos Fronterizos (Department of Border Ports)

DPS: Department of Public Safety (Departamento de Seguridad Publica)

Economic Activity Center: Areas sharing a range of socioeconomic indicators, such as population, retail sales, employment by industry, and maquiladora activity (Centros de Actividad Economica).

EOIR: Executive Office for Immigration Review (Oficina Ejecutiva de Inmigración)

EPA: Environmental Protection Agency (Agencia de Protección Ambiental)

ETZ: Extra-territorial Zone (Zona Extraterritorial)

FDA: Food and Drug Administration (Departamento de Alimentos y Drogas)

FHWA: Federal Highway Administration (Dirreción General de Carreteras Federales)

FIDENOR: Fideicomiso Para el Desarrollo del Norte del Estado de Nuevo León (The

Development Trust of Northern Nuevo Leon)

FNM: Ferrocarriles Nacionales de Mexico (National Railroads of Mexico)

FWS: Fish and Wildlife Service (Departamento de Pesca y Vida Silvestre)

GAO: General Accounting Office (equivalente norteamericano a la Secretaría de Hacienda y Crédito Público)

Garita: Checkpoint

GATT: General Agreement on Tariffs and Trade (Acuerdo General sobre Aranceles)

GIPSF: Grupo Intersecretarial de Puertos y Servicios Fronterizos (Inter-Departmental Group of Border Ports and Services)

GNB: Good Neighbor Bridge (Puente Reforma), El Paso, Texas

GSA: General Services Administration (Departamento de Servicios Generales)

IBWC: International Boundary and Water Commission (Comisión Internacional de Límites y Aguas)

I&C: Inspection and Control (Inspección y Control)

ICC: Interstate Commerce Commission (Comisión Interestatal de Comercio)

IM3: Institute for Manufacturing and Materials Management (Instituto de Manufactura y Administración de Materiales).

INEGI: Instituto Nacional de Geografía y Estadistica

Ing.: Ingeniero (engineer)

INS: Immigration and Naturalization Service (Servicio de Inmigración y Naturalización)

ISTEA: Intermodal Surface Transportation Efficiency Act (Ley para el Eficiente Transporte Intermodal Terrestre)

K9: Trained dogs used at the border (Designación de los perros entrenados utilizados en la frontera)

LDF: Laredo Development Foundation (Fundación para el Desarrollo de Laredo)

Lic.: Licenciado (a college graduate in Law, Business Administration, Marketing, and other related areas)

LLTV: Low Light Level Television, a type of surveillance camera used by U.S. border patrol.

(televisión de bajo nivel de luz, un tipo de camera de vigilancia utilizada por la patrulla fronteriza de Estados Unidos)

MEX: Mexican Federal Highway (designación de las carreteras federales mexicanas)

NAFTA: North American Free Trade Agreement (Tratado de Libre Comercio)

NCIC: National Criminal Information Computer (computadora nacional de informacíon criminal).

N.L.: Nuevo León

O/D: Origin and Destination (Orígen y Destino)

PHS: Public Health Service (Servicio Público de Salud)

PDN: Paso Del Norte Bridge, El Paso, Texas

PDP: Project Development Plan (Plan de Desarrollo de Proyetos)

POE: Port of Entry: A place where the entry of people and goods is allowed from one country to the other after going through inspection agencies, such as customs, immigration, etc. A port of entry could be comprised of one or more binational entry systems under the jurisdiction of one port.

POV: Privately owned vehicle (vehículo particular)

PPQ: Plant Protection and Quarantine (Protección y Quarentena de Plantas)

Presa: Dam

Puerto Fronterizo: The Mexican facilities of a binational entry system. This is not the Spanish equivalent of "port of entry."

SAAI: Sistema de Automatización Aduanero Integral (Integrated System of Customs Automation)

SARH: Secretaría de Agricultura y Recursos Hidráulicos (Department of Agriculture and Water Resources)

SCT: Secretaría de Comunicaciones y Transportes (Department of Communications and Transportation)

SDS: SAS data set

Sector: Sphere of influence of an economic activity center where the potential demand (and revenue) of any new transportation artery falls within a certain range that has no elasticity with respect to the sector boundaries.

Sectur: Secretaría de Turismo (Department of Tourism)

SED: Shippers Export Declaration (Declaracíon de Exportación)

SEDESOL: Secretaría de Desarrollo Social (Department of Social Development)

SG: Secretaría de Gobernación (Department of the Interior)

SH: State Highway (designacion de carreteras estatales en Texas)

SHCP: Secretaría de Hacienda y Crédito Público (Department of Treasury and Public Finance)

SP: Southern Pacific Railroad (Ferrocarril del Pacífico Sur)

SRE: Secretaría de Relaciones Exteriores (Department of Foreign Affairs).

Supercrossing: A multimodal binational entry system served by up-to-date equipment designed to efficiently handle commercial traffic, as well as to speed up the border crossing procedures for both commercial and noncommercial traffic (Cruze del futuro)

TAM.: Tamaulipas/Road in Tamaulipas

TAMP: Tamaulipas

TIB: Temporary Importation Under Bond (Importación Temporal con Depósito de Fianza)

TIP: Transportation Improvement Program (Programa de Mejoramiento del Transporte)

TLC: Tratado de Libre Comercio Norteamericano (NAFTA)

Trade Corridor: The area encompassing all possible existing and idealized commercial routes between two major commodity production and/or attraction areas.

Traffic Generating Areas: Economic Activity Center

Transborder: (1) Movement of people and/or goods across the border, as in "transborder traffic," or (2) database developed by the Center for Transportation Research.

Transborder Activity Center: Activity Center encompassing both sides of the border.

Transportation Corridor: The area encompassing existing and idealized routes between a major area of traffic production and a major area of traffic attraction.

TRC: Texas Railroad Commission (Comisión de Ferrocarriles de Texas)

TTA: Texas Turnpike Authority (Departamento de Infrestructura de Cuota de Texas)

TTI: Texas Transportation Institute (Instituto del Transporte de Texas)

TxDOT: Texas Department of Transportation (Departamento del Transporte de Texas)

UP: Union Pacific Railroad ("Union Pacific" Ferrocarril)

USCG: United States Coast Guard

USCS: United States Customs Service (Departamento de Aduanas)

USDA: United Stated Department of Agriculture (Departamento de Agricultura)

UTEP: University of Texas at El Paso

VS: Veterinary Service (Servicio Veterinario)

WIM: Weight in Motion

WSA: Wilbur Smith Associates