

BINATIONAL BORDER TRANSPORTATION PLANNING AND PROGRAMMING STUDY

Task 17 Binational Data Bank

*Prepared for
The Joint Working Committee*

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BINATIONAL BORDER TRANSPORTATION PLANNING AND PROGRAMMING STUDY
TASK 17: BINATIONAL DATA BANK

This report describes the Binational Data Bank which was established as a part of the Binational Border Transportation Planning and Programming Study. The purpose of the Binational data bank was to provide a resource for the ongoing and future Binational transportation planning. The report documents the existing data sources identified during the study, the development of the Internet site used to access the data bank, the data elements suggested for inclusion in the data bank, and a data bank work program for 1998.

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Preface

U.S./Mexico Binational Border Transportation Planning and Programming Study implements a significant binational policy making document entitled "Memorandum of Understanding on the Planning Process for Land Transport on Each Side of the Border" signed by the federal governments of Mexico and the United States at the first "NAFTA Transportation Summit" held in Washington, D.C., April 29, 1994.

The purpose of this study is to provide policymakers with information needed to establish a continuous, joint, binational, transportation planning and programming process. A goal of this study is to improve the efficiency of the existing binational policy making planning procedures and funding criteria affecting our Border Land Transportation Systems (BLTS). The BLTS should be seen as a binational transportation system made of international bridges and border crossings and land connections to major urban and/or economic centers, principal seaports, airports and multimodal/transfer stations, and ultimately, to national transportation facilities.

Disclaimer

The purposes of the Binational Planning and Programming Study and all of its reports were: to investigate current state and national transportation planning processes in both the United States and Mexico, to review available data on border transportation infrastructure and goods movement, and to recommend an ongoing, binational planning and programming process. The information contained in these reports was not developed to serve as the basis for making funding allocation or distribution decisions at either the federal or state level in the United States.

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17.1

Introduction

Since the Joint Working Committee is charged with improving Binational planning and programming of transportation systems along a two thousand mile border, the timely exchange of available data is an important factor. Therefore, a primary objective of the Binational Border Transportation Planning and Programming Study was to establish a data bank of information which could be ultimately maintained and used by the Joint Working Committee in their ongoing planning activities.

The data bank consists of data which comes in both electronic and hard copy formats. In addition, the data bank includes information about where additional information can be found. The types of information included in the data bank include:

- inventories of transportation networks,
- historic transportation volume data,
- border crossing inventories and volumes of flow,
- Binational U.S.-Mexico trade data, and
- reference data (reports and related data sources).

In order to facilitate access, the Internet was to be used as a tool to facilitate the dissemination of data to the various study participants and to provide direct access to the data bank. Two Internet sites were established as a part of the study to provide access in English and Spanish. These Internet sites and the data contained in them will be turned over to the Federal Highway Administration (FHWA) and Secretariat of Communications and Transportation (SCT). These agencies will maintain the sites on behalf of the Joint Working Committee.

This report contains the following:

- Chapter 2 is a description of the various data sources identified and data collected, the products of the study, and the Internet sites which were established for the Joint Working Committee.
- Chapter 3 describes the future binational data needs.
- Chapter 4 describes the data index and document index which were created as a part of the data bank and outlines the data bank activities which should be undertaken during the upcoming year.

This report combined with the data bank files and Internet web sites/servers represent the Task 17 study product.

17.2

Existing Binational Data

This chapter describes the existing binational data identified by and used during the Study. There is also a section which describes the various study products (reports) which either compile and summarize existing data, present new data collected, or describe analytical methodologies which use the available data. Finally, there is an overview of the design and content of the binational Internet sites which were established as a part of the study

17.2.1 Existing Sources

This section describes the various transportation and international trade data sources identified during the Study. National, state and local governmental agencies were contacted in both countries regarding potential sources of data related to the Study's various tasks. In addition, private companies and trade organizations were also contacted for specific information related to their activities.

Mexico

In Mexico, most of the collection and compilation of data related to the study is performed by Federal agencies. While these Federal agencies have offices which are located in the states and border communities, most of the data is ultimately stored in the Mexico City offices. This process consolidates the information and makes it more readily accessible than in the United States where much of the data is stored only at the state or local levels.

Department of Treasury and Public Credit (*Secretaria de Hacienda y Credito Publico - SHCP*) - The Directorate General of Customs is the primary source of information related to binational commodity flows within SHCP. This office is responsible for regulating and monitoring all cross border goods movement, as well as approving the amount of taxes and duties levied. The individual border customs offices are responsible for reviewing, authorizing and registering the documentation required for commodities being exported to or imported from Mexico. Each border customs office forwards this information to the Central Office of Data Processing within the Directorate General of Customs on a monthly basis. The data from these monthly reports are compiled into a single, 64-field database which contains the information from all the custom offices. A listing (Spanish only) of these fields is available in the project files. The information is stored on a magnetic tape distributed to the following organizations: Bank of Mexico (BANXICO), Secretary of Commerce and Industrial Development (SECOFI) and the National Institute of Statistics, Geography and Information (INEGI).

There is an External Trade Statistics Committee, chaired by INEGI, with the Directorate General of Customs, Bank of External Commerce (BANCOMEXT), SECOFI and BANXICO as members. The tasks of this committee include the review and reconciliation of Mexican trade statistics both internally, within the governmental agencies of Mexico, and externally, with statistics reported from other countries especially the United States.

Secretariat of Commerce and Industrial Development - (*Secretaria de Comercio y Formento Industrial - SECOFI*). The disaggregated data provided by SECOFI for the 1992-1995 period contains detailed information on Mexican imports from and exports to other countries classified by operation type or customs regime: definitive, maquiladora and temporary.

Diskettes containing monthly data stored in a 15-field database was provided by SECOFI. A separate database for imports and exports was provided for each month of the period from 1992

to 1995. Each database contained the information on the documentation processed at each of the different customs offices. It should be noted that SECOFI does not have complete (disaggregated) information for each year, however, total values were provided for the four years.

SECOFI also provided the Mexican Foreign Trade Information System (SICM) which includes information on Mexican imports and exports for a four year period (January 1992 - September 1995). This system was updated on a monthly basis and was geared toward providing information to the general public.

SICM includes information by tariff code of Mexican imports and exports by country, type of operation, volume, and value in dollars. It presents the information in graphic format and comparative charts of the movements by country. It does not provide information regarding origin and destination, point of border crossing, or transportation mode.

Bank of Mexico (*Banco de Mexico* - BANXICO). Banco de Mexico receives a magnetic tape from SHCP on a monthly basis that contains the registry of goods that have been imported and exported. BANXICO then validates the information on oil (incorporating information from PEMEX), the automotive industry and agricultural products.

The information available from BANXICO is related to Mexican foreign trade from 1991-1995 which is reported on a monthly basis in thousands of U.S. dollars categorized by customs regime: maquiladora, traditional trade and total. The commodity classification used is the International Industrial Classification System which does not coincide with the system used by SECOFI. The information provides totals by industrial sector.

The BANXICO information regarding person flows across the Mexico-U.S. border is based on an International Traveler Survey which records the number of travelers and their expenses. The survey is conducted in ten border cities and collects three categories of information: a) residents of the border area, b) residents of the border state, and c) residents of other states. Two additional levels of disaggregation are available: tourists (with a stay of less than 72 hours) and excursionists (with a stay of longer than 72 hours). It is important to note that even when it is possible to distinguish between persons that cross the border on foot and the those that cross via car, it is not possible to determine the number of vehicles that cross the border through this data source.

Mexican National Railroad (*Ferrocarriles Nacionales de Mexico* - FNM). Information regarding international rail movements is maintained by FNM. When the initial data collection was conducted, current information was unavailable because the FNM is going through a privatization process. However, some historic data was identified which was useful to the Binational Border Transportation study.

FNM generates a series of maps on an annual basis that delineate the main routes of the system. For each route segment, the average number of trains and the number of empty versus loaded rail cars is presented. In addition, the number of gross and net tons moved on each segment are shown by (varying) band-widths along each route.

FNM also generates statistics in two reports (referred to as E-2 and E-6) regarding freight movement in Mexico. E-2 presents domestic (internal) freight movements and E-6 presents foreign imports and exports by railway. The statistics contained in the E-6 report include two types of monthly data:

- information by city pair for imports and exports broken down by commodity, tonnage, and number of rail cars, and
- information by customs office broken down by commodity, tonnage and number of rail cars.

A nearly complete set of these statistics is available in database format or printed form for the period from 1991 to 1995. At the time of the data collection effort, FNM was in the process of privatization. Therefore, it was not possible to obtain information beyond 1995 due to confidentiality.

Directorate General of Ports and Directorate General of Merchant Marine (*Dirección General De Puertos Y Dirección General De Marina Mercante - DGP / DGMM*). Historic information for ports was available from the Directorate General of Port and Merchant Marine within the Secretariat of Commerce and Transportation for: a) vessels served in 1991 for four Mexican ports (Manzanillo, Lazaro Cardenas, Tampico & Veracruz); b) statistical data for 107 Mexican ports for 1993 and 1994; c) port movement statistics of cargo and passengers for the main Mexican ports from 1990 to 1995; and d) origin - destination information for imports and exports through the ports in 1991. This agency has been subsequently divided into two different Directorate Generals, the Directorate General of Ports and the Directorate General of Merchant Marine.

In addition to the above data, origin and destination information on imports and exports is available for 1991. This information is available in database format and is divided into "high sea" and "cabotage" movements for 15 Mexican ports. (High sea movements are those movements between two countries while cabotage movements are entirely within one country's territorial waters.) The Directorate General of Ports provided the report entitled *Statistical Report on Cargo and Passenger Movements in the Main Ports* which contains information for 1990 and 1995. The information found in these reports is expressed in volumes of operation, served vessels and containers managed by each port.

Federal Toll Highways and Bridges (*Caminos Y Puertos Federales - CAPUFE*). CAPUFE provided information on traffic volumes at the international border crossings which they manage. The information was provided in an electronic file and includes historic traffic volumes by type (pedestrians and vehicles) through the year 1994 summarized on a monthly basis. The data includes 11 border crossings and are for the northbound (Mexico to the United States) direction. The data is broken down by tariff by axle, regardless of whether the vehicle is empty or loaded. The information is primarily for the Mexico/Texas portion of the border, because most of these crossings are on international bridges.

Airports and Auxiliary Services (*Aeropuertos Y Servicios Auxiliares - ASA*). ASA is the only public source of information for the Mexican Airport Network. The information (available up to 1993) is produced periodically and includes 58 airports in Mexico. This information source includes the primary physical and operating characteristics of the airports, including deplaned cargo and passengers by traffic type. Based on documents presented by ASA, an Excel spread sheet was been created that contains information for the period from 1992 to 1993.

National Institute of Immigration (*Instituto Nacional De Migracion - INM*). INM is an agency within the Secretariat of the Interior (SEGOB) and is responsible for generating a migration statistics document on a periodic basis. Most of the information contained in this document is sent to INM central offices by the regional and local delegations. This information records monthly migration movements, such as migration flow, filings, foreigners expelled or rejected, and entrances of nationals that are deported from the U.S. The information is based on *documented* migration flow. The exit or entrance of persons is recorded by the different migration status without reference to the date on which the migration status was granted. Foreigners that enter the country illegally are not included, nor are entrances of nationals that reside in the northern border area, who are freely permitted to move back and forth across the border. Monthly migration flow is included, as is tourist flow by type and by month.

National Institute of Statistics, Geography, and Information (*Instituto Nacional de Estadística, Geografía e Informática* - INEGI). INEGI publishes geographic and statistical information, on an ongoing basis, which is available for public use. In addition, INEGI has developed a data bank, where employment, economic and financial statistical data can be accessed. The information in the data bank is classified into 18 main categories. The primary classifications of the data are: economic indexes, gross domestic product (GDP), supply and demand, construction sector, commerce sector, transportation and communication sector, public finances, employment, external sector, state gross domestic product, methodologies and studies, etc.

In addition, INEGI has cartography such as land use, topography, physical geography, agriculture, and land use. INEGI generates socio-demographic information from census, surveys, and administrative registers, classified in seven topics: population and dynamic demography, people who speak native languages, vital matters, house income and outcome, employment, training and education, health, social security and public safety, and methodology and studies.

College of the Northern Border (*Colegio De La Frontera Norte* - COLEF). COLEF has information obtained through a Migration Survey on the Mexican Northern Border. This survey was carried out jointly with the Consejo Nacional de Población and the Secretaría de Trabajo y Previsión Social. Information is available from March 1993 through March 1994 in a database form.

United States

Data related to Binational Border Transportation Planning and Programming in the United States are maintained at the Federal, State and local level. Foreign trade and economic data is primarily collected and maintained at the Federal government while transportation infrastructure and traffic demand data are collected and maintained at the State and local levels. The U.S. border states have state agencies which collect and compile socioeconomic data for their individual state as well as make projections of future trends. Transportation infrastructure project planning and programming information is developed at the State and local levels only.

Federal Agencies

Department of Commerce - Bureau of the Census. This agency compiles all import and export data for the United States using data collected by the U.S. Customs Service at each port of entry. The Bureau of the Census includes information on the value and quantity of trade by commodity. The Bureau of the Census also shares the responsibility (with the U.S. Geological Survey) for maintaining the Topographically Integrated Geographically Encoded and Referenced (TIGER) data files which contain the transportation networks (highway and rail) and jurisdictional boundaries for the United States.

Department of Commerce - International Trade Division. This agency is responsible for preparing special summaries and reports on U.S. foreign trade. Most of the reports are based on the data published by the Bureau of the Census, however, some special surveys have been conducted in the past. Currently, budget constraints have reduced the number and frequency of reports being prepared by this agency.

Department of Treasury - U.S. Customs Service/Department of Justice - Immigration and Naturalization Service. The U.S. Customs Service is responsible for enforcing the import and export laws of the United States. In this role they collect statistics related to the commercial vehicle traffic entering and exiting the United States. The U.S. Customs Service shares the responsibility for controlling the flow of people into the United States with the Immigration and Naturalization Service. Data on the number of pedestrians and passenger vehicles are collected

by Customs and INS and are maintained by the regional Customs Service Centers located through out the United States.

Department of Transportation - Bureau of Transportation Statistics. The Bureau of Transportation Statistics (BTS) uses the same data collected by U.S. Customs for the Bureau of Census, but compiles the data based of various transportation parameters such as mode, origin and destination (at the state level), and commodity by port of entry. In addition to the trade data, BTS distributes the TIGER data files prepared by the Bureau of Census and prepares and distributes the National Transportation Atlas Database (NTAD) on an annual basis. The roadway portion of the NTAD is provided by FHWA and is called the National Highway Planning Network.

Federal Aviation Administration. The Federal Aviation Administration (FAA) maintains data for airports in the United States. The FAA publishes an annual report (*FAA Airport Activity Statistics of Certificated Route Air Carriers*) summarizing the characteristics and operational statistics for virtually all U.S. airports.

Army Corps of Engineers. This agency maintains data on the characteristics and operational statistics for U.S. ports. The Corps publishes an annual report called *Waterborne Commerce of the United States*.

State Agencies

Each of the U.S. state departments of transportation collect and maintain data related to their transportation networks. This information is used for both operational and planning/programming purposes. Each of the four US border states maintain geographic information systems which describe the location and types of roadways within their transportation networks. Each state also collects traffic volume and vehicle classification data on a regular basis.

Arizona Department of Transportation - Transportation Planning Group. The Transportation Planning Group within the Arizona Department of Transportation (ADOT) is responsible for collecting and maintaining data on the Arizona roadway network within the border region. The TPG is also responsible for preparing the state's plans and programs.

Arizona Department of Economic Security. This agency maintains the population forecasts for the state of Arizona. Any planning studies conducted by ADOT requiring population data must use the ADES data.

California Department of Transportation (CALTRANS) - District 11. CALTRANS District 11 Office is the state agency responsible for the collection and maintenance of data on the transportation network, planning and programming for the border region in California.

New Mexico State Highway and Transportation Department - Transportation Planning Division. This agency is responsible for collecting and maintaining transportation data in the border region of New Mexico.

Texas Department of Transportation - Transportation Planning and Programming Division. The Texas Department of Transportation (TxDOT) collects and maintains data on the border transportation region in Texas. In addition, this division is responsible for preparing the state's annual transportation plan.

Texas Department of Commerce. The Texas Department of Commerce (TDC) is responsible for collecting and maintaining socioeconomic data for the state of Texas. The agency also prepares projections of population growth and trade for the state.

Local Agencies

In the United States there are several potential local sources of transportation data. These agencies include cities, metropolitan and regional planning organizations, and, in Texas, private

and public bridge operators. All of these local agencies collect and maintain data which can be used for binational border transportation planning. The following is a list of the major local planning organizations that may be potential border transportation data sources:

- San Diego Association of Governments (SANDAG)
- Southern California Association of Governments (SCAG)
- Imperial Valley Association of Governments (IVAG)
- Yuma Metropolitan Planning Organization (YMPO)
- Pima Association of Governments (PAG)
- Las Cruces MPO
- El Paso MPO
- Laredo MPO
- McAllen-Pharr-Edinburg MPO
- Harlingen-San Benito MPO
- Brownsville MPO

The following bridge owners/operators maintain traffic count data that would be of potential use in binational border transportation planning:

- Cities of El Paso, Del Rio, Eagle Pass, Mission, Hidalgo, McAllen, and Pharr
- Laredo Bridge System
- Texas Department of Transportation
- International Boundary and Water Commission (US Section)
- Starr County
- Starr-Camargo Bridge Company
- B & P Bridge Company of Welasco
- Cameron County International Bridge System
- B & M Bridge Company

17.2.2 Binational Study (Data) Products

The Binational Study has produced a number of reports related to the various study tasks. The individual reports will become a part of the Binational Document Library. In addition, data compiled and summaries prepared for these reports will be available within the Binational Data Bank. The data used in the Binational Study represent a “point in time” or “snapshot” of binational information. The usefulness of this data will fade unless it is maintained and updated on a regular basis. The reports from the Binational Study document the methodologies used to analyze the available data and represent a resource for future analyses.

The list below contains the titles of the products of the Binational Border Transportation Planning and Programming Study. The study phase and task are indicated on the right. Phase I products represent the existing conditions based on the information available when the inventories were conducted. The Phase II reports document the various analyses performed using the available data. Phase III documented the analytical techniques and described future trends in U.S.-Mexico binational trade. Phase IV documents the on-going planning and programming process.

- Annotated Bibliography Phase I Task 1

- | | | |
|--|-----------|----------|
| • Inventory of Transportation Facilities (3 reports) | Phase I | Task 2 |
| • Inventory of Port of Entry Facilities | Phase I | Task 3 |
| • Description of Commercial Motor Vehicle Trade Flow Process | Phase I | Task 3.1 |
| • The Transportation Planning and Programming Process | Phase I | Task 4 |
| • Trade & Passenger Flows | Phase I | Task 8 |
| • Analysis of Public & Private (Transportation) Investment | Phase II | Task 6 |
| • Economic Impacts of U.S.-Mexico Binational Trade | Phase II | Task 10 |
| • Changes in U.S.-Mexico Cross Border Trade Flows | Phase II | Task 11 |
| • Methodologies for Estimating Future Trade Flows | Phase III | Task 12 |
| • Methodologies for Measuring Border Crossing Efficiency | Phase III | Task 13 |
| • Methodologies for Estimating Economic Costs and Benefits | Phase III | Task 14 |
| • Continuing Transportation Planning & Programming Mechanism | Phase IV | |

Appendix A contains copies of the abstracts for each of the Binational Border Transportation Planning and Programming Study reports listed above.

17.2.3 New Data Collection

There were two types of new data collected during the Study. These data were related to the current planned and programmed transportation projects and traffic (operations) data at six commercial port of entries. The following sections briefly describe the type of data that was collected. This information will be included in the Binational Data Bank.

Transportation Planning and Programming Data (Task 6)

In order to assess the compatibility of the planned and programmed transportation projects on both sides of the border, it was necessary to compile a list of the projects. Each agency submitted a list of projects to the consulting team which was entered into a database. Each project was assigned a geographic reference point (project centroid) so that it could be mapped using a geographic information system. The mapping of the projects made it possible to quickly see the relationship of the projects on each side of the border. The compilation and mapping of border transportation projects represented a new form of data collection and consolidation.

Port of Entry Case Study Surveys (Task 9)

The port of entry case studies collected new data on the traffic patterns at five of the six case study locations. Vehicle counts were taken at the following locations in the border crossing compounds on 5-minute intervals:

Northbound

- Arrivals in Mexico at the end of the queue
- U.S. Primary Inspection Booths
- Entry to U.S. Secondary Inspection
- Exit from U.S. Secondary Inspection
- Exit from U.S. Compound

Southbound

- Mexican Document Inspection Booths
- Mexican Primary Inspection (time in and out)
- Mexican Secondary Inspection (time in and out)

The raw data and summary tables are included in the on-line data bank. The Task 9 report documenting the results of the surveys and opportunities to improve the crossing efficiency is included in the document library. The processing rates presented in the Task 13 report were derived from the field data collected at the case study locations.

17.2.4 Binational Websites

One of the challenges in performing binational transportation planning activities is timely data sharing between multiple agencies which are located over a large geographic region. As a part of the Binational Border Transportation Planning and Programming Study, a relatively new approach was proposed for facilitating information sharing between the study participants. The approach was to use the connectivity offered by the Internet to provide data to participants who were spread out over a large geographic area and on two sides of an international border.

Development of Internet Sites

At the beginning of the Study, two Internet (Web) sites were created: one in the United States (English) and another in Mexico (Spanish). These sites were to serve several institutional functions such as:

- provide a central location (data bank) for distributing data related to the existing border transportation systems,
- provide a location to distribute data related to planned and programmed transportation improvements, and
- provide information related to communications between the professionals responsible for border transportation planning.

These sites were designed to provide access, in two languages, to the same data sets. The technologic advantage of developing and using these Internet sites for the study are twofold:

- any data stored on the sites are accessible to any of the participating agencies, and
- available on-line data accessible from any of the participating agencies can be linked (referenced) directly to the sites. (Eliminating the need to copy and update data from these agencies.)

Two specific activities were carried out to establish this electronic data sharing forum:

- The consulting team established two permanent nodes which were directly linked to the Internet. This type of link insured that there would be high speed access to the sites via the Internet.
- Established Internet connections for all members of the Joint Working Committee (JWC) via telephone (dial-up) connections to an existing Internet node in local community.

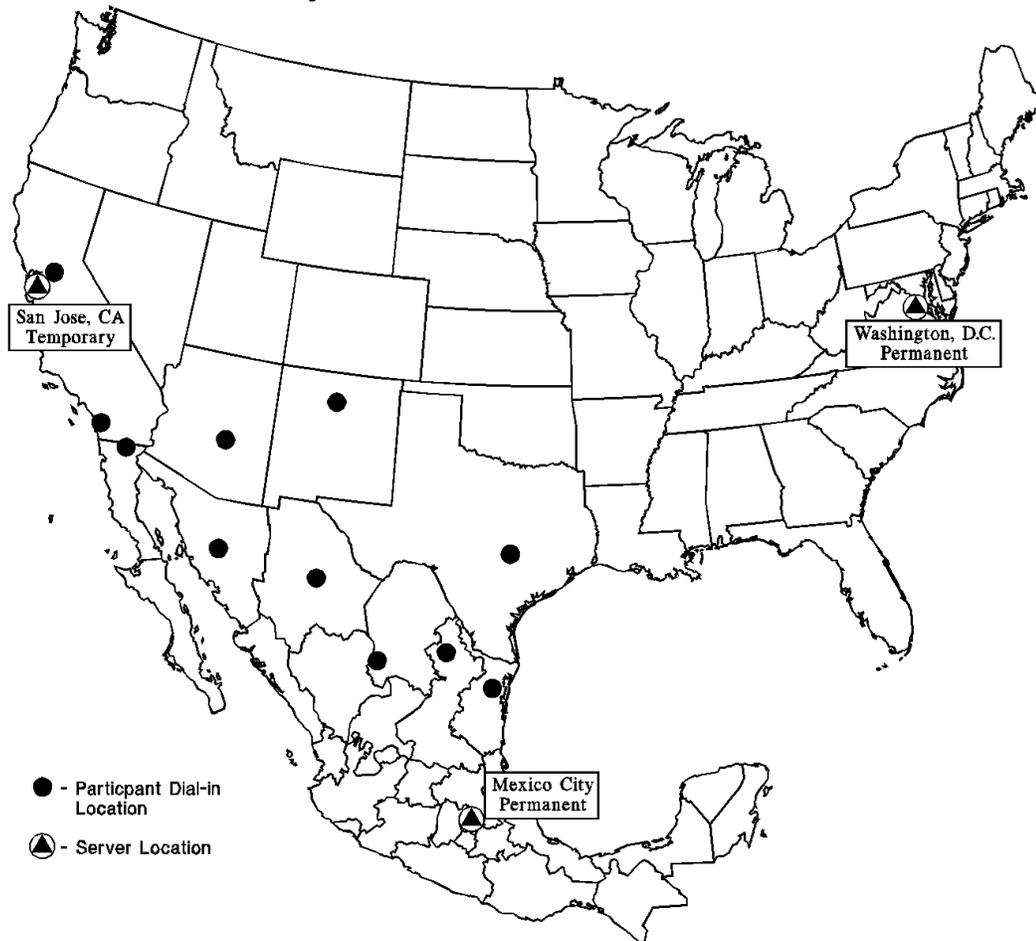
By July 1996, the two above activities were completed. Figure 17.1 shows the major geographic locations which could be linked through the Internet. The two server locations were in Mexico City and San Jose, California. For the duration of the study, the following Internet site names (electronic addresses) were used:

- Mexico (Spanish Version): www.transpbin.mpsnet.com.mx
- United States (English Version): www.bartonaschman.com

It should be noted that the location of the permanent English language version of the binational web site will be located in Washington, D.C. following and have the following address after the transition:

- United States (English Version): www.fhwa.dot.gov/binational

Figure 17.1 Binational Study Internet Connections



Description of the Binational Web Site

As currently implemented, the binational Home Page (English Version) is a series of hypertext markup language (HTML) files which contain either information in the form of text/graphics or a combination of text/graphics with hyperlinks to other pages. For the purposes of this discussion the following terms will be used to describe or categorize pages:

- **navigation page** - A HTML file containing some explanatory information with hyperlinks to other navigation pages or data pages.
- **content page** - A HTML file containing a link to download data from the binational server or present on-screen some level of data from the Binational Transportation Study

Figure 17.2 shows the site map indicating the major navigation and content pages. From the binational “home page” (both the English and Spanish versions are shown in Figure 17.3), there are four major functions which are accessible using the buttons on the center of the page:

- Document Library
- Communications
- Study Sponsors

- On-Line Data

The Communications and Study Sponsor pages are content pages containing a list of study participants, email addresses, and a list of the U.S. agencies involved in the study, respectively. The list of U.S. agencies provides a hyperlink to any involved agency that currently has an Internet site (home page). The Document Library and On-Line Data buttons are navigation pages which lead to the bulk of the site in terms of data access.

Document Library

The Document Library page has three options: Description of the Study, Other Internet Resources, and Study Products. The Description of the Study is a short summary of the purpose of the Binational Border Transportation Planning and Programming study. Other Internet Resources provides a listing of hyperlinks to government and private agencies which are involved in border transportation related activities and are therefore potential data sources. The Study Products page is a navigation page used for downloading products (reports) from the Binational Study. On this page there is a list the study products with hyperlinks to the appropriate page where the files can be downloaded. (Note: only approved final reports are currently on this U.S. page.)

On-Line Data

The On-Line Data page is a navigation page used to access (download) project data files. Most of these files are either spreadsheets, databases, or GIS files. In addition to the data files, there are HTML files that contain the abstracts from Task 1 and the GIS coverage data from Task 2. Data files which are accessible from the site include the trade data files used for Task 8 and the Port of Entry (POE) survey data collected for Task 9. In addition, the on-line data will include information related to the quantity of goods and economic impacts of binational trade which was generated for Task 10.

Figure 17.2 Binational Internet Site Map

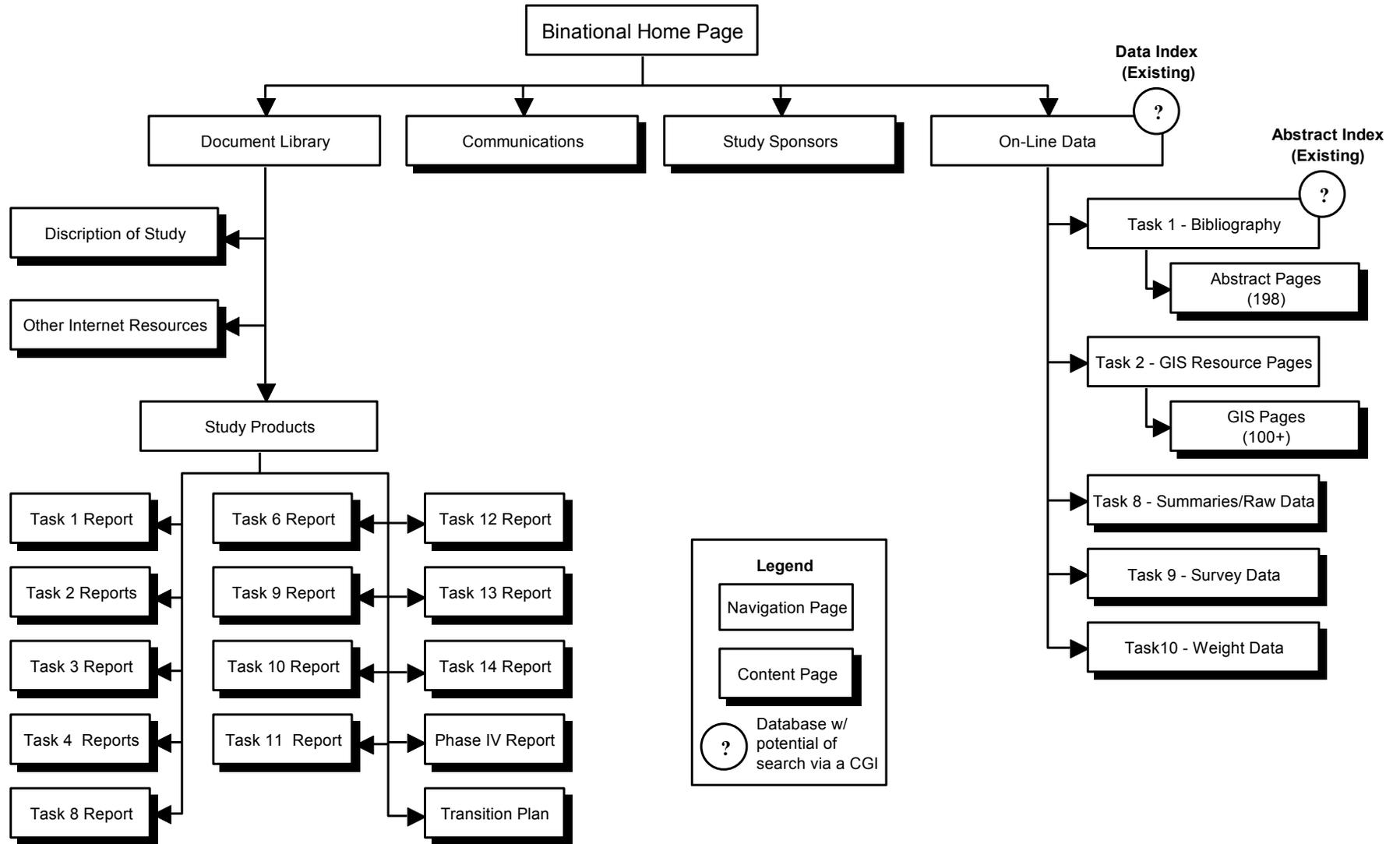
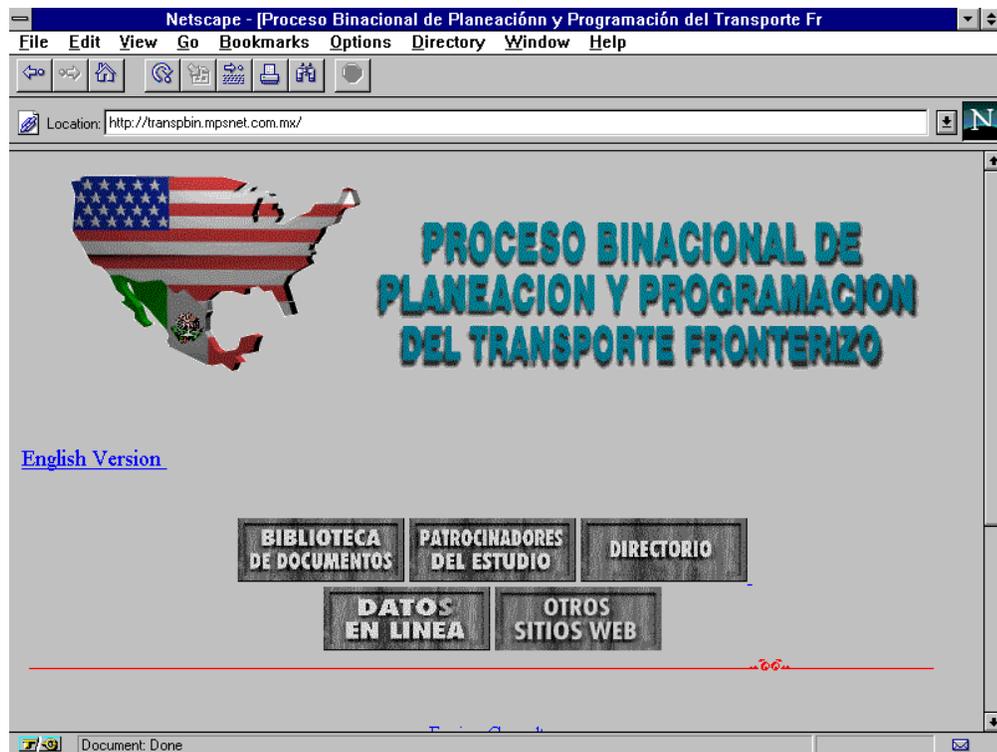


Figure 17.3 Binational Home Pages English and Spanish Versions



Web Site Size

There are between 350 and 400 files that make up the site. About three hundred of these files are HTML scripts that display either the abstracts (prepared for the study) or the geographic information system (GIS) coverage summary pages. The GIS pages contain the information collected for Task 2 which are documented in the GIS users binder distributed to the Joint Working Committee members in May 1996.

The remaining files include the navigation HTML scripts, data files and report files. The data and report files have been compressed into self-extracting archive files to reduce the download time over the Internet. Once the files have been downloaded, they can be uncompressed on Intel-based computers without the need for additional software.

In terms of disk storage, excluding the GIS data files, the site currently uses less than 20 megabytes of space. The HTML files are approximately 2 megabytes of the total space. The bulk of the disk storage will be used for data files.

17.3

Future Binational Data Needs

The study has identified a number of binational data needs. Much of the needed data currently are collected by agencies in the border states and are accessible to binational planners. Some of the information requires additional formatting or aggregation prior to use for binational planning activities. This chapter describes:

- the data which is currently being collected by the participating agencies,
- which of the data currently are the “best” source for planning and programming, and
- what are the unmet binational planning data needs.

17.3.1 Data Categories

All of the participating agencies have existing transportation planning and programming processes which require the collection and analysis of data. The following list identified the primary categories of data considered important to the ongoing binational transportation planning efforts:

- Transportation Systems
 - Highways
 - Railroads
 - Intermodal Facilities
 - Marine Ports
 - Airports
 - Planned and Programmed Improvements
- International Border Crossing Facilities
 - Facility Data
 - Traffic Data
 - Planned and Programmed Improvements
- Trade Data
 - by Mode by Commodity
 - by Mode by Port of Entry
 - by State by Commodity
 - by Port of Entry by Operation.
- Demographic Data
 - Population
 - Employment
 - Income/Economic
 - Education
- Reference Data
 - Administrative
 - Water Features

In Appendix B, Table B-1 lists the suggested data elements which could be used for future binational border transportation planning and programming activities.

17.3.2 Existing Data Sources

Using the list of specific data elements in Table B-1, the consultants identified potential sources for each element. If no source was available it was noted. This list was circulated to the participating agencies. They were asked to identify the source, if any, they used for each data element. The information was then compiled by the consultants for each country. In Appendix C, Table C-1 lists the “best” existing data sources for the purpose of binational U.S.-Mexican transportation planning and programming in each of the major data categories.

17.3.3 Unmet Data Needs & Data Inconsistencies

During the Study, several data gaps were discovered. In addition, several differences in methods of data collection and summary were identified between the two countries and between various agencies. These differences often led to what appeared to be inconsistent data. The following is a list of data issues related to binational planning and programming:

- **Digital Mapping of Transportation Network** - Geographic information systems exist in both countries for the border region (100 km±). These systems adequately describe the regional facilities serving the border region, but often lacked sufficient detail near the actual border crossings. Often local roadways which carry binational commercial traffic were not included or accurately characterized in the maps. The participating agencies should work to improve the digital mapping of local roadways connecting regional highways to the border crossings.
- **Digital Mapping of Planned and Programmed Transportation Improvements** - In both countries data on planned and programmed transportation improvements are primarily available in paper reports. The description of these projects tend to lack specific geographic referencing which would make it impossible to map the location of projects. The mapping of projects provides a means to quickly determine the relationship of transportation improvements on both sides of the border. At a minimum, the participating agencies should provide a geographic reference point (centroid) of planned and programmed projects. It would be more desirable to have geographic reference points for both the beginning and ending points of each project.
- **Trade Data Consistency in Commodity Classification** - While both countries use the Schedule B Tariff classification system, there are inconsistencies in the application of the schedule. These inconsistencies make it virtually impossible to compare data collected by the U.S. and Mexican customs agencies. This inconsistency directly impacts the results of any calculation of volume based on the Schedule B classification since the value of commodity is converted to weight.
- **Trade Data Origin and Destination** - In both countries, the current method for identifying the state of origin and destination is inaccurate and skewed. In terms of estimating the value or volume of trade using a specific crossing, this inaccuracy is not significant. However, in terms of developing or refining logistical practices or estimating binational demand on long haul (regional) facilities, improved accuracy would be desirable.
- **Trade Data Volume Estimates** - Beginning in April 1994, quantity data for imports to the United States has been collected. This data can be used to make estimates of the volume of trade by mode, commodity type, state of origin (Mexico) and destination state (U.S.). At present, the available data cannot be used to estimate volume by port of entry. Currently, no quantity data is collected for U.S. exports (to Mexico).

- **Crossing Vehicles and Pedestrian Counts** - The accuracy and consistency of crossing vehicle and pedestrian counts varies significantly. Southbound passenger vehicle and pedestrian counts are almost non-existent at crossings without toll facilities. Commercial vehicle counts are often inconsistent due to differences in the classification of vehicles.

17.4 Binational Data Bank

17.4.1 Data Index

The data index is a metadata file containing descriptions of the various data sets related to Binational Planning and Programming identified during the Binational Study. Not all of the data sets included in the index were collected or used in the study. The descriptions include information related to the source of the data and its location as well as a description of the content. The data index is a Microsoft Access database table. The database structure of the data index is listed in Table 17.1.

Table 17.1
Data Index Table Structure

Name	Comments
IDNo	Unique ID number for data index
Title	Common or formal name of data set
Type	Highways, Railroads, Foreign Trade, etc.
Subtype	Demand, Supply, Impacts, Reference
Keywords	Standardized keywords
Description	Written description of the data set
MostRecent	Most recent year of data
Period	Date range for multiple years
Format1	Electronic, hard copy, etc.
Format2	Spreadsheet, database, map, etc.
Format3	Other information
Filename	Name of electronic file
Location1	Description of location 1
Hotlink1	Internet address of location 1, if available
Location2	Description of location 2
Hotlink2	Internet address of location 2, if available
Location3	Description of location 3
Hotlink3	Internet address of location 3, if available
SourceAgency	Source Agency: Name
SourceDept	Department
SourcePhone	Phone number
SourceFax	Fax number
SourceEmail	Email address
SourceContact	Contact name, if available
SourceAddress	Mailing address
SourceCity	City
SourceState	State
SourceCountry	Country
SourcePostal	Postal or Zip Code

Source: Barton-Aschman - La Empresa, 1998

17.4.2 Document Library Index

The document library index is a data file containing descriptions of the reports collected in Task 1 of the Study as well as the reports generated by the study. The document library index provides an abstract of each report and source information on the creators of the document and how to obtain a copy of the report. The document library index is a Microsoft Access database table. The table structure of the document library index is listed in Table 17.2.

Table 17.2
Document Library Table Structure

Name	Comments
IDNO	Unique ID Number for document index
TitleSort	Document title for sorting
Title	Formal document title
ISDN	Library of Congress identification number
Contact	Contact person
Source	Source agency
SourceAddr	Source agency address
SourceCity	Source agency city
SourceState	Source agency state
SourceCountry	Source agency country
SourcePostal	Source agency postal or zip code
SourcePhone	Source agency phone number
SourceFax	Source agency fax number
PublDate	Publication date
Notes	Special notes, if needed
Abstract	Abstract of document
Keywords	Standardized key words
Restrict	Publication restrictions
NoPages	Number of pages in document
Price	Price of document, if needed

Source: Barton-Aschman - La Empresa, 1998

17.4.3 Maintenance Activities (Annual Work Plan) for the Coordinating Agencies

In order to insure that the binational data bank is a useful planning tool and accessible to the binational organization members, the data bank administrator has four primary maintenance activities:

1. update the data and document library indexes,
2. compile and distribute selected binational data,
3. prepare and distribute summaries using the available data, and
4. insure that the equipment is maintained properly.

The following is a list of specific activities related to the maintenance of the binational data bank:

A. Update of the Annotated Bibliography

At a minimum, the document library index should be updated on an annual basis prior to the beginning of the planning and programming cycles in both countries. It would be more desirable to update this index on a more frequent regular basis. When a new planning or engineering report is submitted by one of the participating agencies, the report should be reviewed for relevance to the binational planning and programming process and, if relevant, the appropriate information should be added to the document library index.

B. Update the Data Index

At a minimum, the data index should be updated on an annual basis prior to the beginning of the planning and programming cycles in both countries. As with the document library index, it would be more desirable to update this index on a regular basis. When an updated version of a data set is published, the information for that data set should be updated in the data index. If a new data source becomes available it should be added to the data index.

C. Collect Traffic and Pedestrian Volumes for the Border Crossings

This task would involve contacting the federal inspection agencies in both countries and collecting basic traffic and pedestrian count information (northbound and southbound). If the inspection agencies do not have the count information then, where possible, toll bridge operators should be contacted regarding the information. The following counts should be collected for the data bank annually:

- Annual and monthly commercial vehicle counts should be collected. At a minimum, the commercial vehicle counts should be broken down into loaded and empty vehicles. It would be desirable to have the break down by number of axles.
- Annual and monthly passenger vehicle counts should be collected. At a minimum, the passenger vehicle counts should be broken down into automobiles and buses.
- Annual and monthly pedestrian counts should be collected.

Once this data has been collected it should be summarized and placed in the data bank.

D. Collect Data on Planned and Programmed Border Transportation Projects

One of the highest priorities for the data bank should be collection of data on the planned and programmed border transportation projects. Each of the participating agencies would need to be contacted for any list or report on planned or programmed transportation projects. Some of the specific data which would need to be collected would include: type of project, scope of the project, cost, planning or construction status and completion date. This data would be entered into a database and be linked to a geographic information system in order to understand the activities on both sides of the border. If not provided by the source agencies, each project would need to be assigned a geographic reference (centroid) which would allow it to be mapped on a digital base map.

E. Review Digital Base Maps of the Border Region

On an annual basis, the digital maps of each country should be reviewed to insure sufficient detail is provided in the border region. The review should focus on the local roadways connecting the regional transportation system to the border crossings. In the United States, this would involve obtaining the most current version of the National Transportation Atlas Database and reviewing the data submitted by the states to the Federal Highway Administration.

F. Compile or Analyze Data at the Direction of the Joint Working Committee

If the Joint Working Committee identifies specific data analysis needs, then the data bank staff would compile the needed data and perform the appropriate analyses. These analyses might use the methodologies developed during the Binational Study or could be simple summaries of available data.

G. Maintain Internet Site and Equipment

The data bank administrator will need to insure that the binational server is maintained properly and is accessible to the participating agencies. If the data bank resides at one of the participating agencies, this activity will likely be the responsibility of the information technology or information systems department within that agency. If not, the data bank administrator will need to have staff capable to maintain the equipment or contract out for these services.

17.4.4 Maintenance Activities for Participating Agencies

Since the Joint Working Committee chose to use a distributed data approach to the Binational Data Bank, each of the participating agencies must make a commitment to keep their data update-to-date and insure accessibility of the available data. Each of the participating agencies has the following Binational Data Bank maintenance responsibilities:

A. Submit Copies of New Planning and Engineering Reports Related to the Border Region

When new planning or engineering studies are completed for an agency or if border related reports come to the attention of the agency, copies should be submitted to the Binational Data Bank coordinating agency. These reports will then be added to the data library index by the coordinating agency.

B. Review and Update Contact Information Contained in Data Index

Each of the participating agencies should annually review the Data Index to insure that the any reference related to their organization is current and correct. The data index should be reviewed in terms of the accuracy of the contact information (mailing addresses, phone and fax), data descriptions, most recent date of data, and any agency Web page hyperlinks. Any errors should be noted and transmitted to the Binational Data Bank administrator. It will be particularly important to update contact information for hard copy data which is not accessible from the Internet.

C. Collect Data and Update Agency Web Site

The most critical activity of the participating agencies is the timely collection and updating of data which is included in the Binational Data Bank. When data is updated, the participating agency should notify the Binational Data Bank administrator so that the data index information can be updated with the new information. If new data is collected, the participating agency should notify the Binational Data Bank administrator so that a new entry can be made to the data index. Finally, if an agency maintains data on their own web site, any new or updated data should be added to the site in a timely manner. This will allow the other agencies or interested parties access to this planning and programming data.

17.4.5 Annual Review and Improvement of the Binational Live Data Bank

As the activities of the JWC change over time the Binational Live Data Bank has to evolve to provide additional information to new partners in the binational planning process. In addition, as technologies change both sites will need to be updated to take advantage of these technologies in order to improve access and usability.

As the binational planning effort enters this new phase, the live data bank will be a key factor in the distribution of information between participants in border planning. It can also provide a communication link between border planners, in terms of providing real time answers to questions and discussion groups. The Binational Live Data Bank should become the first stop for persons involved in planning border transportation projects.

In order for the data bank to serve these functions, an annual review of the data bank should be conducted focusing on the following topics:

- purpose
- functionality
- user data needs
- data being provided

This review should involve all the partners in the border planning process with the goal of improving communications related to transportation activities.

At a minimum, the annual review should:

1. Review the effectiveness of the Binational Live Data Bank
 - information
 - technology
 - access (who should be using the information)
2. Develop an action plan to make improvements
3. Develop a budget to pay for the improvements

These activities will result in a Live Data Bank that has up-to-date information, that is easy to find and is available when needed to improve and coordinate the planning activities in the border region. In addition, each agency should be encouraged to establish there own binational planning web site to focus on local issues in border planning which would be linked to the existing data bank.

Appendix A

Binational Study Product Abstracts

Annotated Bibliography (Phase I - Task 1)

This annotated bibliography represents a compilation of approximately 200 of the most relevant United States and Mexican reports, proposed projects, studies, etc. which relate to the Binational Transportation Planning and Programming Study. These documents contain information regarding all modes of transportation (rail, truck, air, marine, intermodal) which directly affect the border area between Mexico and the United States. Also included are some reports concerning socioeconomic data, environmental, planning, law, administration, finance and urban development topics and how these relate to transportation across and near the United States/Mexico border. References were obtained from persons involved in the study, consultants, government officials, colleges and universities, previous studies, and various other sources.

Inventory of Transportation Facilities (3 reports) (Phase I - Task 2)

Inventories were prepared which describe the transportation networks serving the 200 kilometer border region (100 km north and 100 km south) along the U.S.-Mexican border. Three reports were prepared as follows: a U.S. summary, a Mexican summary and a binational (combined) summary. These reports summarize the available information on highways, railroads, marine ports, airports, border community socio-economics, and pipelines. All three reports will be included in the binational document library.

Inventory of Port of Entry Facilities (Phase I - Task 3)

This report discusses the standard border crossing event processes for pedestrians, passenger vehicles, commercial vehicles and rail. For six port of entry systems (POE systems) this report discusses in detail the regional transportation infrastructure, the physical description of POEs, staffing and hours of operation of the POEs, system operation, and a statistical description of vehicular and trade flows. The six port of entry systems inventoried were: San Diego-Tijuana, Nogales-Nogales, El Paso/Santa Teresa-Ciudad Juarez/San Jeronimo, Eagle Pass-Piedras Negras, Laredo-Nuevo Laredo and Brownsville-Matamoros.

Description of Commercial Motor Vehicle Trade Flow Process (Phase I - Task 3.1)

While the US-Mexico trade flow process at each border crossing has unique aspects which reflect the specific characteristics of the crossing, much of the binational trade flow process is common from crossing to crossing. The Task 3.1 report describes generic trade flow processes for three types of cross border trade: traditional, maquiladora and agricultural. Each trade type has characteristics which influence the processing at the ports of entry. Agricultural products undergo different inspections than traditional or maquiladora trade. The frequency of maquiladora trade has created specialized procedures to reduce inspection and document processing times, thereby, reducing the overall border crossing times. The northbound and southbound trade flow processes are laid out in a step-by-step format in order to clearly understand the process as well as identify the parties involved and time costs.

The Transportation Planning and Programming Process (Phase I - Task 4)

Task 4 was generally intended to determine what types of individual and/or cooperative planning and programming processes are in place within or affecting the border region. Planning and programming activities occur on both sides of the border. The focus of the two task reports was on developing an understanding of the elements that will be needed to establish and conduct a binational transportation planning process that can comply with the intent of relevant U.S. and

Mexican laws and administrative regulations pertaining to transportation planning. These reports describe the planning processes used in the United States and Mexican border states.

Existing Trade and Passenger Flows (Phase I - Task 8)

This report describes the existing trade and passenger flows between Mexico and the U.S at three levels of geographic detail: national, U.S. Customs district, and port of entry. At the national level the report discusses the various sources of trade data, differences between these sources, maquiladora versus traditional trade, and trends in the major commodity movements. In addition, there is a discussion of mode use by commodity and intermodal facilities. At the district level there is a discussion of the major commodities moving through each of the four U.S. Customs districts along the U.S./Mexican border. There is also, a discussion of the usefulness of the available origin and destination data related to U.S./Mexico trade. At the port of entry level, tables are provided that indicate the mode use at each port of entry.

Analysis of Public and Private (Transportation) Investments (Phase II - Task 6)

Data was collected from the participating agencies and lists of planned and programmed transportation projects were prepared for both the United States and Mexico. These lists were geographically referenced to digital maps in order to show the relationship between projects on both sides of the U.S.-Mexico border. The final report discusses the relationship between the proposed projects and the various funding mechanisms available in each country. The data files containing the list of planned and programmed projects will be provided in the on-line data bank.

Economic Impacts of U.S.-Mexico Binational Trade (Phase II - Task 10)

International trade creates both positive and negative impacts for the United States and Mexico, the border states, and the local border communities. Estimates of economic benefits are reported in this document, measured on the basis of jobs supported by U.S.-Mexico trade. Costs are also reported as a function of roadway wear and tear, bridge damage, congestion, air pollution, noise and accidents. Logistics costs incurred at the border are estimated. These potentially avoidable costs include customs broker fees, multiple inspection fees, unnecessary load transfers, and crossing delays.

Changes in U.S.-Mexico Cross Border Trade Flows (Phase II - Task 11)

Commodity flows change over time in response to market conditions, technological innovation, logistical practices, and institutional factors. This report reviews recent trends or activities concerning these factors and evaluates how anticipated changes may affect modes of transport and routes. Year 2000 forecasts of binational merchandise trade flows are reported. The activities of binational groups working to address border area growth issues are also summarized. This report also reviews possible changes in technologies that support trade-oriented transportation in the border area and how they could affect border area transportation.

Methodologies for Estimating Future Trade Flows (Phase III - Task 12)

There are various methods of forecasting expanding trade in and between the United States and Mexico. This report provides an evaluation of the methods, data and existing forecasting models available to decision makers. Forecasting methodologies, including the time series model and the structural model are discussed. A compendium of existing border trade forecast studies in both the United States and Mexico is provided. Data needs and data sources for providing inputs to border state trade forecasts are also discussed.

Methodologies for Estimating Border Crossing Efficiency (Phase III - Task 13)

This report is the continuation of the Task 9 effort, in which six case studies of commercial border crossings were conducted to determine inefficiencies that affect the commercial roadway transportation crossing the border between the United States and Mexico. The objective of this report is to indicate the type of information that is required to analyze the border crossings and to supply the techniques by which a transportation specialist or engineer could conduct the required analysis to improve the operational efficiency of transportation at a border crossing between the United States and Mexico. At the same time, this report provides the outline to establish the capacity of a commercial border crossing according to its critical components and a recommended process for designing the required infrastructure for a new commercial border crossing.

Methodologies for Estimating Economic Costs and Benefits (Phase III - Task 14)

This report is a companion to the Task 10, “Economic Impacts of U.S.-Mexico Binational Trade” document. The objective of this report is to provide procedures for the calculation of benefits and costs. Where appropriate, this report suggests some shortcuts to the methodologies followed in Task 10, based on the ultimate perceived utility of the resultant findings. By the same token, areas needing additional research are also identified, given the importance of their findings.

Continuing Transportation Planning & Programming Mechanism (Phase IV)

This report contains a description of opportunities for a continuing binational transportation planning and programming process or mechanism for the U.S.-Mexican border area. This area covers approximately 100 kilometers on each side of the border. The mechanism described is intended to support trade-oriented transportation planning and programming, but is generally applicable to most surface transportation. The report describes the objectives and principles adopted by the Joint Working Committee (JWC) at the end of a comprehensive study which initiated this process. It also identifies some initial concepts for the JWC’s continuing activities and describes an organizational structure to carry on the activities.

Appendix B

Binational Planning and Programming Data Elements

**Table B-1
Binational Planning and Programming Data Elements**

Mode/Element	Comments
Transportation Systems	
Highways	
Location - Line Segments	Latitudes and longitudes of line segments.
Functional Classification	U.S. - Functional Classification as defined in the National Highway Planning Network (NHPN). Mexico - SSCT Classification A4, A2, B2, C and D.
Administrative Classification	U.S. - Local, state, federal or privately maintained facilities. Mexico - Federal, state, local or concession.
Number of Lanes	Total number of lanes
Roadway Surface	Type of Roadway Surface
Capacity	Vehicles per Hour
Access Control	Is this an access controlled facility?
Median	Is there a median?
Facility Type	Two-way, one-way
Truck Route Designation	Yes/No - Is this a designated truck route?
Height Restrictions	What, if any, is the height restriction on this roadway segment.
Weight Restrictions	What, if any, is the weight restriction on this roadway segment.
Hazardous Material Route	Yes/No - Is this a designated route for the transport of hazardous materials.
Control Count Stations	Designate control count stations along the border region on major highways and local streets which carry high volumes of international trade.
Traffic Volume Data	Related (linked) to the control count stations.
Direction	Two-way, northbound, southbound, eastbound, or westbound.
Volume	Actual count
Count Type	Average daily traffic or peak hour (daily/peak)
Vehicle Classification	Vehicle classification: Trucks, buses, autos, etc.
Toll Cost	Amount of toll charged to use facility
Pavement Index (Surface Index)	Quality of the roadway pavement (surface)
Level of Service	Operational condition based on volume and capacity.
Rail Roads	
Location - Line Segments	Latitudes and longitudes of line segments.
Ownership	Who owns/operates this segment of the system.
Jurisdiction	Mexico only. National railroad or concession
Railroad Class	U.S. only. Class 1, 2 or 3.
Type of Control	Mexico only. Centralized or by train.
Maximum Grade	Steepest up or down grade
Maximum Curve (Juan Carlos max or min)	Largest radius of curve.
Maximum Weight	Maximum allowable gross car loading
Average Number of Trains	On segment
Average Number of Cars	Loaded and unloaded.
Condition of Rails	
Abandoned	Is this facility active or has it been abandoned by the railroad.
Intermodal Facilities	

Table B-1
Binational Planning and Programming Data Elements

Mode/Element	Comments
Location - Centroid	Latitude and Longitude
Owner	Name of owner
Rail Connection(s)	Yes/No
Truck Connection(s)	Yes/No
Marine Connection(s)	Yes/No
Air Connection(s)	Yes/No
Number of Lifts	Number of operations being performed at the facility on an annual basis.
Marine Ports	
Location - Centroid	Latitude and Longitude
Owner	Name of the owner of the port facility.
Size of Waterfront Facilities	Length of docks, etc.
Size of Storage Areas	Warehouses and bulk storage.
Available Equipment	Cranes, cargo loaders, and suction devices.
Tonnage (metric)	Volume of goods moved through the port on an annual basis.
Operations	Number of ship movements
Operational Capacity	Design capacity of port.
Operating Depth	Deepest draft allowed.
Number of Containers	Annual
Number of Passengers	Annual
Operational Performance	Tons per hour per ship
Airports	
Location - Centroid	Latitude and Longitude
Classification	Metropolitan, tourist, border or regional.
Number of Runways	
Capacity	Number of operations per hour
Largest Plane	Name of the largest plane which can land at facility
Cargo	Annual (tons)
Passenger Enplanements	Annual passenger enplanements
Total Operations	Annual operations
Customs Facilities (international access)	Yes/No
Planned & Programmed Improvements	
Location - Centroid	Latitude and longitude representing the centroid of the overall project. Terminals and other facilities will have the best (most accurate) location data while lengthy roadway projects will be approximations.
Sponsoring Agency or Group	Name of the agency or group.
Facility Name	Common name of the facility.
Modes	Highway, rail, air, marine, other.
Limits of Project or Improvement	This information varies from agency to agency. For roadways cross-streets and distances are best for mapping purposes.
Description of Improvement	This should be a brief description of the project.
Implementation Date	When project will be completed is desirable, however, start date of construction is an acceptable alternative and more commonly available.
Type of Project	New construction or maintenance.

**Table B-1
Binational Planning and Programming Data Elements**

Mode/Element	Comments
Project Cost	Total cost of the project.
Primary Funding	Primary funding source: public or private
International Border Crossing Facilities	
Facility Data	
Location - Centroid	Latitude and longitude for each border crossing.
Type of Crossing Facility	Lane crossing, bridge, ferry or other.
Type of Flow Served	Commercial, Rail, Passenger, or Mixed
Pedestrian Access	Yes/No
Status	Existing, programmed, proposed or closed.
Mixed Flow Lanes	Number of lanes for mixed flow traffic.
Commercial Lanes	Number of dedicated commercial lanes.
Passenger Lanes	Number of dedicated passenger lanes.
Number of Bridges	How many physical bridges, if any, are at this crossing.
Toll Booths Northbound Commercial	Number of booths used for commercial, either dedicated or mixed flow.
Toll Booths Southbound Commercial	Number of booths used for commercial, either dedicated or mixed flow.
Toll Booths Northbound Passenger	Number of booths passenger vehicles.
Toll Booths Southbound Passenger	Number of booths passenger vehicles.
Toll Booths Northbound Total	Number of booths all types.
Toll Booths Southbound Total	Number of booths all types.
Northbound Primary (US) or Document (MX) Inspection Lanes	Number of processing lanes at the first booth encountered by a northbound vehicle at a Customs compound.
Southbound Primary (US) or Document (MX) Inspection Lanes	Number of processing lanes at the first booth encountered by a southbound vehicle at a Customs compound.
Northbound Secondary Inspection Lanes	Number of spaces or docks used for northbound secondary inspections
Southbound Secondary Inspection Lanes	Number of spaces or docks used for southbound secondary inspections
Traffic Data	
Trucks - Annual Total Trucks - Monthly Totals Trucks - Daily Totals Passenger Vehicles - Annual Total Passenger Vehicles - Monthly Totals Passenger Vehicles - Daily Totals Pedestrian - Annual Total Pedestrian - Monthly Totals Pedestrian - Daily Totals	Northbound & southbound.
Planned & Programmed Improvements	
Description of Improvement	Brief description of the type and scope of the proposed improvement.
Site Plan	Either an electronic or hard copy of the improvement. The plan should indicate the location of the improvement and its relationship to traffic flow through the facility.
Date of Implementation	Either the start of construction or estimated completion date of the

**Table B-1
Binational Planning and Programming Data Elements**

Mode/Element	Comments
	improvement.
Project Type	Is this a new facility or an expansion of existing facilities.
Trade Data	
by Commodity by Customs District	
Commodity	Summarize data by first two digits of the 10 digit commodity code.
County of Origin or Destination	Filter used to screen out only trade with Mexico - code 2010
District Code	For the Binational Study the data was summarized at the district level.
Weight	Tons
Value by Mode	Break down of value by mode
by Mode by Commodity	
Mode of Travel Code	Single digit code used to indicate mode.
Commodity	Two-digit schedule B commodity code.
State of Origin	U.S. state of origin.
State of Destination	Mexican state of destination in the export file (3A). U.S. state of destination in the import file (9).
Value	Commodity value in U.S. dollars.
Weight	Commodity weight in long tons. This data has only be collected since April 1995. It is only collected for imports into the U.S.
by Mode by Port of Entry	
Mode of Travel Code	Single digit code used to indicate mode.
Port of Entry (POE)	Four-digit code where the first two digits are the U.S. Customs District and the second two digits are the POE. The POE level data is not always reported by crossing or bridge level. Sometimes multiple crossings are combined into a single POE code.
State of Origin	U.S. state of origin.
State of Destination	Mexican state of destination in the export file (5A). U.S. state of destination in the import file (11).
Value	Commodity value in U.S. dollars.
Weight	Commodity weight in long tons. This data has only be collected since April 1995. It is only collected for imports into the U.S.
by State by Commodity	
State of Origin	U.S. exporting state.
Commodity	Two-digit standard industrial classification (SIC) code.
Destination Country	Country of destination.
Value	Total value in U.S. dollars.
by Port of Entry by Operation.	
Operation	Traditional, Maquiladora, or Temporary
Port of Entry	Port code or name
Weight	Tons
Value	Total value in U.S. dollars.
Demographic Data	
Population	
County or Metropolitan Population	
Automobiles	

Table B-1
Binational Planning and Programming Data Elements

Mode/Element	Comments
Buses	
Trucks	
Employment	
County Population	Historic and projected county populations to the year 2040.
County Employment	Historic and projected county employment data - number of jobs within county to the year 2040.
County Employment	Historic county employment
County Unemployment Rate	Historic county unemployment rates
Employment by Industry	Employment data by industry
Number of Maquiladoras	
Number of Maquiladora Employees	
Income/Economic	
County Average Income	Historic and projected average income within each county to the year 2040.
County Total Income (Millions)	Historic total income by county.
County Per Capita Income	Historic per capita income by county.
County Retail Sales	Historic total retail sales by county.
Payroll by Industry	Payroll data by standard industrial classification (SIC) codes.
Number of Businesses by Industry	Count of businesses by standard industrial classification (SIC) codes.
Education	
County Percent with High School Education	Historic data on percent of persons with a high school education by county.
Number of Schools	In municipality
Number of Total Students	In municipality for all shifts.
Reference Data	
Administrative	
State Boundaries	This information is useful for reference purposes in displays and output.
County Boundaries (U.S. Only)	This information is useful for reference purposes in displays and output.
City/Municipio Boundaries	This information is useful for reference purposes in displays and output.
Traffic Analysis Zones (TAZs)	These data are typically only available in urbanized areas and could be used for transportation modeling.
Water Features	
Rivers, Streams & Channels	This information is useful for reference purposes in displays and output.

Source: Barton-Aschman & La Empresa, 1997

Appendix C

Binational Data Sources

**Table C-1
Binational Data Sources**

Mode/Element	Comments	U.S. Source	Mexican Source
Transportation Systems			
Highways			
Roadway Alignments & Attributes	Roadway alignments and attributes such as lanes, medians, and facility type.	National Highway Planning Network (NHPN)	Dirección General de Planeación, Dirección General de Proyectos, Servicios Técnicos y Concesiones, SCT. Reports and GIS files.
Truck Route Designation	Dedicated truck routes in the 100 km border area.	Not in NHPN. No electronic source identified.	No electronic source identified.
Height Restrictions	Height Restrictions on roadways that provide border access.	Not in NHPN. No electronic source identified.	No electronic source identified
Weight Restrictions	Weight Restrictions on roadways that provide border access.	Not in NHPN. No electronic source identified.	Subsecretaría de Transporte – Dirección General de Autotransporte Federal, SCT – Regulation
Hazardous Material Routes	Dedicated hazardous material routes in the 100 km border area.	Not in NHPN. No electronic source identified.	No electronic source identified
Traffic Volume Data	Count station locations and count data.	Reports and maps from State DOTs	Dirección General de Servicios Técnicos y Concesiones, SCT - “Datos Viales”, reports and electronic files
Rail Roads			
Location – Line Segments	Latitudes and longitudes of line segments.	National Transportation Atlas Database (NTAD) - RAIL2M	Ferrocarriles Nacionales de México, “Esquemas de las Principales Rutas” report and map I
Operational Data	Tonnage, # of trains, # of cars, etc.	No single source for data by rail segment would require contacting private rail companies.	Ferrocarriles Nacionales de México, Esquemas de las Principales Rutas report and maps II and III.
Intermodal Facilities			
Location and Attributes	Location of Intermodal facilities and attributes such as modes served.	NTAD - Trailer on Flat Car (TOFC) is the only existing electronic source.	No electronic source identified
Number of Lifts	Number of operations being performed at the facility on an annual basis.	Data not available in NTAD. Data must be requested from private rail companies or facility only.	No electronic source identified
Marine Ports			
Location and Attributes	Location of marine ports and attributes such as	NTAD - PORT	Dirección General de Puertos, Dirección

**Table C-1
Binational Data Sources**

Mode/Element	Comments	U.S. Source	Mexican Source
	operating depth, number of berths, and owner.		General de Marina Mercante, SCT reports.
Tonnage (metric)	Volume of goods moved through the port on an annual basis.	Paper Report: Water Borne Commerce of the United States, U.S. Army Corps of Engineers.	Dirección General de Puertos, Dirección General de Marina Mercante, SCT reports
Operations	Number of ship movements	No electronic data available. No paper source identified.	Dirección General de Puertos, Dirección General de Marina Mercante, SCT reports
Airports			
Location and Attributes	Location of airports and attributes such as type of operations and the existence of Customs facilities.	National Transportation Atlas Databases, File: AIRPRTxx (xx - year, 96).	Aeropuertos y Servicios Auxiliares (ASA), Sistema Estadístico Aeroportuario report.
Passenger Enplanements and Total Operations	Annual passenger enplanements and total operations.	1 st Source: Airport Activity Statistics of Certified Air Carriers, U.S. DOT. 2 nd Source: AIRPRTxx -Field Tot_Enp and Tot_O	Aeropuertos y Servicios Auxiliares (ASA), Sistema Estadístico Aeroportuario report.
Planned & Programmed Transportation Improvements			
Location and Attributes	Location and attributes such as project description, sponsoring agency, cost, implementation time frame and funding source.	Current database created by the Binational Study from planning reports provided by the study participants.	Current database created by the Binational Study from planning reports provided by the study participants
International Border Crossing Facilities Facility Data			
U.S. Customs & Border Crossing Facilities	Location and attributes such as the number of primary inspection booths, secondary inspection spaces, etc.	No electronic source. Reports from GSA and Bridge operators as well as the inventories prepared for Binational Study.	No electronic reports from Comisión de Avalúos y Bienes Inmuebles (CABIN). Inventories prepared for Binational Study.
Traffic Data			
Truck, Passenger Vehicles and Pedestrian Volumes	Northbound & southbound.	Northbound: U.S. Customs and INS keep counts which are compiled by the Customs Management Centers. Southbound: Not consistently collected. Toll bridge operators are another source of data.	For Northbound traffic, electronic data was provided for the bridges where Caminos y Puentes Federales operates.
Planned & Programmed Crossing Improvements			
Location and Attributes	Brief description of the type and scope of the proposed improvement.	U.S. Customs and General Service Administration (GSA) Planning Reports	CABIN, SCT, Secretaría de Hacienda y Crédito Público (SHCP).

**Table C-1
Binational Data Sources**

Mode/Element	Comments	U.S. Source	Mexican Source
Trade Data			
by Commodity by Customs District		Manufacturing Data (Annual) from U.S. Census - Alternative Source: U.S. Import/Export Histories – Compilation of 5-years of Manufacturing Data	Electronic data, provided by the Secretaría de Comercio y Fomento Industrial (SECOFI), based on SHCP- Aduanas original information
by Mode by Commodity		Bureau of Transportation Statistics (Monthly) Files 3A (Exports) & 9 (Imports)	Electronic data, provided by the Secretaría de Comercio y Fomento Industrial (SECOFI).
by Mode by Port of Entry		Bureau of Transportation Statistics (Monthly) Files 5A (Exports) & 11 (Imports)	Electronic data, provided by the Secretaría de Comercio y Fomento Industrial (SECOFI).
by State by Commodity		University of Massachusetts Institute for Social and Economic Research (MISER) Data (Annual) – 1993-1995 Data purchased for Binational Study.	Electronic data, provided by the Secretaria de Comercio y Fomento Industrial (SECOFI).
State of Origin	U.S. exporting state.	MISER Data – Field: STATE	Electronic data provided by SECOFI, field: FEPA_EDO.
Commodity	Two-digit standard industrial classification (SIC) code.	MISER Data – Field: SICCODE	Electronic data provided by SECOFI, field: FEPA_FRA
Destination Country	Country of destination.	MISER Data – Field: COUNTRYCODE	Electronic data provided by SECOFI, field: FEPA_PAISO
Value	Total value in U.S. dollars.	MISER Data – Field TOTAL\$VALUE	Electronic data provided by SECOFI, field: FEPA_VAL
Demographic Data			
Population			
County Population	Historic county population	U.S. - Census Bureau, Census of Retail Trade	Instituto Nacional de Estadística Geografía e Informática (INEGI) – Census Information
Employment			
County Employment	Historic county employment	U.S. - Census Bureau, Census of Retail Trade	INEGI – Census Information
Employment by Industry	Employment data by standard industrial classification (SIC) codes.	U.S. - Census Bureau, County Business Patterns	INEGI – Census Information

**Table C-1
Binational Data Sources**

Mode/Element	Comments	U.S. Source	Mexican Source
Income/Economic			
County Income	Historic and projected average income within each county to the year 2040.	U.S. - County Projections from the U.S. Department of Commerce - Report not in electronic format.	No electronic source identified
County Total Income (Millions)	Historic total income by county.	U.S. - Census Bureau, Census of Retail Trade	No electronic source identified
County Per Capita Income	Historic per capita income by county.	U.S. - Census Bureau, Census of Retail Trade	No electronic source identified
County Retail Sales	Historic total retail sales by county.	U.S. - Census Bureau, Census of Retail Trade	No electronic source identified
Payroll by Industry	Payroll data by standard industrial classification (SIC) codes.	U.S. - Census Bureau, County Business Patterns	No electronic source identified
Number of Businesses by Industry	Count of businesses by standard industrial classification (SIC) codes.	U.S. - Census Bureau, County Business Patterns	No electronic source identified
Education			
County Percent with High School Education	Historic data on percent of persons with a high school education by county.	U.S. - Census Bureau, Census of Retail Trade	INEGI – Census Information
Reference Data			
Administrative			
State Boundaries	This information is useful for reference purposes in displays and output.	NHPN - U.S. border file containing state boundaries.	INEGI – CODICE information
County Boundaries (U.S. Only)	This information is useful for reference purposes in displays and output.	U.S. - Topographically Integrated Geographic Encoded Reference (TIGER) Data	INEGI – CODICE information
City/Municipio Boundaries	This information is useful for reference purposes in displays and output.	U.S. - TIGER Data	INEGI – CODICE information
Traffic Analysis Zones (TAZs)	These data are typically only available in urbanized areas and could be used for transportation modeling.	U.S. - Some of the large metropolitan areas maintain electronic TAZ maps.	No electronic source identified
Water Features			
Rivers, Streams & Channels	This information is useful for reference purposes in displays and output.	U.S. - Digital Charts of the World (DCW)	No electronic source identified

Source: Barton-Aschman & La Empresa, 1997