United States Environmental Protection Agency

Region 9

CALEXICO:

HAZARDOUS MATERIAL COMMODITY FLOW STUDY

Calexico:

Hazardous Material Commodity Flow Study

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75 Hawthorne Street
San Francisco, CA 94105

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Preface

This study was conducted by the U.S. Environmental Protection Agency, Region 9, in order to assist in chemical emergency planning and prevention efforts at the US/Mexico border. The cities of Calexico, California, and Mexicali, Baja California, are one of the six Sister City pairs on Region 9's border with Mexico under USEPA's Border XXI Program. More details about USEPA's Border XXI Program are available at http://www.epa.gov/usmexicoborder/ef.htm.

A better understanding of the chemical safety risks posed by transportation in Calexico would enable federal, state and local officials to make more informed decisions on the allocation of resources and the management of hazardous substances in the community. Decisions on zoning, traffic lights, traffic routes, and traffic schedules could be more tailored to actual chemical risks. Emergency responder work schedules, staff levels and training could be adjusted to address specific chemical risks. Federal financial and technical assistance could be targeted to address specific concerns.

The study identifies the nature, quantities and routes of hazardous substances transported in or near Calexico. Imports and exports, including hazardous waste, are taken into account. The study draws upon all major sources of relevant data at all levels of government. This kind of information is valuable to emergency planners and responders, but is not readily available to them. The study brings together all of the available information into one place. USEPA hopes that the study will serve as a useful tool and an ongoing reference document for emergency planning and response purposes.

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Lauren Volpini	USEPA CFS Project Officer volpini.lauren@epa.gov (415) 744-2333 www.epa.gov
Edwin Oyarzo	Project Manager, Science Applications International Corporation (SAIC), Oakland, California
Terry Planton	CFS Team Leader, SAIC, McLean, Virginia
Hoa Lam	CFS Team, SAIC
Holger Hinsch	CFS Team, SAIC
Amy Burns	CFS Team, SAIC

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Lee Cramer	US Customs Service, Office of Regulations and Rulings (202) 927-0760 www.customs.gov
Chief Carlos G. Escalante	City of Calexico, Fire Department (760) 768-2150 www.calexico.ca.gov
Margaret Adele Hilton	US Census Bureau (301) 457-2311 www.census.gov
Steve Monteleone	Naval Air Facility El Centro, Fire Department (760) 339-2251
James Nash	US Department of Transportation, Bureau of Transportation Statistics (202) 565-1542 www.dot.gov
Julia R. Osuna	City of Calexico, Economic Development Department (760) 768-2177 www.calexico.ca.gov
Lisa Randall	US Department of Transportation, Bureau of Transportation Statistics (202) 565-1542 www.dot.gov
Bradley S. Ramos	City of Calexico, Police Department (760) 768-2140 www.calexico.ca.gov
Adam Wysockey	US Customs Service (202) 927-3735 www.customs.gov

1 Introduction

USEPA Region 9 has placed high priority on improving chemical safety in the US/Mexico Border area and contracted SAIC to study the commodity flow of hazardous materials through the Calexico/Mexicali border region.

What is a commodity flow study?

A commodity is any physical good moving, or any good being transported. A commodity flow study is a report on the goods that are moving through a particular area. Everyday, the nation's roads, railways, airports and seaports are filled with goods moving to market. These goods range from packaged retail goods moving from manufacturers to stores, to industrial products moving from producer to user, to farm products and foodstuffs moving to distribution centers. A little over 3% of the U.S. gross domestic product was spent on transportation in 1997. That is $255 billion to move goods from one place to another. This amount of transportation puts an enormous amount of pressure on the nation's transportation infrastructure. The goal of a commodity flow study is to map these goods to the transportation system in a given area. This particular study addresses the flow of hazardous materials through the Calexico/El Centro region.

The size and complexity of a commodity flow study is primarily dependent on the size of the area under analysis. A commodity flow study tracks the flows of goods for an entire country, a state or a local municipality. As the area under study grows, the complexity of the transportation system and the difficulties of mapping the interrelationships of the businesses within the region increase. Limiting a commodity flow study to a local area provides better accuracy and allows better decision-making by local policy-makers.

Historically, urban and regional planners and transportation officials are the primary beneficiaries of commodity flow analysis. They use the results of such studies to understand the needs of businesses in their community, plan highways, make zoning decisions, and compete for funding for infrastructure projects. As commodity flow studies evolve, more information is learned that is applied in related fields. This Calexico study limited the commodities under study to hazardous materials. The phrase "hazardous material movements" is synonymous with commodity flow for the purpose of this study.

The information in this study allows the development of better disaster preparedness plans, helps to determine whether emergency response equipment is appropriately placed and whether responder training is adequate, and can assist officials to minimize hazardous material releases.

A material is hazardous if it exhibits one or more of the following characteristics[1]:

- *Ignitability*: Can create fires under certain conditions. Examples include liquids that catch fire, such as solvents and fuels, and friction-sensitive substances.

[1] Definitions from USEPA at www.epa.gov.

- *Corrosivity*: Is acidic and capable of corroding metal (such as tanks, containers, drums, and barrels).
- *Reactivity*: Can create explosions or toxic fumes, gases, and vapors when exposed or mixed with water.
- *Toxicity*: Harmful or fatal when ingested, breathed, or absorbed by the skin.

When many of these materials are disposed of to land, contaminated liquid may drain (leach) from the materials and pollute the soil and ground water.

Hazardous materials come in all shapes and forms. Any solid, liquid, or gaseous material that is toxic, flammable, radioactive, corrosive, chemically reactive, or unstable after prolonged storage in quantity could pose a threat to life, property, or the environment.[2]

[2] www.ntp.doe.gov

2 Methodology

The purpose of this study is to provide a commodity flow study of hazardous materials to aid local, state, and federal authorities to understand the volume and nature of hazardous material movements into, out of, and through the region, particularly the City of Calexico. To accomplish this goal, the study employed a step-by-step methodology, as described below.

Stakeholders – The first step in developing a commodity flow study that is both accurate and useful is to understand the stakeholders that are affected by the movement of hazardous materials in and through Calexico. To some degree, all residents and public officials are concerned with hazardous materials traveling through their community. The residents that have the most interest are those living in close proximity to hazardous material travel routes and potential release sites. A goal of this study is to identify those routes so residents are aware of the risks in their areas.

Public officials are certainly interested as well. Fire and emergency response officials are interested in the quantities and types of hazardous materials in order to plan effectively. These officials are entrusted with protection of the public. This type of information allows them to ensure that they are properly trained and equipped. The nature of the hazardous risk affects the number of emergency personnel needed and their training needs. The police department is generally the first on the scene in an emergency or accident. They too have an interest in the movements of hazardous materials. Police procedures and tactics will reflect the particular nature of the risks present in the local area.

Planning officials can use the results of this study to improve decision-making. By understanding the travel routes that are most at risk, planning officials may make informed decisions regarding zoning and public projects, like schools. Some activities, such as warehousing, can also create hazardous risks, depending upon the types and volumes of goods they are handling and their commitment to safety. Planning officials can institute policies to help relocate businesses or activities that pose hazardous risks to appropriate areas of the city without reducing desired economic activity. Planning officials can use the results of this study to help support funding requests for transportation projects. In every state, transportation needs far outweigh the availability of funds. Those projects that are supported by solid analysis, including identified environmental risks that will be alleviated by new construction, fare better in the budget arena.

Interviews with local authorities and stakeholders were conducted, in order to understand how border traffic affects city plans, residents and the region.

Data Collection – The next phase of the study involved a thorough data collection effort. Data was collected on the commodities that are present in the local area, the flow of goods in the region, and sensitive areas in the region.

Within Calexico, the types and quantities of commodities present are determined by three activities. Calexico's position as a border crossing creates considerable

amounts of international trade. Imports and exports through Calexico's road and rail crossing points include a sizable amount of the total hazardous materials in the region. Another source of hazardous materials is the economic activities generated in the wider region, from San Diego in the west, and Yuma, Arizona in the east, to the agricultural areas of northern Imperial County. These population centers generate goods that are transported through the Calexico area, generally via Interstate 8 (I-8). The third source of goods in transit is the local commerce that necessitates the movement of goods from one business to another.

The "flow" information began with an examination of the transportation network. This included major truck routes, rail lines, border facilities, and surface streets. Truck counts available from state agencies provided a better understanding of the natural flows of goods through the city and region. Examining the business information (both inter- and intra-region) helped isolate individual commodities to specific roads.

Data collection of the sensitive and local characteristics of the region gave the study relevance to the community. These data included planning documents, traffic accident data, historic spill information, road characteristics and population and business formation trends.

Interviews with local authorities provided a better understanding of border traffic, transportation routes in and through the city, and the effect of the city layout on residents. To better support the study, data was collected from local, state, and federal agencies.

Data Analysis - After gathering the data, an analysis of imports and exports by mode of transportation, volume, and shipment weight by type (tariff classification) was conducted. The analysis identified the hazardous materials flowing through the area. Reported accidents and spills were analyzed over a period of 10 years. This analysis identifies particular locations within the region that contribute most often to the number of reported accidents and spills.

Business location data was first mapped on a regional basis. The industrial base in San Diego was compared with that of Yuma, AZ and points east to determine the commodities that flow directly through the Calexico region east and west. Local businesses were evaluated to determine whether any are large producers or purchasers of hazardous materials that contribute to locally bound truck traffic.

This portion of the study developed general knowledge of the hazardous material types that are present in the region. After the "commodity " portion of the study was completed, the work moved to define hazardous material movements.

Determining Transportation of Hazardous Materials - In this task, data analysis combined traffic data with hazardous material movements. An analysis of the local traffic patterns to and from the Calexico border crossings (north/south and east/west directions) yielded the primary border routes. Next, truck counts at specific locations along the interstate highway and arterial access roads were analyzed. This identified the flow of trucks along the traffic network. Finally, the practical operation of the Calexico-East port of entry and the procedures for moving trucks to

and from the border crossing were examined to determine the most-used surface streets and any time-of-day issues.

Next, an analysis of rail traffic determined direction and crossing procedures. Because there is only one rail crossing at Calexico, the identity of the hazardous materials moving across the rail infrastructure is known. However, rail-crossing procedures were analyzed to determine whether there are points along the tracks at which the rail companies store goods pending final transport.

Hot Spots – The next task was to determine hot spots around the region. This identifies potential risk areas and any links between problem areas and critical infrastructure, which can be useful to local officials. The first part of this task involved the identification of all areas that were environmentally sensitive. This included bodies of water that are sources of drinking water or that have unique environmental significance. It also included wetlands or any geographical areas where a spill or release might create significant risk to the population.

The second part of this task was to identify places and points along major traffic routes that are at a higher level of risk in the event of an accident. These include schools, dense population centers, and public gathering points like parks or markets. In evaluating these hot spots, the study looked at their proximity to truck routes and rail lines and the types of hazards that are present.

The final task was to look at potential hot spots that may be emerging, or that are located at emergency routes, where they may become a problem in the event of a spill or release. For example, the study examined major traffic areas that are potential problem sites if traffic grows to a point where the road infrastructure can no longer adequately handle the amount of traffic. Roads are constructed for a pre-determined amount and type of traffic. If smaller residential roads become favorite truck routes, than the potential for accidents becomes greater. The study examined the hazardous material movements to determine whether there are emerging hot spots in the region.

Knowledge Transfer – The final task was to provide suggestions to local officials on ways to monitor hazardous materials in their areas. Conducting this study required data to be made available and to be shared. For this task, the study provides a list of helpful points of contacts for future information. In addition, a list of publicly available web-sites and data sources is provided. The goal is to give emergency planners and responders enough knowledge to update this report, or at least to monitor trends, to determine whether the nature of their environmental risk is changing.

3 Regional Overview

3.1 Imperial County

Imperial County is located in the southeast corner of California and has one of the largest ports of entry with Mexico, known as Calexico-East. Imperial County is part of the San Diego Customs District, which includes a total of seven ports (San Diego, Andrade, Calexico-Downtown, Calexico-East, San Ysidro, Tecate, and Otay Mesa). Calexico-Downtown was converted in 1997 to passenger traffic only. Thus, there are six ports of entry for hazardous material traffic in the San Diego Customs District.

The three population centers in Imperial County are El Centro, in the south central portion of the county just north of I-8; Calexico, adjacent to Mexicali on the border with Mexico; and Brawley, approximately 20 miles north of El Centro in the central part of the county. Roughly two-thirds of Imperial County's population lives within 20 miles of the US/Mexico border.

Table 3-1 shows that the population of Imperial County is approximately 148,980 in 2000, up from just over 100,000 just 10 years ago[3]. The county is expected to continue growing at an annual rate of approximately 7%.

Table 3-1: Imperial County: Twenty Year Population Forecast

City	1990	1994	2000	2005	2010
Brawley	18,923	21,738	22,586	24,425	27,294
Calexico	**18,633**	**28,703**	**30,081**	**33,070**	**37,727**
Calipatria	2,690	5,028	5,332	5,992	7,020
El Centro	31,384	36,717	37,089	37,897	39,156
Holtville	4,820	5,576	5,631	5,750	5,935
Imperial	4,113	6,121	7,137	9,338	12,770
Westmorland	1,380	1,603	1,702	1,918	2,254
Unincorporated	27,360	32,984	39,422	53,382	75,149
Imperial County	**109,303**	**138,470**	**148,980**	**171,772**	**207,305**

Source: Southern California Association of Governments. April 1998.

Table 3-2 lists the industries in which the county residents are employed. Based on the earnings in Table 3-2, the top three industries in Imperial County are (1) government agencies (federal, civilian, military and state and local), (2) agricultural services, and (3) professional services (health, legal, and education).

[3] Southern California Association of Goverments (April 1998)

Table 3-2: Earnings and Income by Industry in Imperial County in 1997 (in $000)

INDUSTRY	1996	1997
Government and Military	456,958	458,982
Agricultural Services	351,009	379,479
Professional Services	195,960	212,180
Manufacturing	49,013	53,812
Wholesale	62,042	66,800
Transportation/Public Utilities	99,042	103,923
Construction	52,851	55,397
Total	**1,268,871**	**1,330,573**

Source: US Department of Commerce--The Bureau of Economic Analysis. November 2000.

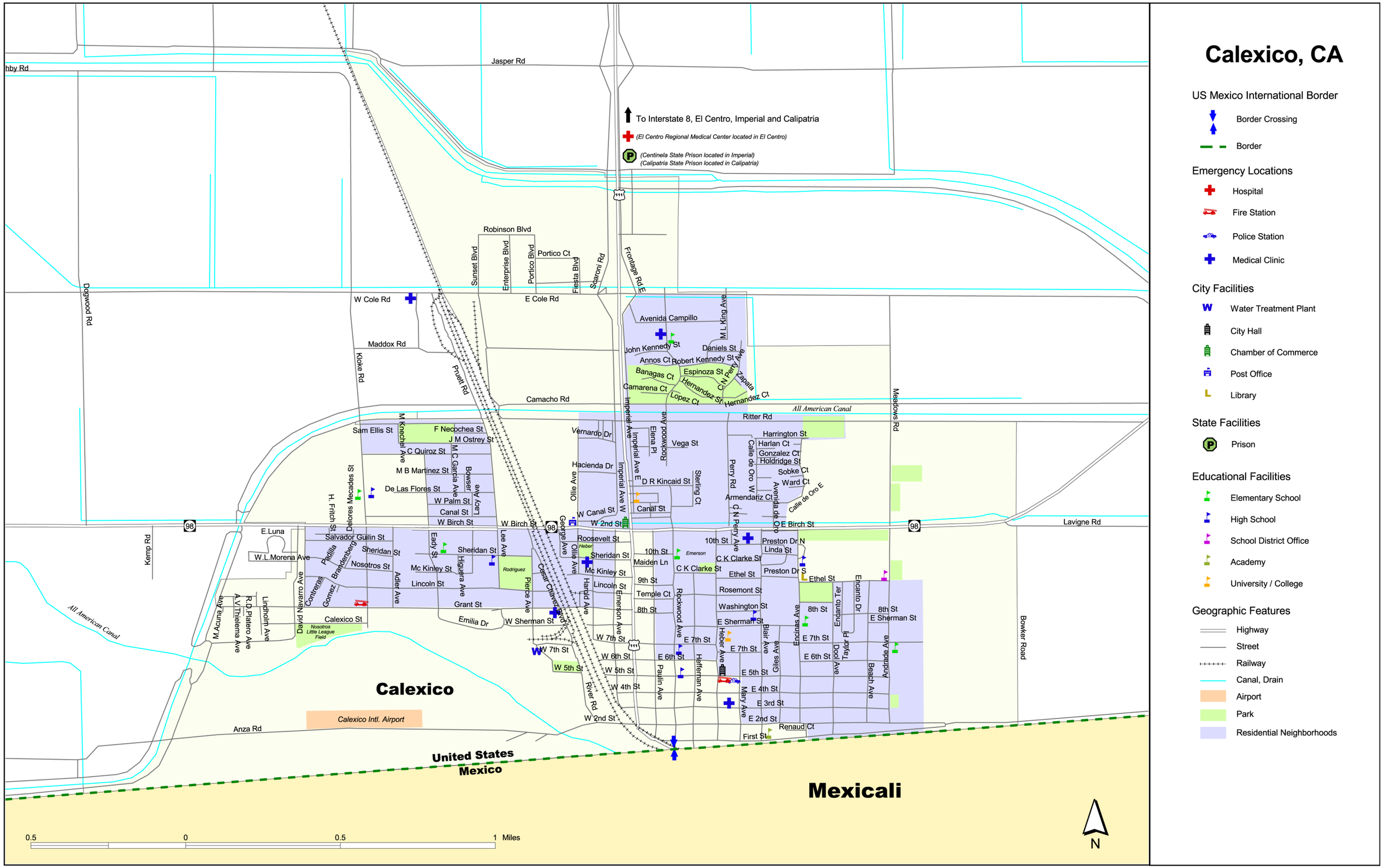
The county is primarily agricultural with most of the land use dedicated to farming. The largest employer group is the government. Government facilities include prisons and the Naval Air Facility El Centro (NAFEC). Manufacturing does not play a major role in employment in the county. In 1997, manufacturing represented only 4% of earnings and income and accounted for slightly less than 2,000 jobs.

3.2 City of Calexico

Calexico is a rapidly growing city within Imperial County. Calexico has an area of 4 square miles, and includes 20% of the total population of Imperial County. Within the last ten years, Calexico's population increased by 62%. Figure 3-1 below is a map of Calexico showing key features.

Situated on the US/Mexico border, Calexico provides border access between large transportation hubs such as San Francisco, Los Angeles, Phoenix and San Diego and Baja California. Calexico is 680 miles southeast of San Francisco, 230 miles southeast of Los Angeles, 260 miles west of Phoenix, and 125 miles east of San Diego. Calexico shares an international border with the capital of Baja California, Mexicali City, Mexico. Calexico's key location fuels inevitable population growth as well as the local economy, creating employment and economic opportunities for international and domestic trade.

Figure 3-1: City of Calexico Map



3.3 City of Mexicali

Mexicali has a population of 900,000. It is an extension of the Imperial Valley, directly south of the U.S. border from the city of Calexico, California. Like Calexico, Mexicali's name is derived from the words "Mexico" and "California." Mexicali is an important transportation and commercial center for the surrounding region, including Calexico. The largest commercial area of Mexicali/Calexico is the border business district. It contains shops and restaurants that cater to tourists. Other sources of income for Mexicali are the maquiladoras and agriculture. According to the City of Calexico web site, www.calexico.ca.gov, in 1999, there were over 55 million border crossings (pedestrians, vehicles, and vehicle passengers) at the Calexico-Downtown port of entry, and 15 million crossings (pedestrians, vehicles, vehicle passengers, commercial trucks, and truck passengers) at the Calexico-East port of entry.

Maquiladoras - A maquiladora is an assembly or manufacturing operation located in Mexico that is fully or partially owned by a non-Mexican person or company. A maquiladora employs competitively-priced Mexican labor in assembly processing or other manufacturing operations. Maquiladoras temporarily import most component parts from the U.S. and other sources. Mexican law also allows these operations to bring in most capital equipment and machinery from abroad. Maquiladora operations are generally labor-intensive, with most production geared for export from Mexico. Maquiladoras may be entirely managed by foreign firms, such as U.S. firms, unlike other multinational companies operating in Mexico.

The Maquiladora Program arose from Mexico's Border Industrialization Program, after Mexico joined the General Agreement on Tariffs and Trade (GATT) in 1986. GATT is an international treaty which reduces trade barriers among member countries. Mexico's participation in GATT encouraged foreign companies to locate in Mexico. The Border Industrialization Program allowed the duty-free importation of raw materials and equipment for use by manufacturing plants, which would then export finished goods or components to factories in the United States, where they were sold or assembled into final products.

Maquiladoras manufacture a broad array of products under Mexican law. Some industries are not allowed to participate in the maquiladora program (petroleum, petrochemicals, other chemicals, arms, and items containing radioactive elements). Most products begin the assembly process in Mexico and complete the process in the US. As long as the components imported into Mexico are destined for export, no Mexican import duty is levied on the temporarily-imported maquiladora inputs. Maquiladora operators must post a bond with the Mexican Customs Service to guarantee that components and raw materials are re-exported from Mexico to the country of origin within a six-month period. A bond on capital equipment and machinery is collected to better ensure that they will be fully returned to the maquiladora operator's country of origin once it ceases operations in Mexico.

Agriculture - Mexicali is a prime agricultural center. The farm area produces some of Mexico's major crops, including wheat and cotton. Mexicali is a world exporter of asparagus, broccoli, green onions and radishes.

4 Stakeholders

All residents and public officials are concerned with hazardous materials traveling through their community. The residents who have the most interest are those living in close proximity to hazardous material travel routes and potential release sites. In the City of Calexico, the residential areas of most concern are those near East Birch Street (State Route 98) and Cole Road. In addition to Highway III, these two roads are the primary routes for hazardous materials moving toward the border. The residential neighborhood west of the downtown section of the Union Pacific rail tracks has the most potential risk in the event of a rail incident. These problem areas are discussed further below in chapter 8 (hot spots).

Public officials are stakeholders as well. Fire and emergency response officials need information on the hazards they face to plan effectively. These officials are entrusted with protection of the public. This type of information allows them to ensure that the right emergency equipment is available when and where needed, and response time is minimized. The Naval Air Facility El Centro (NAFEC) has qualified personnel and some equipment, but lacks funding for a full-time hazardous material team. NAFEC is part of a mutual assistance agreement with fire departments in Imperial County. The stakeholders in this area include the Imperial County Fire Department and the Calexico Fire Department. Appendix C provides the address for key public institutions in Calexico, including the fire and police stations and health care facilities.

The police department is generally the first on the scene in an emergency or accident. They too have an interest in the results of a commodity flow study. Police procedures and tactics reflect the particular nature of the risks present in the local area. Some of the responsibilities of the police department in a hazardous material incident are evacuation, crowd control, and documentation of violations of environmental law. The interested stakeholders in the law enforcement community include police departments of Calexico, El Centro and Brawley, the California Highway Patrol and the California State Police.

Planning officials can also use the results of this study to improve decision-making. By understanding the travel routes that are most at risk, planning officials can make informed decisions regarding zoning and public projects, like schools. Warehouses used for holding exports, pending final transport to Mexico, also create hazardous risks depending upon the types and volumes of goods they are handling. Planning officials can use policies such as local tax incentives or zoning actions to help move businesses or activities that pose hazardous risk to appropriate areas of the city, without reducing desired economic activity. Planning officials can use the results of this study to help support funding requests for transportation projects. The planning officials most affected by this study include elected officials, such as the Calexico City Council and Mayor's office, the Economic Development Department, and the Planning Department. Civic organizations, such as the Chamber of Commerce, will have an interest in the study as well.

5 Data Collection

The purpose of data collection is to compile a detailed inventory of hazardous materials moving through one of the most significant international border crossings, Calexico-East. The study uses data from a number of sources (listed under Knowledge Transfer, chapter 9 below). Data was gathered from both publicly available databases, and databases that contain business-confidential information. Publicly available data is generally aggregated and broad information. Business-confidential data is much more specific, and includes proprietary information which businesses generally do not make public.

USEPA obtained some confidential data by executing agreements with other federal agencies that collect this information. All data presented in this report was screened to remove company-specific information. The discussion of the data below is divided into three categories: commodities, traffic, and geographic and environmental data.

This chapter is a description of each data source and category. The analysis of the data is provided in chapter 6 below. Before analyzing the data, some terminology definitions are provided below.

1. **Movement[4] –** Transportation by a single truck or rail car from a point of origin to a point of either (a) transfer to another vehicle, or (b) final delivery of the freight. For example, assume that a single container of freight is hauled by truck to a rail intermodal terminal, placed on a rail car and hauled to another rail terminal, and then placed on a truck for final delivery. That one shipment is considered to involve three separate movements: (1) highway, (2) rail, and then (3) highway.

2. **Shipment[5] -** A shipment is an individual movement of goods from one location to a customer or to another location of the company (including a warehouse, distribution center, retail or wholesale outlet). A shipment may use one or more modes of transportation, including parcel delivery, private truck, for-hire truck, rail, water, pipeline, air and other modes.

3. **HTS Codes –** The import data used in this study was provided by US Customs organized according to the Harmonized Tariff System (HTS). The HTS is the global classification system that describes most world trade in goods. This classification system is used in this study to help identify categories of hazardous materials. The HTS codes refer to a numeric system (10 digits long) assigned to a specific product or hazardous material. The first 2-digits of the code number (referred to as a chapter) are a broad hazardous material category. As the hazardous material description becomes more detailed, the numeric code becomes longer, up to 10 digits.

[4] US Department of Transportation
[5] US Bureau of Census

For example, 29 is the 2-digit code for organic chemicals. This description covers a broad group of goods. Code 2901 describes a specific organic chemical, acyclic hydrocarbons. Code 2901.10 covers saturated acyclic hydrocarbons. Code 2901.10.10.00 is a smaller group of commodities within the saturated acyclic hydrocarbon group, consisting of ethane and butane.

As of January 1, 2000, there were 17,032 10-digit statistical categories in the HTS. For purposes of this study, we identified and used 44 of the 10-digit HTS codes (within 11 of the 2-digit HTS codes) as the codes that included hazardous materials. The 11 selected 2-digit HTS codes are listed in Table 5-1. The 44 selected 10-digit HTS codes are listed in Appendix A.

4. **Standard International Trade Classification (SITC)[6] –** The export data used in this study was provided by the US Bureau of Census organized according to the Standard International Trade Classification (SITC). The SITC is another system of classifying international trade, using 1-digit to 5-digit codes. Like the HTS, the fewer the digits, the broader the category. The entire SITC is approximately 3,000 5-digit SITC codes. For purposes of this study, we identified and used about 228 of the 5-digit codes (within 10 of the 2-digit codes) as the codes that included hazardous materials. The 5-digit SITC codes used are listed in Appendix B.

The Harmonized Tariff System codes and SITC codes are similar, but not identical. As a result, comparisons between imports and exports of goods of the same type are not as exact as a uniform coding system would allow. However, such comparisons are not important for purposes of this study. For this study, the detail provided by the coding systems is adequate to identify the nature of the hazardous material.

5. **Mode of Transportation** –Transportation is categorized into three groups: air, vessel, and surface. Air is hazardous material movement by airplane, vessel is shipping goods by sea (ships, boats, etc.), and surface movement consists of commodities transported by truck, rail, or pipeline.

5.1 Commodity Data

Commodities are tracked by imports and exports through two agencies, US Customs and US Bureau of Census. Import and export information is available by mode of transportation, port of entry/exit, volume, shipment weight, and value.

US Customs tracks commodity movements entering the United States electronically, through the Automated Commercial System (ACS). The goods entering the US are categorized by the HTS. Additionally, US Customs staff at international ports of entry maintain local databases to track commercial traffic volume, inspections, seizures and other special operations. As part of the import inspection process, the port of entry at Calexico records shipments of hazardous materials into a local database. This system is linked to larger US Customs databases where vital statistics are stored and analyzed. This data is confidential.

[6] www.census.gov

USEPA Region 9 made an agreement with US Customs to obtain sufficient hazardous material data for this study.

US Customs assigns 10-digit HTS codes to all imported commodities. Information about each imported shipment is recorded in a database. This database identifies the hazardous materials imported into the US. Table 5-1 below identifies the specific hazardous materials for which import information was collected for this study, organized by 2-digit HTS code. The 10-digit HTS codes used in this study are listed in Appendix A. We include the entire HTS description in Table 5-1, even though only selected categories within each 2-digit code were used in the study, as specified in Appendix A.

Table 5-1: Imported Hazardous Materials by HTS Code

HTS Code	HTS Description
27	Mineral fuels, mineral oils and products of their distillation
28	Inorganic chemicals; compounds of precious metals, rare earth metals, radioactive elements
29	Organic chemicals
31	Fertilizers
32	Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other coloring matter; paints and varnishes; other mastics; inks
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations
34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modeling pastes, dental waxes and dental preparations with a basis of plaster
35	Albuminoidal substances; modified starches; glues; enzymes
37	Photographic or cinematographic goods
38	Miscellaneous chemical products
93	Arms and ammunition; parts and accessories thereof

Source: Harmonized Tariff Schedule of the United States (2000).

All imports, including hazardous waste, are assigned an HTS code and included in the HTS database. Hazardous waste quantities are included within HTS codes 28 (inorganic chemicals), 29 (organic chemicals), and 38 (miscellaneous chemical products). However, because there is no specific HTS code for hazardous waste, we were not able to distinguish hazardous waste from the overall categories of hazardous materials. Our ability to sort out hazardous waste shipments from the total of all hazardous materials would improve with information expected to be available soon from the US/Mexico hazardous waste tracking system known as Haztraks. Haztraks was created jointly by the USEPA and the Mexican Environmental Ministry to track the movement of hazardous waste between the U.S.

and Mexico. Information about Haztraks is available at http://www.epa.gov/ earth1r6/6en/h/haztraks/haztraks.htm.

US Customs ensures that hazardous waste cargo entering the US is accompanied by a hazardous waste manifest form, but they do not compile or track this data. However, US Customs does send a copy of the importer's hazardous waste manifest form to a USEPA centralized data base, where it is entered into Haztraks. Once this information is obtainable, we will be able to determine, among other things, the percentage of total hazardous materials imported into the US that is actually hazardous waste, and the disposal location for this waste.

The export data is from the US Bureau of Census, organized by SITC code. In the export database, exported goods are described by SITC code, port of exit, mode of transportation (air, vessel, and surface, in which surface consist of rail, truck and pipeline), values and year. The 2-digit SITC codes used in this study are listed in Table 5-2 below. The 5-digit SITC codes used in this study appear in Appendix B.

Table 5-2: Exported Hazardous Materials by SITC Code

SITC Code	SITC Description
32	Coal, coke and briquettes
33	Petroleum, petroleum products and related materials
34	Gas, natural and manufactured
51	Organic chemicals
52	Inorganic chemicals
53	Dyeing, tanning and coloring materials
55	Polishing and cleansing preparations
56	Fertilizers
57	Plastics in primary forms
59	Chemical materials and products

Source: US Bureau of Census.

5.2 Traffic Data

The US Department of Transportation (USDOT), Bureau of Transportation Statistics (BTS) maintains the Rail Waybill database. This database contains proprietary and confidential rail shipment information. The data includes original destination regions, type of commodity, number of cars divided by tons, and values. USEPA Region 9 submitted a written request to the US Department of Transportation, Bureau of Transportation Statistics for the release of the data for this study.

Unlike the Rail Waybill, the Transborder Surface Freight database is accessible from the BTS web page. These two databases can be used to obtain information on exported goods by border port, mode of transportation, and 5-digit SITC code.

BTS also produces a Commodity Flow Survey. This survey is conducted every five years. The survey data is organized at a national, regional, and state level. The latest survey contains 1997 data. In another publication, the 1997 Commodity Flow

Study Hazardous Shipping Material, data is presented on hazardous material[7] shipment characteristics.

This data was used for an overall analysis because the information covers a broad area. More specific data was used for traffic north/south and east/west in the Calexico area. Based on the industries located north and east of Calexico, the routes and flows of hazardous materials in the Calexico area were identified.

5.3 Geographic and Environmental Data

This data was obtained through a number of web sites, maps of the City of Calexico, a visit to the city, and interviews with local authorities.

The city's website at www.calexico.ca.gov provides maps of the city and the Redevelopment Implementation Plan. These maps show the locations of airports, brokerage warehouses, waterways, residential areas, business district, and other features. The maps give an overall picture of the sensitive areas. The Department of Commerce in the City of Calexico (on the same web page) provides the listing of schools, hospitals/medical clinics, and fire and police departments.

The US Coast Guard's National Response Center web page provides accident and spills data.[8] Data is available from January 1978 through August 2000. Because the most relevant data is the most recent, only data from 1990 to 2000 was used in this study.

This study includes information from interviews with Calexico Planning Department officials as well as representatives from the police, the fire department, and the U.S. Navy at the Naval Air Facility El Centro (NAFEC). Interviews with the Planning Department centered around the development plans for the city, mainly residential development and its relationship to potential human exposure in case of a hazardous material accident on highly traveled routes in the newly developed areas.

Interviews with the Police Department identified potential high-risk intersections. Interviews with the Fire Department indicated that Imperial County has one emergency response vehicle, which is supposed to rotate among various city and county fire departments. The City of Calexico is not currently on the rotation schedule because the city does not have an appropriate building in which to house the vehicle. The vehicle must be stored in an air conditioned facility. The vehicle is too large for the City's fire stations. In the worst case, the vehicle may take two hours to arrive at an accident site from elsewhere in the county. Interviews with NAFEC indicated that emergency response support may be available from NAFEC in the event of a local hazardous material incident.

[7] The USDOT defines hazardous materials as belonging to one of nine hazard classes: Explosives, Gases, Flammable Liquids, Flammable Solids, Oxidizers and Organic Peroxides, Toxic Materials and Infectious Substances, Radioactive Materials, Corrosive Materials, and Miscellaneous Dangerous Goods.

[8] www.nrc.uscg.mil

6 Data Analysis

This chapter describes the movement of hazardous materials through the region. First, the general movement of commodities is discussed, followed by a detailed analysis of hazardous materials in transit. The analysis covers cross-border movements at the Calexico-East port of entry, east/west traffic along I-8, and local traffic.

From an overall perspective, hazardous material exports through Calexico are significantly more numerous than hazardous material imports, measured by the number of trucks. The reason is that the majority of cross border traffic through Calexico is regional in nature. Over 80% of goods are shipped by truck. Over 85% of exports originate in California and are destined for the neighboring state of Baja California. Exports are often raw materials or partial products intended for production plants in Mexicali. Finished goods returning to the US dominate imports. Finished goods are less likely to be hazardous than the raw materials used in production. An example is raw materials for plastic production, such as polyester resin and other chemicals, leaving the US, and plastic toys returning from Mexico.

Exports may pose a greater risk to Calexico than imports for other reasons. Materials to be exported tend to remain in the region longer than imports. Imports cross the border and proceed immediately either north on State Route 111 (SR-111) or east/west on I-8 to their final destination, simply passing through Calexico and Imperial County. In contrast, exports often remain in Calexico warehouses or parking lots for consolidation or export clearance. This extended time in the region increases the risk of an incident occurring locally. For example, the risks of propane awaiting export are greater than the risks of propane just passing through, because of the longer period of time involved.

Next, the traffic network in the region was analyzed in order to identify problem areas or hot spots. Three areas were identified as most critical (1) the high levels of truck traffic on Cole Road and State Route 98 (SR-98) between the City of Calexico and the Calexico-East border crossing, (2) warehouses and truck transfer stations, and (3) the railcars waiting to cross the downtown border on the Union Pacific tracks between 4th and 7th Streets. The truck transfer stations are often unregulated surface lots in which trucks destined for the border wait to receive a customs clearance or a new cab and driver for the continued trip into Mexico. Many of these lots are located around Cole Road in the northern part of Calexico. Trucks from these lots travel through densely populated areas on their way to the border at Calexico-East. Idle railcars have been involved in hazardous incidents, such as tank cars loaded with liquid natural gas (LNG), which have vented gas because of the increase in temperature of the cargo while exposed to the desert heat.

The third section of this chapter addresses the specific local characteristics that lead to the movement of hazardous materials. The gypsum plant, the prisons, and NAFEC, and their impact on hazardous material movements, was analyzed. This section also addresses the history of reported hazardous material spills from fixed facilities and mobile sources in both the county and the region.

Prisons. There are two state prisons in Imperial County: Centinela State Prison (in Imperial) and Calipatria State Prison (in Calipatria). Both prisons occupy roughly 3,200 acres of land. Centinela State Prison provides confinement for Level I (minimum custody) and Level III (high-medium custody) inmates who are willing to participate in vocational, academic or support service programs. Centinela also has an Institutional Hearing Program (IHP), which prepares inmates who are undocumented aliens for return to their native lands through the Immigration and Naturalization Service.

Calipatria State Prison provides confinement for Level I (minimum custody), Level III (high-medium custody), and Level IV (maximum custody) inmates who are willing to participate in vocational or academic programs, prison industries or support services. Additionally, a portion of the prison is designated by the Immigration and Naturalization Service to house those inmates with active holds who are within 30-45 days of their scheduled release date.

In the event of a catastrophic release, impacts to the prison staff and inmates could present significant problems if evacuation were necessary. Emergency response planning and drills are particularly important for a population at risk.

6.1 Hazardous Material Movements

Commodities flow in, through, and out of the Calexico-East port daily. The movement of hazardous materials through Imperial County (the Calexico/El Centro region in particular) is defined by (1) cross border traffic with Mexico, (2) through traffic between Arizona and the San Diego and Los Angeles metropolitan areas, and (3) local traffic from production sites or consumption in the region.

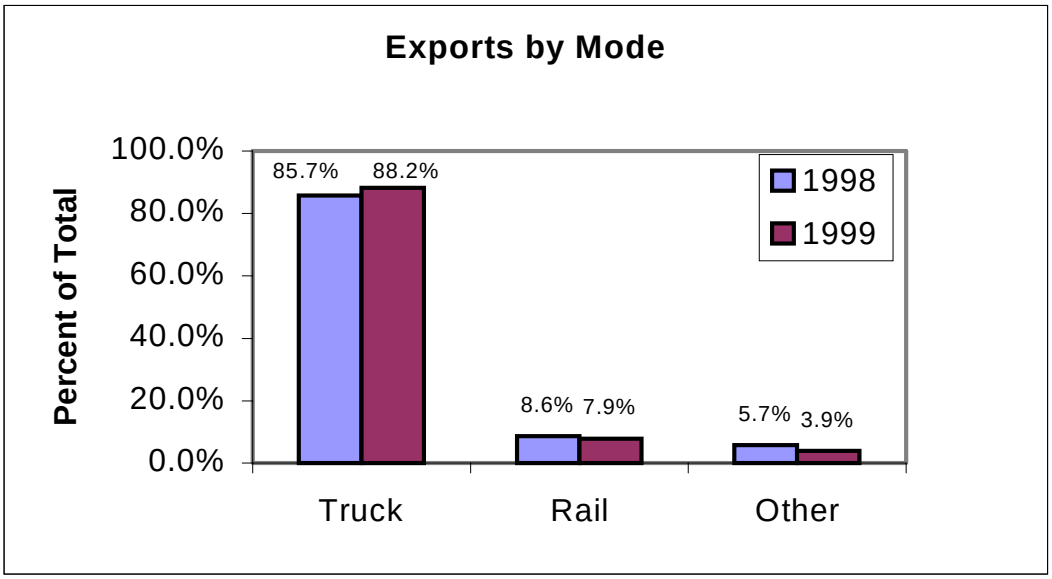
6.1.1 *Cross Border Movements*

In this section, we address cross border movements along the entire US/Mexico border as background, then focus on the border area at Calexico.

The cross border traffic between the US and Mexico contributes significantly to the movement of hazardous materials through the region. The total value of goods traded between the US and Mexico was $152 billion in 1998 and $171 billion in 1999.[9] Exports from the US to Mexico increased from $70 billion to $76 billion from 1998 to 1999. At the same time imports from Mexico to the US increased from $82 billion to $95 billion.[10] The surface trade between the two countries is mainly by truck. More than 80% ($143 billion in 1999) of all trade by value travels by truck. As shown in Figure 6-1 and Figure 6-2, imports have a slightly higher percentage of rail traffic, 15% versus 8%, and slightly lower percentage of truck traffic, 80% versus 86%. However, in either case, truck is the dominating mode of transportation by 10 to 1 (exports) and 5 to 1 (imports).

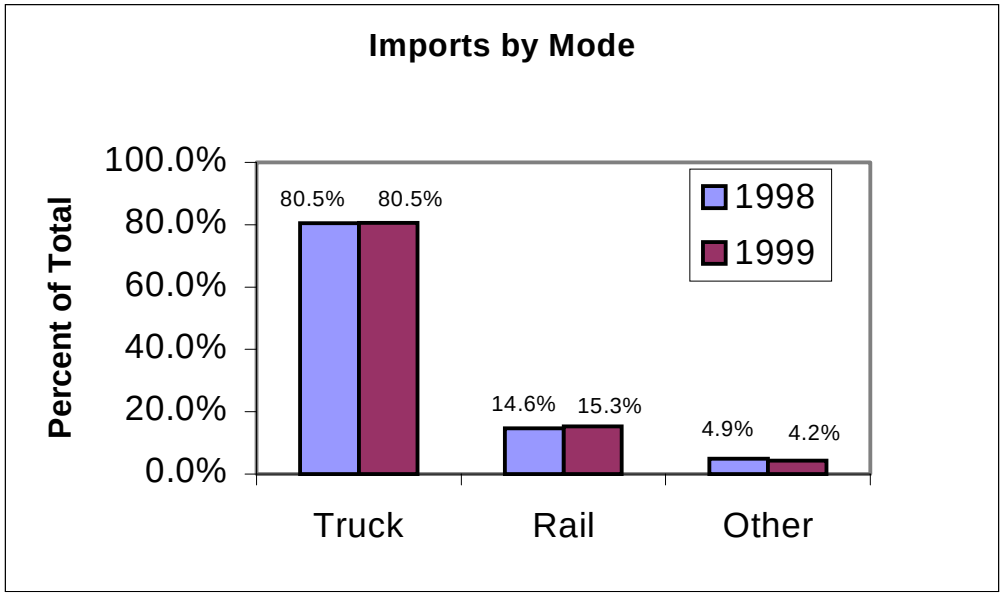
[9] US Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Dataset (1999)
[10] Ibid.

Figure 6-1: Percentage Breakdown of Exports by Mode of Transportation (1998-1999)



Source: US Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Dataset (1999)

Figure 6-2: Percentage Breakdown of Imports by Mode of Transportation (1998-1999)



Source: US Customs.

Cross border traffic between the US and Mexico is concentrated at particular ports of entry. The four large border crossings in Texas account for almost 70% of all surface traffic between the US and Mexico. The largest port, Laredo, alone accounts for nearly 40% of all surface traffic. California ports account for roughly $25 billion worth of surface trade between the US and Mexico, which represents close to 15% of the overall surface trade between the two countries. The port of

Calexico-East saw about $8 billion worth of surface trade in 1999 or a little over 5% of all surface trade between the US and Mexico.

Of the overall traffic between the US and Mexico, hazardous materials make up roughly 3.5% of the total value of imports and exports. This amount is fairly constant both over time as well as for imports and exports. At the national level, the top five hazardous materials for imports and exports are organic chemicals, mineral oils and fuels, miscellaneous chemicals, inorganic chemicals, and paints.

In lieu of dollar value, it is more important for purposes of this study to identify the quantities of hazardous materials that cross the border, in order to determine the number of trucks or rail cars that travel through the Calexico community. Import statistics are kept by value and weight, but export data is collected by value only. Utilizing the import data, the export values were converted into weight data as well. Imports of hazardous materials in tons from Mexico to the US via the port of Calexico-East by truck and rail for the years 1998 and 1999 are shown in Table 6-1.

Table 6-1: Calexico-East Surface Imports by HTS Code: 1998-1999

	Truck 1998	Tons		Truck 1999	Tons
34	Scouring Preparations	17,321	34	Scouring Preparations	14,585
38	Miscellaneous Chemicals	5,215	35	Albuminoidal substances	1,981
35	Albuminoidal substances	1,749	38	Miscellaneous Chemicals	1,344
29	Organic Chemicals	856	27	Mineral Fuels and Oils	818
27	Mineral Fuels and Oils	231	29	Organic Chemicals	732
37	Photographic Goods	58	31	Fertilizer	246
31	Fertilizer	41	32	Paints	44
32	Paints	23	28	Inorganic Chemicals	35
33	Perfumery	13	33	Perfumery	33
28	Inorganic Chemicals	5	37	Photographic Goods	30
	Total Truck	**25,512**			**19,848**
	Rail 1998	**Tons**		**Rail 1999**	**Tons**
27	Mineral Fuels and Oils	4,267	27	Mineral Fuels and Oils	5,328
38	Miscellaneous Chemicals	2,550	34	Scouring Preparations	19
	Total Rail	**6,817**			**5,347**
	Total Truck & Rail	**32,329**			**25,195**

Source: US Customs, November 2000

Exports of hazardous materials from the US to Mexico via the port of Calexico-East for the years 1998 and 1999 are shown in Table 6-2 below. The export data available does not identify the surface mode (truck or rail) directly.[11] Other sources of data on commodities exported from the US to Mexico indicate that most common hazardous materials transported by rail are mineral fuels and oils, and organic and inorganic chemicals.

A breakdown between truck and rail shipments for exports of hazardous materials is not available. A truck/rail breakdown of all exports is a reasonable approximation.

[11] US Census Bureau

The overall value of rail exports to Mexico via Calexico-East in 1998 and 1999 was $37 million and $39 million respectively.[12] This compares to $2.7 billion and $3.4 billion in truck exports for the same years. This difference indicates that total rail exports account for only 1% of total surface exports via the port of Calexico-East. Local research indicates that exports of liquefied natural gas (LNG) are a significant part of rail exports. This study assumed that half the natural gas exported to Mexico via Calexico-East traveled by rail. All other hazardous commodities were assumed to travel by truck only.

Table 6-2: Value of Calexico-East Surface Exports by SITC Code: 1998-1999

SITC CODE		1998 Surface VALUE	1999 Surface VALUE
57	PLASTICS IN PRIMARY FORMS	$30,827,037	$39,777,458
34	GAS, NATURAL AND MANUFACTURED	$19,622,396	$12,774,719
59	CHEMICAL MATERIALS AND PRODUCTS	$10,269,251	$11,955,229
52	INORGANIC CHEMICALS	$6,067,511	$10,729,095
53	DYEING, TANNING AND COLORING MATERIALS	$8,430,360	$9,126,535
56	FERTILIZERS	$7,520,087	$7,618,357
33	PETROLEUM, PETROLEUM PRODUCTS AND RELATED MATERIALS	$6,251,283	$5,658,859
51	ORGANIC CHEMICALS	$3,185,926	$1,054,143
55	POLISHING AND CLEANSING PREPARATIONS	$1,519,403	$865,840
32	COAL, COKE AND BRIQUETTES	$159,780	$72,468
	Total	**$93,853,034**	**$99,632,703**

Source: US Bureau of Census, November 2000

Based on the value to weight ratios available from the import data, the weight of the hazardous materials exported was estimated. Table 6-3 below shows the weight of hazardous materials exported via Calexico-East in 1998 and 1999. Liquefied gas and petroleum products account for a larger portion of the weight of the hazardous materials exported than the value exported due to the high weight to value ratio of these materials.

Table 6-3: Weight of Calexico-East Surface Exports by SITC Code: 1998-1999

SITC CODE		1998 Tons	1999 Tons
34	GAS, NATURAL AND MANUFACTURED	75505	49156
33	PETROLEUM, PETROLEUM PRODUCTS AND RELATED MATERIALS	48109	43550
57	PLASTICS IN PRIMARY FORMS	18130	23394
52	INORGANIC CHEMICALS	10562	18676
56	FERTILIZERS	14762	14955
59	CHEMICAL MATERIALS AND PRODUCTS	6040	7031
53	DYEING, TANNING AND COLORING MATERIALS	2656	2875
55	POLISHING AND CLEANSING PREPARATIONS	710	404
51	ORGANIC CHEMICALS	1021	338
32	COAL, COKE AND BRIQUETTES	100	45
	Total	**177595**	**160424**

Source: Science Applications International Corporation based on US Census Bureau exports data

[12] US Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Dataset (1999)

6.1.2 *East/West Movements*

Traffic moving between Arizona and the San Diego and Los Angeles metropolitan areas travels through Imperial county on I-8 and north on SR-86 and SR-111. No specific traffic counts are available that would indicate the number of trucks carrying hazardous materials on these roads. The national average is that roughly 7% of trucks carry hazardous materials.[13] In order to determine whether I-8 is carrying hazardous material shipments above or below the national average, the industrial base of key cities along the route was examined.

The economic activities in the Yuma, San Diego, and Los Angeles areas do not indicate above average shipment between these areas along I-8. The Los Angeles metro area is one of the largest ports of entry in the country. However, most of the goods landing in the ports of Los Angeles and Long Beach leave the area, either by rail toward Phoenix on the Union Pacific Sunset Route or by truck to Interstate 5, which runs north and south. The Yuma metro region has no chemical industry and little other manufacturing that would involve hazardous materials.[14] Economic activity in the Yuma region is clearly dominated by service industries, agriculture, and trade, with manufacturing playing a very limited role in the regional economy (5% of total earnings).

Manufacturing plays a larger role in the San Diego region at 13% of total earnings and income. However, over 50% of earnings and income are generated by service industries. Manufacturing in the San Diego region is mainly in the electronics sector. Industries intensive in hazardous materials use, such as chemicals or petroleum products, account for less than 10% of manufacturing earnings and income.

The economic data for both the San Diego and Yuma regions as well as for Imperial County itself support the assumption that hazardous material shipments account for no more than the national average of 7% of truck traffic through the region.

6.1.3 *Local Movements*

The predominant sources of employment in the Imperial County local economy are agriculture and service industries, as shown in Table 3-2 (page 8). In 1997, only 1,954 employees out of a total of 61,598 employees in Imperial County were employed in manufacturing.[15] Personal income data shows that only a small fraction of income in the county is generated by chemicals or related products[16]. The data shows significant activity related to transportation and warehousing. However, this activity is related to imports and exports, as described in section 6.1.1 above (cross border movements). One factor that contributes to the shipment of hazardous materials is NAFEC. The U.S. Navy maintains a fuel depot in El Centro that supplies NAFEC with jet fuel via a pipeline. However, locally generated traffic

[13] US Census Bureau, 1997 Economic Census, Transportation - Commodity Flow Survey
[14] US Department of Commerce, Bureau of Economic Analysis, Regional Accounts Data 1997
[15] US Department of Commerce, Bureau of Economic Analysis, Regional Economic Information for Imperial County, California 1997
[16] Ibid.

does not result in above average shipments of hazardous materials through the county. It can be assumed that the levels of traffic unrelated to the border on local roads that carry hazardous materials are similar to national averages.

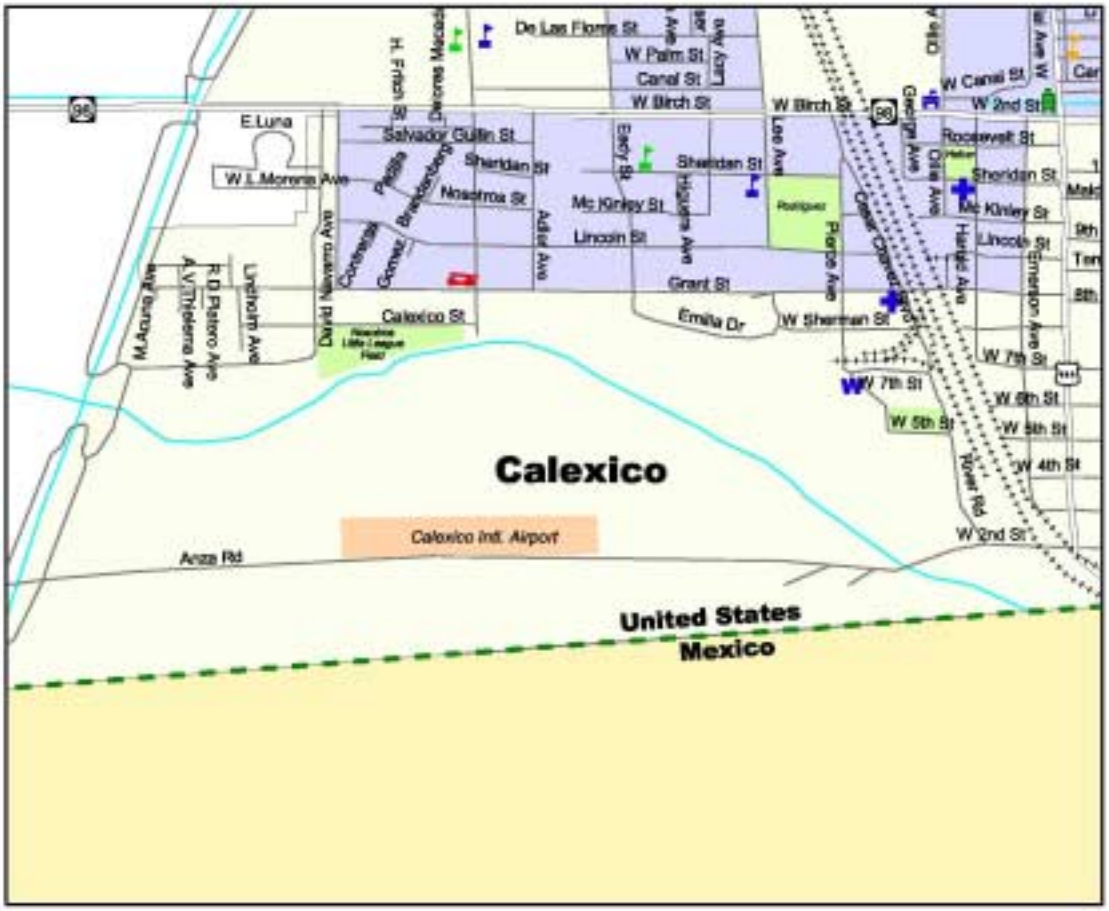
6.2 Traffic Network Description

Highways and railways provide strategic corridors in both north/south and east/west directions through Imperial County. There are eighteen carriers for intrastate and interstate truck service to and from Mexicali to Calexico. California SR-98 (traffic movement west to east) and SR-111 (traffic movement south to north), with direct connections to I-8 (7 miles north of Calexico) and SR-86, serve the county. The second mode of transporting hazardous materials through the county and across the border is by rail. Rail service is provided by Union Pacific Railroad, and connects with the main line to Portland, Rock Island, Tucumcari, St. Louis, and New Orleans.

The City of Calexico is divided into four quadrants at the intersection of SR-111 (north/south direction) and SR-98 (east/west direction). The quadrants appear in Figures 6-3, 6-4, 6-5 and 6-6 below, which are portions to the complete map at Figure 3-1. The legend for the quadrants appears in Figure 3-1. SR-111 is the most used border crossing route for pedestrians at the Calexico-Downtown port. This port at one time was the only port for border traffic. Because of the high volume of traffic, the Calexico-East port was built to accommodate the truck traffic. The construction of the new port of entry alleviated the volume of traffic at the Calexico-Downtown port.

The railroad track to the border is located on the west side of SR-111 with two commercial stops. Most railcars waiting for border permits linger on the railroad tracks between 7th Street and 4th Street. Railcars are allowed to wait up to 48 hours on the railroad tracks for border permits.

Figure 6-3: Southwest Quadrant of Calexico

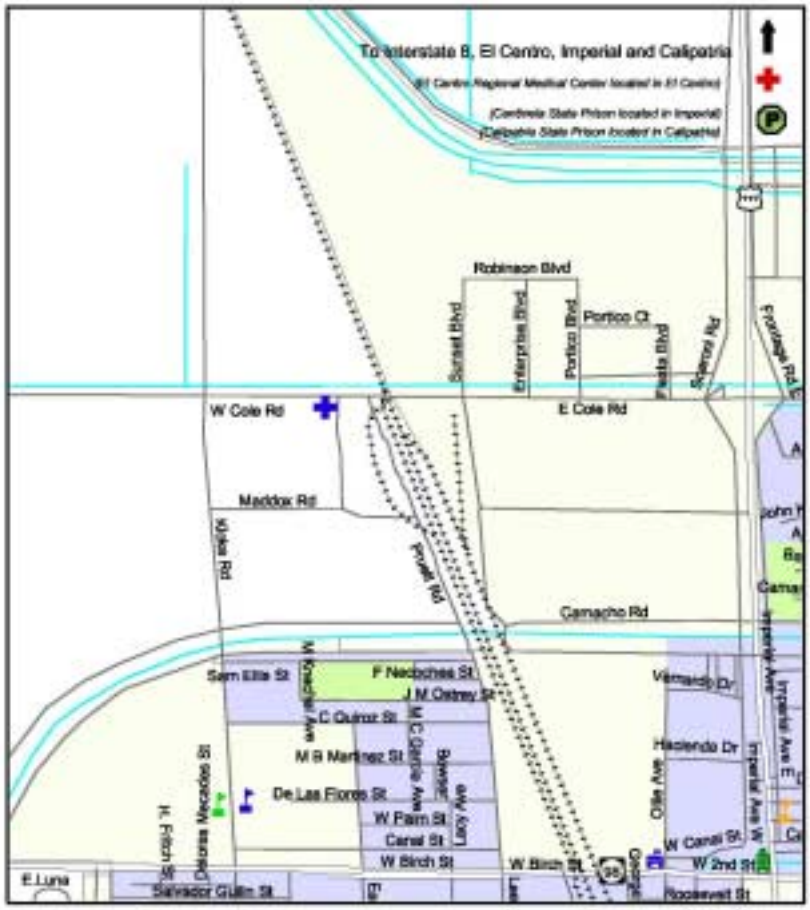


Source: TIGER files, US Census Bureau (1995); www.calexico.ca.gov (2000)

The southwest quadrant of the city includes the Calexico International Airport. The airport has a single east/west runway on approximately 305 acres of land. The airport is 120 miles east of San Diego and 15 miles south of I-8 off SR-111. This quadrant also has two medical clinics (one on each side of the railroad tracks) and a fire station on Grant Street. Local authorities marked only one intersection in this quadrant as a potential traffic risk area: Grant Street and SR-111.

Two waterways appear in this quadrant: the New River and the All American Canal. The New River runs between Mexicali and Calexico. The All American Canal (not labeled, but shown intersecting the New River on the left side of Figure 6-3) runs from the southwest quadrant through the northwest quadrant into the northeast quadrant. The New River and the All American Canal are two of three major water systems upon which the City of Calexico relies for irrigation and treated drinking water.

Figure 6-4: Northwest Quadrant of Calexico

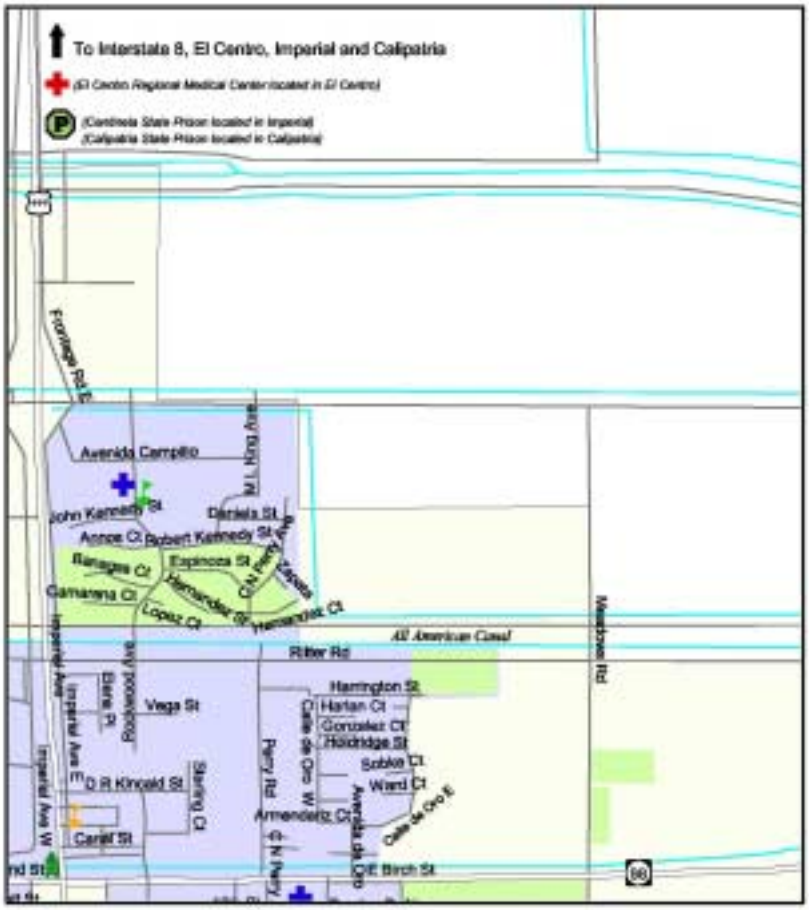


Source: TIGER files, US Census Bureau (1995); www.calexico.ca.gov (2000)

The northwest quadrant includes two major roads: Cole Road and Kloke Road. Local authorities marked intersections on both roads as potential traffic risk areas. These intersections are Cole Road and I-8, Cole Road and Kloke, and Cole Road and SR-111. Current and potential residential developments are located near these intersections. Brokerage warehouses (located north of Cole Road) appear in this quadrant.

Truck traffic is heavy on SR-111 to Cole Road and the brokerage warehouses. Trucks wait for border permits at the warehouses. Unlike the 48 hour limit on waiting railcars discussed above, there is no time limit on trucks waiting for border permits.

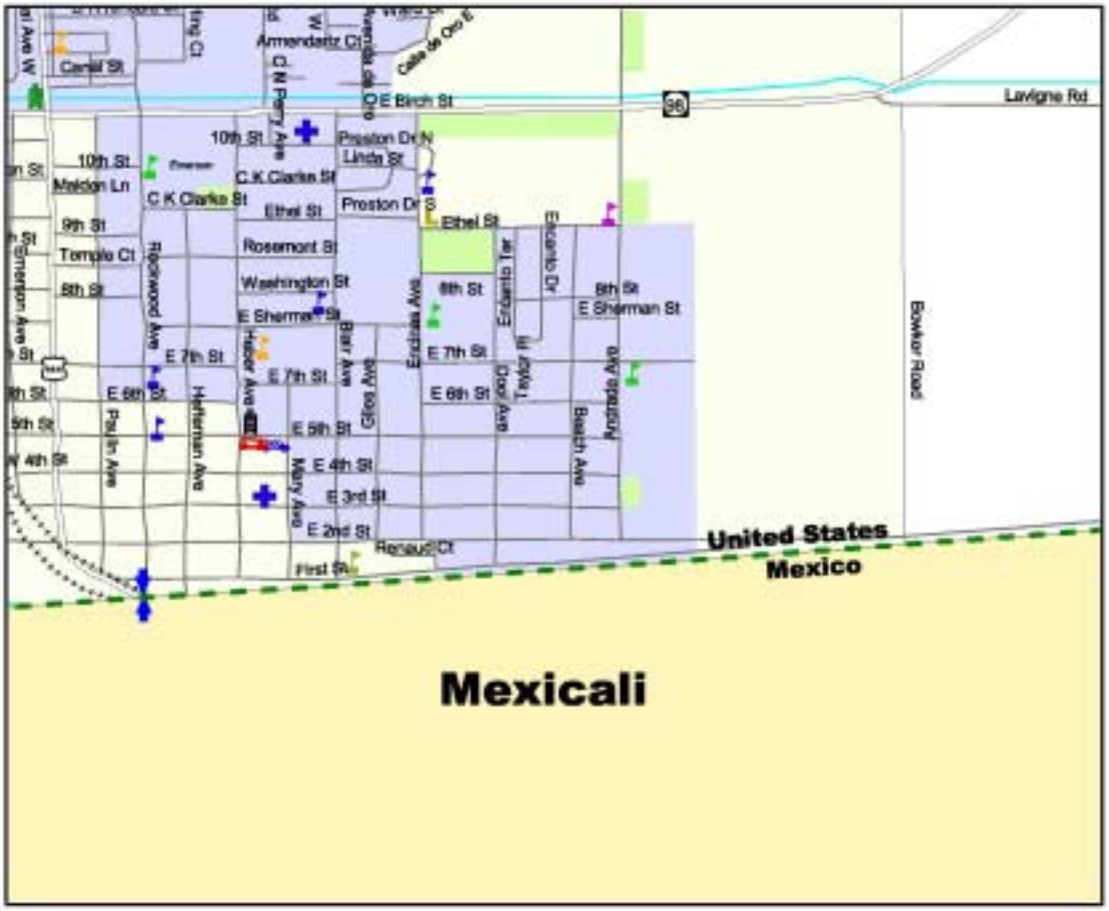
Figure 6-5: Northeast Quadrant of Calexico



Source: TIGER files, US Census Bureau (1995); www.calexico.ca.gov (2000)

The northeast quadrant is primarily a highly populated residential area. This area includes one medical clinic. In this quadrant, local authorities identified the following intersections as potential traffic risk areas: Cole Road/Meadows Road, Meadows Road/SR-98, Cole Road/Bowker Road, and Bowker Road/SR-98.

Figure 6-6: Southeast Quadrant of Calexico



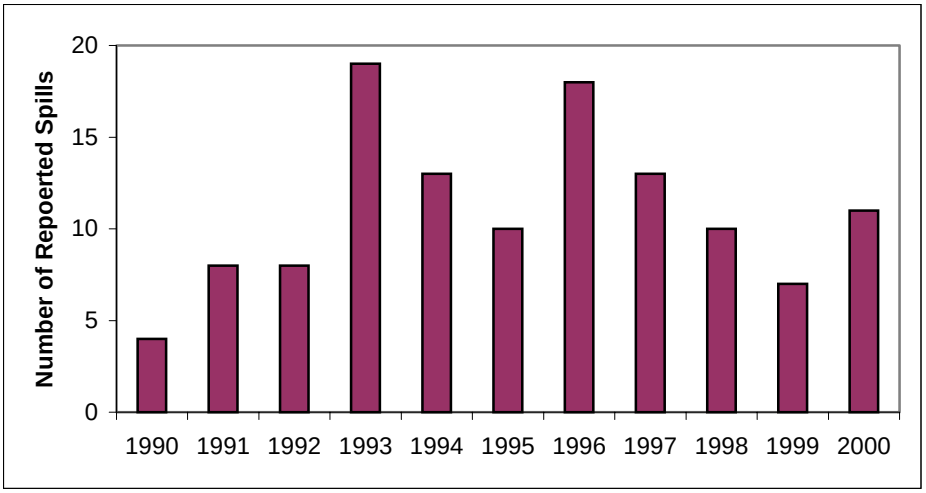
Source: TIGER files, US Census Bureau (1995); www.calexico.ca.gov (2000)

The southeast quadrant includes the business district and residential areas. There are two medical clinics. The main fire station and the police department are within a block of each other. Local authorities did not identify any intersections in this quadrant as potential traffic risk areas, because of the absence of truck traffic at the Calexico-Downtown port. Since the Calexico-East border opened, traffic has been alleviated in the business district.

6.3 Local Characteristics

During the past decade, 117 hazardous material spills in Imperial County have been reported to the National Response Center. The reported releases have occurred from fixed facilities and during transportation. Figure 6-7 shows the number of reported hazardous material spills in Imperial County each year for the past ten years. In Calexico alone, there have been 10 reported hazardous material spills during the last ten years.

Figure 6-7: Imperial County, Hazardous Material Spills, 1990-2000



Source: US Coast Guard, National Response Center, November 2000

It is widely assumed that many if not most hazardous material spills go unreported to the authorities. It is a federal and state requirement that the party responsible for releasing the hazardous material into the environment report such "spills" to a variety of agencies that keep such data and take follow up action. Even when the party cleans up their spills, they must still report them. Therefore, spill history data consists of only of those spills that are reported, largely representing those parties who have complied with spill reporting requirements.

Table 6-4 provides a description of responsible parties according to historical documentation of reported hazardous material incidents. The data indicates that over the past 10 years, NAFEC reported approximately 12% of the reported spills in Imperial Country. The railroads operating in the county reported over 10% of the reported spills. However, over half of the reported spills were made either by unknown parties or by one-time spillers. Incidents involving hazardous materials are often unpredictable in timing and source.

Table 6-4: Imperial County, CA, Responsible Parties, Number of Reported Spills (1990-2000)

Responsible Party	*Number of Reported Spills*	*Percent of Total Reported Spills*
Unknown	30	24.8%
Naval Air Facility El Centro	15	12.4%
Marine Corps Air Station Yuma	8	6.6%
Southern Pacific Railroad	7	5.8%
CAL Energy	6	5.0%
Union Pacific Railroad	3	2.5%
Santa Fe Pacific Pipeline	3	2.5%
Imperial Valley GMC	3	2.5%
Two-time spillers	4	3.3%
One-time spillers	38	31.4%

Source: US Coast Guard, National Response Center, November 2000

Table 6-5 identifies the actual hazardous material released during reported spills in Imperial County in the past ten years. Petroleum products (oil, jet fuel and gasoline) were the most common substances released.

Table 6-5: Imperial County, CA, Material Spilled, Frequency, 1990-2000

Material	*Frequency*
Oils	38
Jet Fuels	23
Gasoline	10
Ammonia, ammonia compounds	13
Acids	7
Brines	6
Paints	3
All Others	21
Total	**121**

Source: US Coast Guard, National Response Center, November 2000

Table 6-6 provides a snap shot of reported hazardous material spills in Calexico over the past 10 years. The table provides information on the incident date, suspected responsible party, type of incident, medium affected, and identity of the hazardous material involved. The majority of the reported hazardous material spills in Calexico occurred on a railroad route. Of the five rail incidents, four involved liquefied petroleum gas or propane. All four incidents affected the air through the venting of gas from tank cars.

Table 6-6: Calexico, CA, Hazardous Material Incident Reports, 1990-2000

Incident Date	*Responsible Party*	*Type of Incident*	*Medium Affected*	*Material Released*
06/29/1990	Yellow Freight Co.	Fixed	Land	Toluene 2,4-Diisocyanate
11/01/1991	Unknown	Fixed	Land	Ammonium Nitrate
07/06/1994	Southern Pacific RR	Railroad	Air	Liquefied Petroleum Gas
06/23/1995	Southern Pacific RR	Railroad	Air	Liquefied Petroleum Gas
07/28/1995	Southern Pacific RR	Railroad	Air	Liquefied Petroleum Gas
06/28/1996	Southern Pacific RR	Railroad	Unknown	Phosphoric Acid
06/17/1997	Conway Western Express	Mobile	Land	Phorate 6.1 UN 2783 PG 2
08/03/1997	Unknown	Mobile	Water	Gasoline: Automotive (Unleaded)
11/19/1997	8 Star Commodity Co.	Mobile	Land	Ammonium Nitrate
08/04/1998	Union Pacific	Railroad	Air	Propane
02/29/2000	Southern California Gas	Pipeline	Air	Natural Gas

Source: US Coast Guard, National Response Center, November 2000

7 Identifying Hazardous Material Transportation Routes

This chapter shows how hazardous materials crossing the border and traveling east and west along I-8 translate into numbers of trucks per day on individual stretches of roads in Imperial County and the City of Calexico. This chapter further identifies the number of railcars that travel through Calexico per year carrying hazardous materials to and from Mexico.

The truck data shows that hazardous materials transported to Mexico resulted in seven or eight times as many trucks as imports in 1998 and 1999. All movements to and from the border account for roughly one-fifth of the total number of trucks carrying hazardous materials on I-8. The analysis shows that the number of trucks carrying hazardous materials on I-8 is significantly higher than the trucks traveling to and from the border through Calexico. However, the trucks traveling through Calexico travel on roads that traverse densely populated neighborhoods with schools and other sensitive areas. Despite the lower numbers of border-related hazardous material truck traffic, such traffic still represents a significant concern to the immediate population and environment.

7.1 Truck Traffic

The amount of hazardous materials moving through the region is based on the amount shipped across the border, and on average truck traffic counts on the east/west interstate and local roads. The analysis assumed that an average truck carries 26 tons of hazardous material and that an average rail car carries 100 tons.[17]

The cross border truck traffic carrying hazardous materials through the Calexico/El Centro region was based on the data described in section 6.1.1 above. Exports of hazardous materials are more numerous than imports, because much of the exports traveling through Calexico-East via truck are destined for manufacturing facilities in neighboring Mexicali. For example, plastics in primary form, such as polyester resins, exported to Mexicali may return in the form of finished goods that no longer are considered hazardous. Trade data shows that the origin and destination of the overwhelming majority of truck exports are local to the California/Baja California region. Over 90% of truck exports traveling through Calexico-East originate in California. Over 95% have a destination in Baja California[18]. Table 7-1 and Table 7-2 below list the number of trucks that carried hazardous materials through Calexico-East in 1998 and 1999. The largest group of imported hazardous materials is cleaning solutions, which account for over 70% of all hazardous material imported. Exports are more diverse, with natural gas and petroleum products being the most frequent exports.

[17] US Army Corps of Engineers, Compare Cargo Capacities
[18] US Department of Transportation, Bureau of Transportation Statistics, Transborder Surface Freight Dataset (1999)

Table 7-1: Truck Imports by Commodity Description for 1998-1999.

	1998 Annual # of Trucks	1999 Annual # of Trucks
Scouring Preparations	666	561
Miscellaneous Chemicals	201	52
Albuminoidal substances	67	76
Organic Chemicals	33	28
Mineral Fuels and Oils	9	31
Photographic Goods	2	1
Fertilizer	2	9
Paints	1	2
Perfumery	1	1
Inorganic Chemicals	0	1
	981	**763**

Source: Science Applications International Corporation based on US Customs import data.

Table 7-2: Truck Exports by Commodity Description for 1998-1999.

	1998 Annual # of Trucks	1999 Annual # of Trucks
GAS, NATURAL AND MANUFACTURED	2,904	1,891
PETROLEUM AND PETROLEUM PRODUCTS	1,850	1,675
PLASTICS IN PRIMARY FORMS	697	900
INORGANIC CHEMICALS	406	718
FERTILIZERS	568	575
CHEMICAL MATERIALS AND PRODUCTS	232	270
DYEING, TANNING AND COLORING MATERIALS	102	111
POLISHING AND CLEANSING PREPARATIONS	39	13
ORGANIC CHEMICALS	27	16
COAL, COKE AND BRIQUETTES	4	2
	6,831	**6,170**

Source: Science Applications International Corporation based on US Census Bureau export data.

About 23 trucks per day carrying hazardous materials, on a rough average basis, enter and leave the US through the Calexico-East port. The Calexico-East port accepts hazardous material shipments from 6 a.m. to 6 p.m. only. Therefore, on average, about two trucks per hour cross the border carrying hazardous materials. Delays in processing are common at all border crossings. As a result, the movements of hazardous materials are probably concentrated before noon as trucks move to the border to line up for possible inspection. An on-scene survey (which was not performed) would be necessary to measure activity by time of day more precisely.

In addition to the cross border traffic, hazardous materials travel through the county on I-8 and local roads for reasons unrelated to the border. Table 7-3 shows the daily truck counts on selected roads in Imperial County and the number of trucks carrying hazardous materials on these roads. The interstate hazardous material

truck count is based on the national average of 7%.[19] Local-only hazardous material traffic is likely much less, around 2%. The nature of these hazardous materials is determined by the economic activity in both Imperial County and the end points of its major thoroughfare I-8. As discussed above in section 6.1.1, there is no significant economic activity in the Yuma region or in Imperial County related to hazardous materials. Exceptions are the gypsum plant, located north of I-8 and west of El Centro, which generates raw material for cement production, and NAFEC, which requires shipments of jet fuel. The minor local usage means that a high proportion of the hazardous materials traffic travels into and out of the county, from and to destinations other than the county.

Table 7-3: Average Daily Truck Traffic, Selected Imperial County, CA Intersections

Road	Intersection	Daily Trucks	5 axles	Hazmat Trucks
I-8	SR-86	2565	1700	119
I-8	SR-111	2465	1587	111
SR-98	Bowker Rd.	2240	916	20
SR-111	Evan Hewes Hwy	1862	533	11
SR-115	Walnut Ave.	697	452	9

Source: California Department of Transportation, November 2000

The biggest concentration of hazardous material traffic close to population centers is in Calexico. Traffic heading for the border is consolidated in warehouses located throughout the city. Trucks await the arrival of export clearance in large truck parking lots located mainly around Cole Road in the northern part of the city. As a result, a high number of trucks use both Cole Road in Calexico and SR-98 east of the city en route to the border crossing at Calexico-East. The closure of the downtown border crossing to trucks has significantly reduced truck traffic on SR-111 in the downtown area. However, the warehouses and parking lots within the city still bring large numbers of trucks through Calexico on their way to the new border crossing.

The planned extension of State Route 7 (SR-7) past SR-98 to I-8 will carry trucks entering the US from Mexico directly to the interstate, bypassing the developed areas of Calexico. However, unless the international trade infrastructure for exports currently located in Calexico is transferred out of the city to locations close to the Calexico-East border crossing, truck traffic patterns for export traffic are expected to remain largely unchanged. The fact that exports account for the majority of hazardous materials crossing the border increases the importance of addressing these traffic flow issues, through changes in zoning, restrictions in road use, or other methods.

[19] US Department of Transportation, Bureau of Transportation Statistics, 1997 Economic Census, 1997 Commodity Flow Survey

7.2 Rail Traffic

Rail traffic has less of a local presence than road traffic. Only about 50% of rail exports traveling through Calexico-East originate in California. The most frequent destination is Mexico City. Imports and exports by rail are infrequent and amount to a small fraction of the cross border traffic by truck in California. The number of railcars carrying hazardous commodities for imports and exports in 1998 and 1999 are shown Table 7-4 and Table 7-5 respectively.

Table 7-4: Rail Imports by Commodity Description (1998-1999)

	1998 # of Railcars	1999 # of Railcars
27 Mineral Fuels and Oils	43	53
38 Miscellaneous Chemicals	26	
	68	**53**

Source: Science Applications International Corporation based on US Customs import data

Table 7-5: Rail Exports by Commodity Description (1998-1999)

	1998 # of Railcars	1999 # of Railcars
GAS, NATURAL AND MANUFACTURED	773	480
	773	**480**

Source: Science Applications International Corporation based on US Census Bureau export data

8 Hot Spots

This chapter identifies the hot spots as they relate to Calexico's geography, environmental and human sensitive areas, the location of emergency services, traffic, and potential development.

8.1 Calexico Geography

The City of Calexico is a thriving town, which has experienced a growth of 60% over the past ten years and is expecting its population to grow by an estimated 20% by 2010. To better manage the city's growth, the city developed a 5-year Plan as shown in Table 8-1. The plan was expected to revitalize the business area, correct public facilities and infrastructure, improve transportation routes, provide for residential area expansion, and keep pace with the economic development within the region.

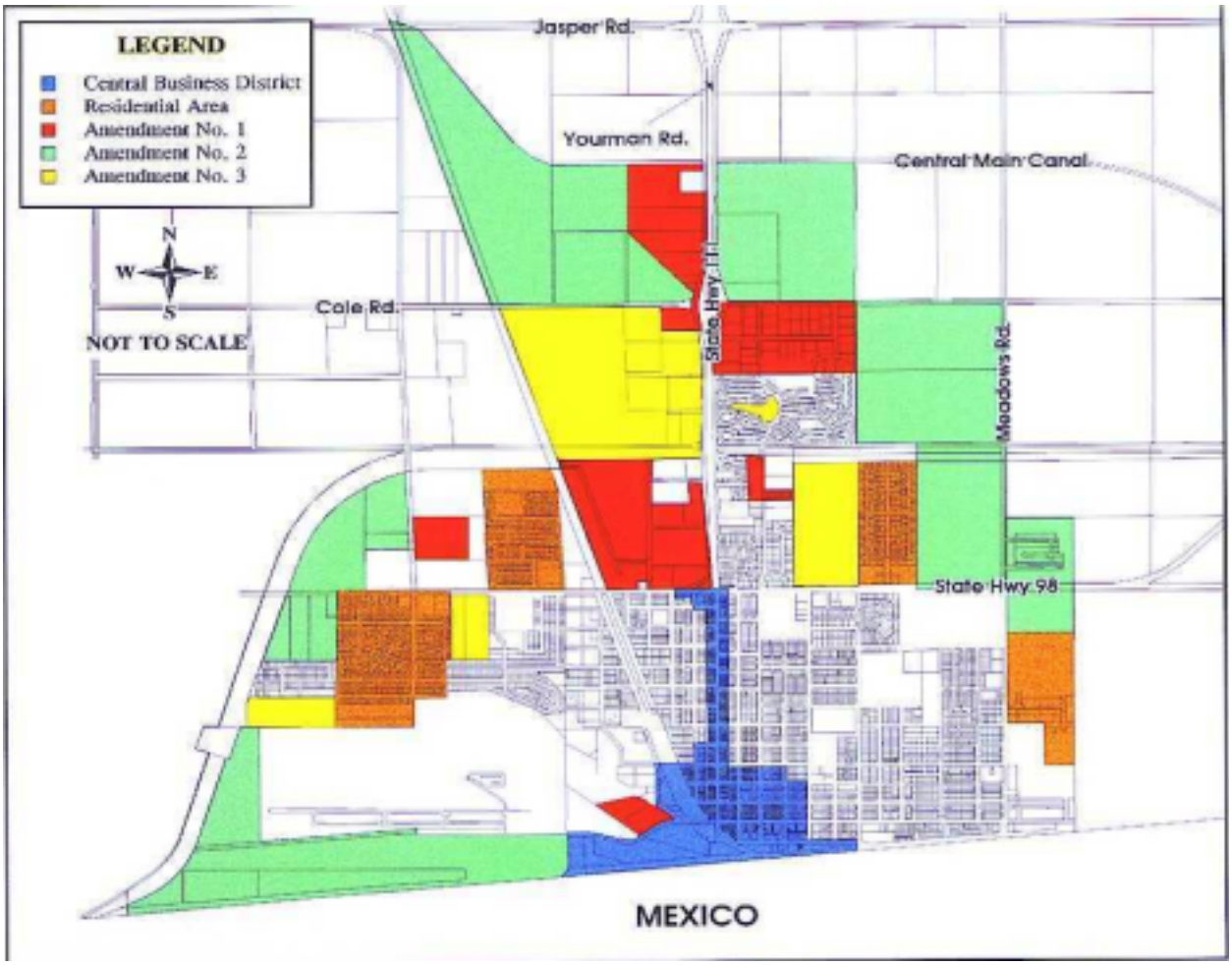
Table 8-1: Calexico Redevelopment Plan

Project	Adoption Date
Residential Redevelopment Project (RES)	June 5, 1979
Central Business District (CBD)	July 20, 1982
Amendment #1 to the RES Project	July 19, 1983
Merger of the CBD and RES Redevelopment Project Areas	November 20, 1984
Amendment #1 to the Merged Plan	July 18, 1989
Amendment #2 to the Merged Plan	June 30, 1992
Amendment #3 to the Merged Plan	December 29, 1993

Source: Calexico--Economic Planning Division.

Figure 8-1 shows the different areas of Calexico affected by redevelopment plan projects. The redevelopment project areas are located throughout the city. As shown in the map, the project areas generally extend along the SR-111 corridor, the SR-98 corridor, Cole Road, Meadows Road and the Central Main Canal. The project areas presently contain a mix of older residential, commercial, and public facilities, as in the central business district of the city. One project area also contains newer residences along SR-98 and newer commercial facilities along SR-111 north of the All American Canal. This project area also contains vacant and agricultural land interspersed with urbanization.

Figure 8-1: City of Calexico Redevelopment Project Areas Map



Source: Urban Futures Inc. November 1994.

The transportation routes involved in the project areas affect the traffic flow at the Mexicali/Calexico border. Currently, one transportation project is completed and four are in process:

Estrada Boulevard and SR-98 extension project - project construction is completed;

Traffic Study – SR-98 Corridor and Meadows to Bowker Road, approved;

Kloke and Cole Roads - road improvement for the intersection and widening of Cole;

GIS Computerized Traffic Safety Program; and

Traffic Sign and Pavement Marking Upgrade.

When construction begins for each of the projects listed above, certain roads will be closed and traffic will be re-directed through the city. The detours tend to move

truck traffic through higher density areas of the city, closer to schools and residential areas. This creates a risk of more serious traffic incidents.

There are 410 acres in the city limits zoned for light industry. About 40% of this area is vacant and available sites in parcels ranging in size from 1 to 10 acres. In addition, approximately 168 acres adjoining the city to the north (outside the City of Calexico limits) are zoned for light industry.

8.2 Environmentally Sensitive Areas

Environmentally sensitive areas surround the City of Calexico. Water routes and irrigated land (including parks) are the two main sensitive areas. The city has a number of water resources: the All American Canal runs through the city, the Alamo River crosses the All American Canal, and the New River flows across the border between Calexico and Mexicali.

The waterways are sensitive areas because the City relies on the All American Canal for treated drinking water and on the other waterways for irrigation of agricultural land. Release of hazardous materials into the waterways would degrade drinking water supplies. Agricultural land is sensitive to land-based spills and contamination of the irrigation system. There are reports that some desert areas in Imperial County have been used as an illegal dumping ground for hazardous wastes.

8.3 Human Sensitive Areas

Hot spots can also be areas that create unique risk to the human population. These areas include schools, hospitals, public places such as parks, and densely populated areas near heavy hazardous material traffic. The biggest hotspot area in Calexico is the SR-98 corridor from SR-111 to Meadows Road. This section of the city contains a number of schools, parks and residential areas. SR-98 remains a prime route to the border from customs warehouses located in the southwest quadrant of the city near the rail tracks.

Another human hot spot is a residential neighborhood in the northwestern quadrant of Calexico. This densely populated residential area is bounded by West Birch Street (SR-98), Eady Street, Sam Ellis Street and the Union Pacific rail tracks. Union Pacific temporarily stores rail cars along a side track in this area. Research indicates that among the materials stored in those cars are liquefied gases such as LNG and LPG. A number of release incidents in the past have involved rail cars stored along the tracks in Calexico.

Another residential hot spot is the area of new development in the northeast section of the city bounded by Cole Road, Meadows Road, Ritter Road and the extension of SR-98 just outside of the city limits. This development is in close proximity to the heavy export-laden trucks moving from the holding yards in the northern part of the city to the border crossing. Roughly 500 to 900 trucks a day move through this area, or about 1 per minute. Approximately 20-25 of these trucks will be carrying

hazardous materials. National statistics show that the mixture of truck and residential traffic produces the highest volumes of accidents. The mixing of residential traffic and truck traffic in this residential area creates a higher level of risk.

8.4 Location of Emergency Services

The City of Calexico has one police station, which is centrally located with the main fire station. They are located east of the railroad tracks and south of the All American Canal, at reasonable distance from the downtown port of entry. The fire department has a second station on the west side of the railroad tracks in close proximity to the airport. These facilities are well situated to respond to hazardous materials incidents throughout the city, as well as to rush victims to a nearby medical clinic.

There are two hospitals located in cities adjacent to the City of Calexico in Brawley and El Centro. Although there are no hospitals within Calexico, medical clinics are scattered east and west of the railroad tracks and north and south of the All American Canal. In an emergency, a medical clinic is within minutes of an accident.

The City of Calexico shares a dedicated emergency response vehicle with the other fire departments in the county as part of a Joint Powers Mutual Aid Agreement. The vehicle rotates around the county every month or so. The City of Calexico is unable to participate in the rotation because it lacks a suitable structure in which to house the vehicle. At its most remote location, the vehicle is nearly a two-hour drive away from Calexico and the border area. This may be problematic and so is considered a hot spot.

8.5 Traffic

The Fire Chief provided a driving tour of the city to study personnel, identifying the residential areas, brokerage warehouses, and main roads upon which traffic flows after crossing the border. As described in Section 7.2, the City can be divided into four quadrants based on the two major routes (SR-111 and SR-98). The police department provided information on specific intersections where a higher amount of traffic incidents occur. They are:

- Bowker and SR-98
- Cole Road and SR-111
- Cole Road and Meadows Street
- Meadows and SR-98
- Cole Road and Meadows Street
- Cole Road and Bowker

- Kloke and SR-98
- Kloke and Cole Road
- Grant Street and SR-111
- Rockwood and SR-98

These intersections are problems because many truck drivers take local roads instead of the designated truck routes, hoping to cut their travel time to the border. Truckers also drive through local roads to reach industrial parks, where trucks can park and wait for their border permit. These industrial parks are located in and around the northeast and northwest quadrants of the city.

8.6 Potential Development

With the increase in population over the past ten years, the City of Calexico was recently designated a State of California Enterprise Zone. An enterprise zone is a defined geographic area within which businesses can obtain tax benefits and other incentives designed to stimulate business investment. These incentives are designed to encourage and bolster private sector market forces in the target areas. Calexico is the only city on the US/Mexico border with California Enterprise Zone status. The enterprise zone encompasses hundreds of acres dedicated to turn-key industrial park use. The enterprise zone also offers commercial and retail incentives, such as a new city program that encourages revitalization by providing city-backed loans and rebate programs. In Calexico, earnings and income from agricultural, retail and professional services increased from 1996 to 1997 (see Table 3-2 above).

Development is moving toward the border crossing just east of the city. Currently, the area adjacent to the port of entry does not have water and sewer service. If those services were provided, more industrial properties could be developed. Older customs warehouses could relocate from the center of town, pulling the resulting truck traffic with them. Redevelopment of the eastern end of the city might also alter the truck holding areas in the northern area of the city and might alter traffic on Cole Road and SR-98 east.

9 Knowledge Transfer

Having expert consultants conduct studies such as this one is not inexpensive, and is generally beyond the reach of most municipalities with more immediate priorities. This chapter provides local emergency managers insight into data that can help them monitor hazardous material transfers in their jurisdiction. It can also provide readers from other jurisdictions with data sources that they can consult to better understand the hazardous material flows in their areas.

9.1 Federal Level

At the federal level, proprietary data on imports and exports were collected from US Customs and US Bureau of Census, respectively. The US Customs provided a list of imports by 10-digit HTS code, by mode of transportation, by volume, by shipment weight, by port of entry and by year. Because US Customs import data contains proprietary information, USEPA Region 9 needed to specifically request the data at this level of detail.

The US Bureau of Census releases export data for a fee of $60 per year. The data is provided by 5-digit SITC code and by mode of transportation (air, vessel, and surface), by value, and by port of exit. Surface transit consists of all rail, trucks and pipeline movement.

The Transborder Surface Freight Dataset is available on the US Department of Transportation, Bureau of Transportation Statistics (BTS) web site and can be used to obtain details of rail traffic.

The Hazardous Materials Movements Study, produced by the BTS and the US Department of Commerce, captures the national movement of goods.

The websites for the US Environmental Protection Agency (EPA) (www.epa.gov) and the US Department of Energy (www.doe.gov) are provide definitions of hazardous materials.

It is suggested that local officials concentrate on monitoring two databases. These are the import data provided by the US International Trade Commission via dataweb (www.dataweb.usitc.gov), and the export data provided by BTS (www.bts.gov/ntda/tbscd), in order to update this study. Both data sources allow local officials to monitor significant shifts in the commodities moving across the border. The review could be done on an annual basis upon release of new data.

9.2 State Level

At the state level, the California Department of Transportation (Caltrans) web page provided useful traffic counts. The data is available from 1978 to 1998. This study used only the most recent data (1997 and 1998).

Local officials can monitor the Caltrans website at www.dot.ca.gov/hq/traffops/saferesr/trafdata/) for updates to the traffic counts. Updates are made periodically. Review is recommended at least annually, possibly in conjunction with review of the import and export data discussed above.

9.3 Local Level

Study personnel visited the City of Calexico to gather data from local authorities and to obtain information on the border crossing and traffic patterns within and around the City. Helpful local resources included the following:

- Potential risk areas were provided by the Police Department (760-768-2140).
- The amendments to the city redevelopment plan were provided by the Department of Economic Development (760-768-5420).
- The Naval Air Facility El Centro explained the types of response resources available on the base, including emergency response equipment (760-339-2251).
- The Fire Department provided an overview of the transportation routes, traffic, and facilities (760-768-2150).
- The Calexico webpage at www.calexico.ca.gov provided the layout of the City of Calexico with maps, city departments, services offered, and news updates.
- The population forecast was provided by the Southern California Association of Governments.
- Regional economic information for Imperial County was supplied by the website at www.ccbres.sdsu.edu.

10 Recommendations

Many communities have improved the safety of their residents by placing restrictions on truck traffic carrying hazardous materials, and by enacting zoning measures to prevent the storage and shipment of hazardous materials in sensitive or high risk areas. The City of Calexico has a number of options to affect the current movement of hazardous materials through residential areas in the city. These measures could be restrictive, or they could use incentives to produce the desired outcome. Examples of such measures for possible consideration might include the following:

- *Restrict truck traffic* from using East Birch Street (SR-98) east of Imperial Avenue (SR-111) and west of the intersection with Cole Road (upon completion of construction on Cole Road). This will divert truck traffic away from the densely populated area on East Birch Street between Imperial Avenue and Meadows Avenue, including the high school located on that stretch of road. However, it will not effect the location of the truck transfer points and warehouses within the city and will lead to an increase in traffic on Cole Road, which currently has some of the most accident-prone intersections in Calexico (Cole Road/Imperial Avenue and Cole Road/Meadows Avenue).

- *Encourage warehouses and truck transfer stations to move* closer to the Calexico-East border crossing to minimize truck traffic within the city. In order to motivate businesses to move, infrastructure improvements could be made to the new area. The lots adjacent to SR-7 between SR-98 and the border may need to be provided with utilities such as electricity, water, sewer and telephone service. The city could consider pursuing plans to annex the area east of the city up to the Calexico-East border crossing in order to provide such services. Tax incentives could further entice business owners to move. If incentives do not have the desired success, a restrictive approach could be considered. This could include re-zoning the areas affected by warehouses and truck transfer stations to force the closure or relocation of these businesses. However, the restrictive approach is more likely to be met with opposition from the business community, is more difficult politically, and could be vulnerable to legal challenge.

- *Reassess the location of hazardous incident response resources within the county*. A hazardous material incident that might occur at the border points of entry in Calexico poses a higher risk to the greatest number of people than anywhere else in the county. The majority of hazardous material traffic in Imperial County is concentrated in the southern part of the county along I-8, particularly in the central part of the county in the Calexico/El Centro region. Therefore, it is recommended that Calexico and county officials explore the option to permanently station the hazardous material spill response equipment closer to this area. Further, cooperation with the US Navy's hazardous material response team at Naval Air Facility El Centro could be expanded. The Navy

maintains the capability to respond to a hazardous material event at NAFEC. They have indicated that they remain available to provide emergency preparedness and response assistance to the extent that they are able.

- *Complete SR-7 between SR-98 and I-8.* Completion of this road would improve the feasibility of the other measures suggested for consideration in this chapter. Warehouses and truck transfer stations would be more willing to relocate to the vicinity of the Calexico-East border crossing if easy access between the border and I-8 was available that completely avoided the city itself. Hazardous material traffic could be completely banned on the roads between the city and Calexico-East. Both Cole Road and East Birch Street could be closed to hazardous material traffic, forcing trucks back to I-8 and away from populated areas along those roads. This re-routing would further provide incentive for warehouses and truck transfer stations to relocate away from the city and closer to the Calexico-East border crossing.

Planned highway projects are funded depending on their impact and value to the community, county, and state. Traditionally, value is measured by improvements to travel times and public safety. Public safety is improved through reductions in air pollution, accidents, and hazardous material spills. This risk mitigation is a strong argument for the rapid completion of SR-7 between I-8 and SR-98. The roads that currently carry truck traffic to and from the Calexico-East border crossing are not well-equipped to do so. They are two lane roads through purely residential areas in the eastern half of the City of Calexico. They are bordered by a high school, among other vulnerable sites. In general, they are overcrowded with truck traffic. Over two thousand trucks per day (carrying hazardous and non-hazardous materials) use either Cole Road or SR-98 to move to the border. Studies have shown a correlation between the type of road (such as two-lane, four-lane, and four-lane divided), the amount and mix of traffic (cars and trucks), and likelihood of accidents. Some of the most accident prone intersections in the city are located on these streets, further demonstrating this correlation. This study could be used by local planning officials to demonstrate the risk mitigation potential of a completed SR-7, as it relates to hazardous material spills and their impact on the residents of Calexico.

These are examples of policies and planning steps that could alleviate risk to the residents of Calexico stemming from hazardous material movements. The final course of action could be determined with the involvement of all stakeholders, including local residents, the local business community, emergency response services, and local, county and state government representatives.

Appendix A

Imports by
Harmonized Tariff System (HTS) Codes:
Calexico-East Port

Calexico East-Imports				
HTS Code	**HTS Description**	**Truck**	**Rail**	**Truck-C**
27: Mineral fuels, mineral oils and products of their distillation; bituminous substances				
2712	Petroleum jelly; paraffin wax, slack wax, ozokerite, lignite wax, peat wax, other mineral waxes			
2712200000	Paraffin wax containing by weight less than 0.75% of oil		*	
2712902000	Other: Montan Wax	*	*	
2714	Bitumen and asphalt, natural; bituminous or oil shale and tar sands;			
2714900000	Other	*		
28: Inorganic chemicals; compounds of precious metals, rare earth metals, radioactive elements				
2804	Hydrogen, rare gases and other nonmetals:			
2804300000	Nitrogen	*		
2811	Other inorganic acids and other inorganic oxygen compounds of nonmetals:			
2811225000	Silicon dioxide: Other	*		
2818	Artificial corundum, aluminum oxide; aluminum hydroxide:			
2818200000	Aluminum oxide, other than artifical corundum	*		
2833	Sulfates; alums; peroxosulfates (persulfates):			
2833240000	Other sulfates: of nickel	*		
2833250000	Other sulfates: of copper	*		
2835	Phosphinates (hypophosphites), phosphonates (phosphites), phosphates			
2835100000	Phosphinates (hypophosphites) and phosphonates (phosphites)	*		
2836	Carbonates; perozocarbonates; ammonium carbonate containing ammonium carbamate:			
2836500000	Calcium carbonate	*		
2848	Phosphides, excluding ferrophosphorus:			
2848009000	Of other metals or of nonmetals	*		
29: Organic Chemicals				
2905	Acyclic alcohols and their halogenatedslfonated, nitrated derivatives:			
2905440000	Other polyhydric alcohols: D-glucitol (sorbitol)	*	*	
2918	Carboxylic acids with additional oxygen function			
2918199000	Phenlyglcolic acid (Mandelic acid), its salts and esters: Other: Other	*		
31: Fertilizers				
3101	Animal or vegetable fertilizers, whether or not mixed together or chemically treated			
3101000000	Animal or vegetable fertilizers, whether or not mixed together or chemically treated; fertilizers			
3103	Mineral or chemical fertilizers, phosphatic:			
3103900000	Other	*		
32: Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other coloring matter; paints and varnishes; putty and other mastics; inks				
3205	Color lakes			
3205005050	Other products	*		
3206	Other coloring matter; inorganic products used as luminouphores			
3206491000	Other: concentrated dispersions of pigments inplastics materials	*		
3215	Printing ink, writing or drawing ink and other inks			
3215110060	Printing ink: black: other	*		
3215190060	Printing ink: other: other	*		
3215905000	Other Printing ink: Other	*		
33: Essential oils and resinoids; perfumery, cosmetic or toilet preparations				
3301	Essential oils (terpeneless or not), including concretes and absolutes; resinoids; extracted oleoresins; concentrates of essential oils in fats, in fixed oils, in waxes or the like			
3301905000	Other resinoids: Other	*		
3302	Mixtures of odoriferous substances (including alcoholic solutions), used as raw materials in industry; other preparations based on odoriferous substances, used for the manufacture of beverages:			

Calexico East-Imports				
HTS Code	**HTS Description**	**Truck**	**Rail**	**Truck-C**
3302101000	Used in the food or drink industries: Not containing alcohol	*		
3302102000	Food/drink industries: containing alcohol not over 20% of weight	*		
3307	Pre-shave, shaving or after-shave preparations, personal deodorants, bath preparations, dephilatories and other perfumery, cosmetic or toilet preparations			
3307490000	Preparations for perfuming or deodorizing rooms, including odoiferous preparations used during religious rites: other	*		
34: Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modeling pastes, dental waxes and dental preparations with a basis of plaster				
3402	Organic surface-active agents (other than soap); surface-active preparations, washing preparations (including auxiliary washing preparations) and cleaning preparations			
3402114000	Organic surface-active agents: Anionic: other			
3402201000	Preparations for retail sale: containing aromatic or modified aromatic surface-active agent	*	*	
3402205000	Preparations for retail sale: other	*		
3402901000	Other: synthetic detergents	*		
3402903000	Other: containing aromatic or modified aromatic surface-active agent	*		
3402905010	Other: washing preparations	*		*
3402905030	Other: cleaning preparations	*		
3402905050	Other: other	*		
3404	Artifical waxes and prepared waxes			
3404905000	Other: Other	*		
35: Albuminoidal substances; modified starches; glues; enzymes				
3505	Dextrins and other modified starches (pregelatinized or esterified starches); glues based on starches, or dextrins			
3505100040	Dextrins and other modified starches: From corn (Maize) starch	*	*	
3506	Prepared glues and other prepared adhesives, not exceeding a net weight of 1kg			
3506105000	Other	*		
3506910000	Other:adhesives based on rubber or plastics (including artificial resins)	*		
37: Photographic or cinematographic goods				
3707	Chemical preparations for photographic uses (other than varnishes, glues, adhesives and similar preparations); unmixed products for photographic uses, in a form ready for use			
3707903290	Other chemical preparations for photographic uses: Other	*		
3707906000	Unmixed products for photographic uses, in a form ready for use	*		
38: Miscellaneous chemical products				
3816	Refractory cements, mortars, concretes and similar compositions			
3816000050	Other	*		
3824	Prepared binders for foundry molds or cores; chemical products and preparations of the chemical or allied industries (including those consisting of mixtures of natural products			
3824500050	Nonrefractory mortars and concretes: Other	*	*	
3824904500	Other: mixtures that are part of hydrocarbons derived from petroleum, shale oil or natural gas			
93: Arms and ammunition; parts and accessories thereof				
9304	Other arms (for example, spring, air or gas guns and pistols, truncheons			
9304006000	Other	*		
9305	Parts and accessories			
9305903030	Other: other: other	*		
9305906000	Other: other			*

APPENDIX B

Exports by SITC Codes:
Calexico-East Port

SITC CODE	SITC CODE DESCRIPTION	1999 TOTAL VALUE	1999 SURFACE VALUE	1999 AIR VALUE	1999 VESSEL VALUE	1998 TOTAL VALUE	1998 SURFACE VALUE	1998 AIR VALUE	1998 VESSEL VALUE
32110	ANTHRACITE, PULVERIZED OR NOT, NOT AGGLOMERATED	$46,205	$46,205	$0	$0	$75,854	$75,854	$0	$0
32121	BITUMINOUS COAL, PULVERIZED OR NOT, NOT AGGLOMER	$0	$0	$0	$0	$15,307	$15,307	$0	$0
32122	COAL, N.E.S., PULVERIZED OR NOT, NOT AGGLOMERATED	$0	$0	$0	$0	$4,285	$4,285	$0	$0
32221	LIGNITE (EXCEPT JET), NOT AGGLOMERATED	$15,107	$15,107	$0	$0	$2,720	$2,720	$0	$0
32222	LIGNITE (EXCEPT JET), AGGLOMERATED	$4,864	$4,864	$0	$0	$0	$0	$0	$0
32500		$6,293	$6,292	$1	$0	$61,614	$61,614	$0	$0
32	**Total**	**$72,469**	**$72,468**	**$1**	**$0**	**$159,780**	**$159,780**	**$0**	**$0**
33411	GAS INCLUDING AVIATION (EXCEPT JET) FUEL	$0	$0	$0	$0	$22,475	$22,475	$0	$0
33419	LIGHT OILS FROM PETROL & BITUM MINERALS	$476,294	$476,294	$0	$0	$767,698	$767,698	$0	$0
33421	KEROSENE, INCLUDING KEROSENE TYPE JET FUEL	$0	$0	$0	$0	$458,640	$458,640	$0	$0
33429	MEDIUM OILS FROM PETROL & BITUM MINERALS NES ETC	$62,200	$62,200	$0	$0	$538,057	$538,057	$0	$0
33430	GAS OILS	$20,476	$20,476	$0	$0	$28,781	$28,781	$0	$0
33440	FUEL OILS, N.E.S.	$1,050,382	$1,050,382	$0	$0	$415,805	$415,805	$0	$0
33452	OIL PET, OILS BSC CONST	$2,128,019	$2,128,019	$0	$0	$2,593,809	$2,593,809	$0	$0
33512	PARAFFIN WAX, MICROCRYST WAX ETC, COLORED OR NOT	$514,532	$514,532	$0	$0	$863,026	$863,026	$0	$0
33523	TOLUENE	$3,672	$3,672	$0	$0	$10,556	$10,556	$0	$0
33525	OILS & PRODUCTS NES AS COAL TAR DISTILLATES ETC	$12,267	$12,267	$0	$0	$0	$0	$0	$0
33541	PETROLEUM BITUMEN ETC; BITUMINOUS MIXTURES	$1,262,455	$1,262,455	$0	$0	$422,240	$422,240	$0	$0
33542	PETROLEUM COKE	$12,414	$12,414	$0	$0	$0	$0	$0	$0

SITC CODE	SITC CODE DESCRIPTION	1999 TOTAL VALUE	1999 SURFACE VALUE	1999 AIR VALUE	1999 VESSEL VALUE	1998 TOTAL VALUE	1998 SURFACE VALUE	1998 AIR VALUE	1998 VESSEL VALUE
33543	BITUMINOUS MIXTURES BASED ON NATURAL ASPHALT ETC	$116,148	$116,148	$0	$0	$130,196	$130,196	$0	$0
33	**Total**	**$5,658,859**	**$5,658,859**	**$0**	**$0**	**$6,251,283**	**$6,251,283**	**$0**	**$0**
34210	PROPANE, LIQUEFIED	$9,896,424	$9,896,424	$0	$0	$9,617,736	$9,617,736	$0	$0
34250	BUTANE, LIQUEFIED	$2,866,652	$2,866,652	$0	$0	$9,948,966	$9,948,966	$0	$0
34310	NATURAL GAS, LIQUEFIED	$0	$0	$0	$0	$37,927	$37,927	$0	$0
34420	GASEOUS HYDROCARBONS, LIQUEFIED	$11,643	$11,643	$0	$0	$17,767	$17,767	$0	$0
34	**Total**	**$12,774,719**	**$12,774,719**	**$0**	**$0**	**$19,622,396**	**$19,622,396**	**$0**	**$0**
41120	LARD; PIG FAT NES AND POULTRY FAT, RENDERED	$1,594,209	$1,594,209	$0	$0	$826,357	$826,357	$0	$0
41131	PIG & POULTRY FAT, SALTED	$95,428	$95,428	$0	$0	$253,009	$253,009	$0	$0
41132	BOVINE ANIMAL, SHEEP OR GOAT FAT, RAW OR RENDERED	$426,417	$426,417	$0	$0	$1,298,739	$1,298,739	$0	$0
41133	LARD STEARIN, OLEOSTEARIN, OIL	$0	$0	$0	$0	$10,129	$10,129	$0	$0
41	**Total**	**$2,116,054**	**$2,116,054**	**$0**	**$0**	**$2,388,234**	**$2,388,234**	**$0**	**$0**
42111	SOYBEAN OIL, CRUDE	$10,806	$10,806	$0	$0	$57,669	$57,669	$0	$0
42119	SOYBEAN OIL, REFINED, AND ITS FRACTIONS	$6,480	$6,480	$0	$0	$7,650	$7,650	$0	$0
42121	COTTONSEED OIL, CRUDE	$0	$0	$0	$0	$87,315	$87,315	$0	$0
42141	VIRGIN OLIVE OIL	$0	$0	$0	$0	$5,902	$5,902	$0	$0
42142	OLIVE OIL (EXCEPT VIRGIN OIL) AND ITS FRACTIONS	$85,008	$85,008	$0	$0	$36,670	$36,670	$0	$0
42161	CORN (MAIZE) OIL, CRUDE	$3,237	$3,237	$0	$0	$0	$0	$0	$0
42219	LINSEED OIL, REFINED, AND ITS FRACTIONS	$2,887	$2,887	$0	$0	$0	$0	$0	$0
42250	CASTOR OIL AND ITS FRACTIONS	$22,244	$22,244	$0	$0	$0	$0	$0	$0
42299	FIXED VEG FATS (NOT SOFT), CRUDE, REFINED	$0	$0	$0	$0	$6,441	$6,441	$0	$0
42	**Total**	**$130,662**	**$130,662**	**$0**	**$0**	**$201,647**	**$201,647**	**$0**	**$0**
43110	ANIMAL/VEG FATS/OILS; CHEM MODIFIED	$23,426	$23,426	$0	$0	$24,859	$24,859	$0	$0
43121	ANIMAL FATS, OILS & FRACTIONS	$12,915	$12,915	$0	$0	$0	$0	$0	$0

SITC CODE	SITC CODE DESCRIPTION	1999 TOTAL VALUE	1999 SURFACE VALUE	1999 AIR VALUE	1999 VESSEL VALUE	1998 TOTAL VALUE	1998 SURFACE VALUE	1998 AIR VALUE	1998 VESSEL VALUE
43122	VEGETABLE FATS, OILS, FRACTIONS	$87,531	$87,531	$0	$0	$26,275	$26,275	$0	$0
43131	FATTY ACIDS, ACID OILS FROM ANIMAL OR VEG FATS ETC	$23,695	$23,695	$0	$0	$10,074	$10,074	$0	$0
43133	DEGRAS; RESIDUES FROM ANIMAL OR VEG WAXES ETC	$13,339	$13,339	$0	$0	$15,073	$15,073	$0	$0
43	**Total**	**$160,906**	**$160,906**	**$0**	**$0**	**$76,281**	**$76,281**	**$0**	**$0**
51114	SATURATED ACYCLIC HYDROCARBONS	$47,287	$47,287	$0	$0	$46,850	$46,850	$0	$0
51121	CYCLOHEXANE	$0	$0	$0	$0	$9,331	$9,331	$0	$0
51129	CYCLIC HYDROCARBONS, N.E.S.	$5,424	$5,424	$0	$0	$5,312	$5,312	$0	$0
51137	FLUORINATED DERIVATIVES OF ACYCLIC HYDROCARBNS	$95,423	$95,423	$0	$0	$525,665	$525,665	$0	$0
51138	HALOGENATED DERIV ACYCLIC HYDROCARB OVER 1 HALOGEN	$182,802	$182,802	$0	$0	$1,677,893	$1,677,893	$0	$0
51139	HALOGENATED DERIVATIVES OF HYDROCARBONS, N.E.S.	$15,970	$15,970	$0	$0	$0	$0	$0	$0
51140	SULFONATED, NITRATED ETC DERIVATIVES OF HYDROCARBN	$18,173	$18,173	$0	$0	$6,882	$6,882	$0	$0
51212	PROPAN-1-OL AND PROPAN-2-OL	$2,970	$2,970	$0	$0	$70,738	$70,738	$0	$0
51215	ETHYL ALCOHOL (NOT DENATURED) 80% OR MORE ALCOHOL	$0	$0	$0	$0	$3,070	$3,070	$0	$0
51217	FATTY ALCOHOLS, INDUSTRIAL	$102,479	$102,479	$0	$0	$0	$0	$0	$0
51221	ETHYLENE GLYCOL (ETHANEDIOL)	$4,320	$4,320	$0	$0	$7,510	$7,510	$0	$0
51224	MANNITOL	$0	$0	$0	$0	$9,200	$9,200	$0	$0
51241	PHENOL (HYDROXYBENZENE), AND ITS SALTS	$0	$0	$0	$0	$14,949	$14,949	$0	$0
51371	ACETIC ACID AND ITS SALTS	$7,800	$7,800	$0	$0	$20,149	$20,149	$0	$0
51372	ESTERS OF ACETIC ACID	$171,942	$171,942	$0	$0	$41,403	$41,403	$0	$0
51376	PALMITIC ACID, STEARIC ACID, THEIR SALTS	$3,367	$3,367	$0	$0	$7,341	$7,341	$0	$0
51377	SATURATED ACYCLIC MONOCARBOXYLIC ACIDS	$22,008	$22,008	$0	$0	$116,435	$116,435	$0	$0

SITC CODE	SITC CODE DESCRIPTION	1999 TOTAL VALUE	1999 SURFACE VALUE	1999 AIR VALUE	1999 VESSEL VALUE	1998 TOTAL VALUE	1998 SURFACE VALUE	1998 AIR VALUE	1998 VESSEL VALUE
51378	OLEIC, LINOLEIC OR LINOLENIC ACIDS, SALTS	$0	$0	$0	$0	$63,900	$63,900	$0	$0
51389	POLYCARBOXYLIC ACIDS NES; ANHYDRIDES, HALIDES	$78,750	$78,750	$0	$0	$39,576	$39,576	$0	$0
51391	LACTIC, TARTARIC, CITRIC ACIDS & SALTS	$47,052	$47,052	$0	$0	$195,482	$195,482	$0	$0
51393	SALICYLIC ACID AND ITS SALTS AND ESTERS	$35,050	$35,050	$0	$0	$0	$0	$0	$0
51461	AMINO-ALCOHOLS, ETHERS; SALTS	$10,170	$10,170	$0	$0	$4,237	$4,237	$0	$0
51464	LYSINE, ESTERS & SALTS OF; GLUTAMIC ACIDS & SALTS	$7,200	$7,200	$0	$0	$103,875	$103,875	$0	$0
51479	CYCLIC AMIDES NES ETC, DERIVATIVES; SALTS	$3,610	$3,610	$0	$0	$0	$0	$0	$0
51481	QUATERNARY AMMONIUM SALTS; LECITHINS	$11,380	$11,380	$0	$0	$0	$0	$0	$0
51489	NITROGEN-FUNCTION COMPOUNDS	$42,080	$42,080	$0	$0	$29,681	$29,681	$0	$0
51542	THIOCARBAMATES AND DITHIOCARBAMATES	$6,445	$6,445	$0	$0	$12,064	$12,064	$0	$0
51544	METHIONINE	$0	$0	$0	$0	$62,920	$62,920	$0	$0
51549	ORGANO-SULFUR COMPOUNDS	$11,900	$11,900	$0	$0	$0	$0	$0	$0
51580	SULFONAMIDES	$5,475	$5,475	$0	$0	$0	$0	$0	$0
51612	ACETALS & HEMIACETALS, HALOGENATED	$0	$0	$0	$0	$19,748	$19,748	$0	$0
51617	ETHER-ALCOHOLS, ETHER-PHENOLS	$102,123	$102,123	$0	$0	$78,733	$78,733	$0	$0
51623	ACETONE	$12,943	$12,943	$0	$0	$7,159	$7,159	$0	$0
51625	ACYCLIC KETONES WITHOUT OTHER OXYGEN FUNCTION	$0	$0	$0	$0	$5,823	$5,823	$0	$0
51	**Total**	**$1,054,143**	**$1,054,143**	**$0**	**$0**	**$3,185,926**	**$3,185,926**	**$0**	**$0**
52210	CARBON (INCLUDING CARBON BLACK)	$28,026	$28,026	$0	$0	$102,687	$102,687	$0	$0
52221	HYDROGEN, RARE GASES, NITROGEN AND OXYGEN	$1,442,834	$1,442,834	$0	$0	$1,294,563	$1,294,563	$0	$0

SITC CODE	SITC CODE DESCRIPTION	1999 TOTAL VALUE	1999 SURFACE VALUE	1999 AIR VALUE	1999 VESSEL VALUE	1998 TOTAL VALUE	1998 SURFACE VALUE	1998 AIR VALUE	1998 VESSEL VALUE
52223	SILICON	$385,681	$385,681	$0	$0	$194,280	$194,280	$0	$0
52224	CHLORINE	$0	$0	$0	$0	$14,008	$14,008	$0	$0
52225	FLUORINE, BROMINE AND IODINE	$468,408	$468,408	$0	$0	$0	$0	$0	$0
52228	SODIUM AND OTHER ALKALI METALS	$0	$0	$0	$0	$22,899	$22,899	$0	$0
52231	HYDROGEN CHLORIDE; CHLOROSULFURIC ACID	$168,437	$168,437	$0	$0	$75,779	$75,779	$0	$0
52232	SULFURIC ACID; OLEUM	$0	$0	$0	$0	$6,802	$6,800	$2	$0
52233	NITRIC ACID; SULFONITRIC ACIDS	$3,072	$3,072	$0	$0	$218,879	$218,879	$0	$0
52234	DIPHOSPHORUS PENTOXIDE; PHOSPHORIC ACID	$225,260	$225,260	$0	$0	$240,381	$240,381	$0	$0
52237	SILICON DIOXIDE	$41,515	$41,515	$0	$0	$21,086	$21,086	$0	$0
52239	INORGANIC OXYGEN COMPOUNDS OF NONMETALS	$17,720	$17,720	$0	$0	$0	$0	$0	$0
52253	MANGANESE OXIDES	$0	$0	$0	$0	$3,027	$3,027	$0	$0
52257	LEAD OXIDES; RED LEAD AND ORANGE LEAD	$11,605	$11,605	$0	$0	$0	$0	$0	$0
52261	AMMONIA, ANHYDROUS, OR IN AQUEOUS SOLUTION	$3,655	$3,655	$0	$0	$0	$0	$0	$0
52262	SODIUM HYDROXIDE (CAUSTIC SODA), SOLID	$22,139	$22,139	$0	$0	$103,312	$103,312	$0	$0
52263	SODIUM HYDROXIDE IN AQUEOUS SOLUTION (LIQUID SODA)	$432,466	$432,466	$0	$0	$421,779	$421,779	$0	$0
52264	POTASSIUM HYDROXIDE; SODIUM OR POTASSIUM PEROXIDES	$28,603	$28,603	$0	$0	$48,189	$48,189	$0	$0
52266	ALUMINUM HYDROXIDE	$0	$0	$0	$0	$31,201	$31,201	$0	$0
52269	INORGANIC BASES, METAL OXIDES, HYDROXIDES	$9,286	$9,286	$0	$0	$40,458	$40,458	$0	$0
52310	FLUORIDES; FLUOROSILICATES, FLUOROALUMINATES	$3,943	$3,943	$0	$0	$0	$0	$0	$0
52329	CHLORIDES, CHLORIDE OXIDE, BROMIDES	$110,845	$110,845	$0	$0	$118,913	$118,913	$0	$0
52331	HYPOCHLORITES; CALCIUM HYPOCHLORITE	$259,155	$259,155	$0	$0	$274,524	$274,524	$0	$0

SITC CODE	SITC CODE DESCRIPTION	1999 TOTAL VALUE	1999 SURFACE VALUE	1999 AIR VALUE	1999 VESSEL VALUE	1998 TOTAL VALUE	1998 SURFACE VALUE	1998 AIR VALUE	1998 VESSEL VALUE
52332	SODIUM CHLORATE	$0	$0	$0	$0	$47,114	$47,114	$0	$0
52339	CHLORATES & PERCHLORATES; BROMATES	$0	$0	$0	$0	$47,114	$47,114	$0	$0
52341	SODIUM SULFIDE	$3,473	$3,473	$0	$0	$0	$0	$0	$0
52342	SULFIDES; POLYSULFIDES	$56,119	$56,119	$0	$0	$40,309	$40,309	$0	$0
52343	DITHIONITES AND SULFOXYLATES	$51,766	$51,766	$0	$0	$0	$0	$0	$0
52344	SULFITES; THIOSULFATES	$309,718	$309,718	$0	$0	$397,421	$397,421	$0	$0
52345	SODIUM SULFATES	$120,291	$120,291	$0	$0	$47,245	$47,245	$0	$0
52349	SULFATES N.E.S.; ALUMS	$438,180	$438,180	$0	$0	$198,932	$198,932	$0	$0
52359	NITRATES	$0	$0	$0	$0	$18,910	$18,910	$0	$0
52361	PHOSPHINATES AND PHOSPHONATES	$763,084	$763,084	$0	$0	$108,139	$108,139	$0	$0
52363	PHOSPHATES	$13,572	$13,572	$0	$0	$17,050	$17,050	$0	$0
52372	NEUTRAL SODIUM CARBONATE	$4,252,042	$4,252,042	$0	$0	$1,136,936	$1,136,936	$0	$0
52379	CARBONATES	$72,689	$72,689	$0	$0	$22,410	$22,410	$0	$0
52381	CYANIDES, CYANIDE OXIDES AND COMPLEX CYANIDES	$0	$0	$0	$0	$241,020	$241,020	$0	$0
52383	SILICATES; COMMERCIAL ALKALI METAL SILICATES	$87,971	$87,971	$0	$0	$6,168	$6,168	$0	$0
52384	BORATES; PEROXOBORATES (PERBORATES)	$0	$0	$0	$0	$36,327	$36,327	$0	$0
52431	SALTS OF OXOMETALLIC OR PEROXOMETALLIC ACIDS	$727,221	$727,221	$0	$0	$35,823	$35,823	$0	$0
52432	COLLOIDAL PRECIOUS METALS; PRECIOUS METAL	$60,914	$60,914	$0	$0	$180,006	$180,006	$0	$0
52494	CARBIDES	$85,950	$85,950	$0	$0	$213,779	$213,779	$0	$0
52495	HYDRIDES, NITRIDES, AZIDES, SILICIDES AND BORIDES	$6,188	$6,188	$0	$0	$14,101	$14,101	$0	$0
52499	INORGANIC COMPOUNDS NES; LIQ & COMP AIR; AMALGAMS	$6,375	$6,375	$0	$0	$19,358	$19,358	$0	$0
52511	NATURAL URANIUM & COMPOUNDS, ALLOYS & CERAMICS	$3,577	$3,577	$0	$0	$0	$0	$0	$0

SITC CODE	SITC CODE DESCRIPTION	1999 TOTAL VALUE	1999 SURFACE VALUE	1999 AIR VALUE	1999 VESSEL VALUE	1998 TOTAL VALUE	1998 SURFACE VALUE	1998 AIR VALUE	1998 VESSEL VALUE
52519	RADIOACTIVE ELEMENTS & ISOTOPES; RESIDUES	$7,315	$7,315	$0	$0	$0	$0	$0	$0
52591	STABLE ISOTOPES AND THEIR COMPOUNDS	$0	$0	$0	$0	$6,584	$6,584	$0	$0
52	**Total**	**$10,729,095**	**$10,729,095**	**$0**	**$0**	**$6,067,513**	**$6,067,511**	**$2**	**$0**
53113	BASIC DYES AND PREPARATIONS	$236,993	$236,993	$0	$0	$210,869	$210,869	$0	$0
53117	PIGMENTS AND PREPARATIONS	$32,472	$32,472	$0	$0	$0	$0	$0	$0
53121	SYNTH ORGANIC FLUORESCENT BRIGHTENING AGENTS	$165,508	$165,508	$0	$0	$131,076	$131,076	$0	$0
53122	COLOR LAKES; PREPARATIONS BASED ON COLOR LAKES	$99,398	$99,398	$0	$0	$185,299	$185,299	$0	$0
53222	VEG OR ANIMAL COLORING MATTER AND PREPARATIONS ETC	$28,620	$28,620	$0	$0	$0	$0	$0	$0
53311	TITANIUM DIOXIDE PIGMENTS AND PREPARATIONS	$0	$0	$0	$0	$77,194	$77,194	$0	$0
53312	CHROMIUM COMPOUND PIGMENTS AND PREPARATIONS	$50,961	$50,961	$0	$0	$0	$0	$0	$0
53317	COLORING MATTER AND COLORING PREPARATIONS	$914,505	$914,505	$0	$0	$291,535	$291,535	$0	$0
53321	PRINTING INK, BLACK	$202,748	$202,748	$0	$0	$155,225	$155,225	$0	$0
53329	PRINTING INK, OTHER THAN BLACK	$225,675	$225,675	$0	$0	$112,468	$112,468	$0	$0
53341	PAINTS & VARNISHES FROM SYNTH POLYMERS, AQUEOUS	$1,232,799	$1,232,799	$0	$0	$1,918,125	$1,918,125	$0	$0
53342	PAINTS & VARNISHES FROM SYNTH POLYMERS, NONAQUEOUS	$3,640,351	$3,640,351	$0	$0	$3,393,093	$3,393,093	$0	$0
53343	PAINTS & VARNISHES NES; WATER PIGMENTS FOR LEATHER	$1,051,553	$1,051,553	$0	$0	$20,637	$20,637	$0	$0
53344	NONAQ PIGMENTS FOR PAINT MFR; FOILS; DYE	$232,448	$232,448	$0	$0	$14,040	$14,040	$0	$0
53351	PIGMENT, OPACIFIER & COLOR PREP FOR CERAMICS	$269,631	$269,631	$0	$0	$291,720	$291,720	$0	$0

SITC CODE	SITC CODE DESCRIPTION	1999 TOTAL VALUE	1999 SURFACE VALUE	1999 AIR VALUE	1999 VESSEL VALUE	1998 TOTAL VALUE	1998 SURFACE VALUE	1998 AIR VALUE	1998 VESSEL VALUE
53352	ARTISTS & OTHER COLORS IN TABLETS, TUBES, JARS	$24,216	$24,216	$0	$0	$10,531	$10,531	$0	$0
53353	PREPARED PAINT DRIERS	$96,066	$96,066	$0	$0	$693,714	$693,714	$0	$0
53354	GLAZIERS PUTTY; RESIN CEMENTS, CALKING COMPDS	$150,798	$150,798	$0	$0	$243,892	$243,892	$0	$0
53355	ORG COMPOSITE SOLVENTS ETC NES; PAINT REMOVER PREP	$471,793	$471,793	$0	$0	$680,942	$680,942	$0	$0
53	**Total**	**$9,126,535**	**$9,126,535**	**$0**	**$0**	**$8,430,360**	**$8,430,360**	**$0**	**$0**
55135	CONCENTRATES OF ESSENTIAL OILS; TERP BY-PRODS ETC	$0	$0	$0	$0	$11,263	$11,263	$0	$0
55141	MIXTURES, ODORIFEROUS FOR FOOD OR DRINK INDUSTRIES	$74,749	$74,749	$0	$0	$15,235	$15,235	$0	$0
55421	ORGANIC SURF-ACT AGENTS NES FOR RETAIL SALE OR NOT	$35,269	$35,269	$0	$0	$83,188	$83,188	$0	$0
55422	SURF-ACT WASHING ETC PREP NES, FOR RETAIL SALE	$183,020	$183,020	$0	$0	$136,406	$136,406	$0	$0
55423	SURF-ACT WASHING ETC PREP NES, NOT FOR RETAIL SALE	$187,070	$187,070	$0	$0	$1,084,445	$1,084,445	$0	$0
55431	POLISHES ETC FOR FOOTWEAR & LEATHER	$0	$0	$0	$0	$3,980	$3,980	$0	$0
55432	POLISHES ETC FOR WOOD FURNITURE, FLOORS & WOODWORK	$0	$0	$0	$0	$6,825	$6,825	$0	$0
55433	POLISHES ETC FOR COACHWORK NES	$17,859	$17,859	$0	$0	$0	$0	$0	$0
55434	SCOURING PASTES, POWDERS & OTHER PREPARATIONS	$208,289	$208,289	$0	$0	$8,525	$8,525	$0	$0
55435	POLISHES ETC FOR GLASS OR METAL	$159,584	$159,584	$0	$0	$169,536	$169,536	$0	$0
55	**Total**	**$865,840**	**$865,840**	**$0**	**$0**	**$1,519,403**	**$1,519,403**	**$0**	**$0**
56200	FERTILIZERS (EXPORTS ONLY)	$7,618,357	$7,618,357	$0	$0	$7,520,087	$7,520,087	$0	$0
56	**Total**	**$7,618,357**	**$7,618,357**	**$0**	**$0**	**$7,520,087**	**$7,520,087**	**$0**	**$0**
57111	POLYETHYLENE, SPECIFIC GRAVITY LESS THAN 0.94 PR F	$241,511	$241,511	$0	$0	$81,128	$81,128	$0	$0

SITC CODE	SITC CODE DESCRIPTION	1999 TOTAL VALUE	1999 SURFACE VALUE	1999 AIR VALUE	1999 VESSEL VALUE	1998 TOTAL VALUE	1998 SURFACE VALUE	1998 AIR VALUE	1998 VESSEL VALUE
57112	POLYETHYLENE, SPECIFIC GRAVITY 0.94 OR MORE PR FM	$2,934,558	$2,934,558	$0	$0	$2,400,141	$2,400,141	$0	$0
57120	ETHYLENE-VINYL ACETATE COPOLYMERS, PRIMARY FORMS	$193,369	$193,369	$0	$0	$118,062	$118,062	$0	$0
57190	POLYMERS OF ETHYLENE IN PRIMARY FORMS	$35,493	$35,493	$0	$0	$27,197	$27,197	$0	$0
57211	POLYSTYRENE, EXPANSIBLE, IN PRIMARY FORMS	$327,556	$327,556	$0	$0	$140,200	$140,200	$0	$0
57219	POLYSTYRENE, OTHER THAN EXPANSIBLE, IN PRIMARY FORMS	$1,457,544	$1,457,544	$0	$0	$589,347	$589,347	$0	$0
57291	STYRENE-ACRYLONITRILE (SAN) COPOLYMERS, IN PRIMARY FORM	$11,871	$11,871	$0	$0	$9,965	$9,965	$0	$0
57292	ACRYLONITRILE-BUTADIENE-STYRENE (ABS) COPOLYMERS	$729,771	$729,771	$0	$0	$6,123,249	$6,123,249	$0	$0
57299	STYRENE POLYMERS, IN PRIMARY FORMS	$12,600	$12,600	$0	$0	$87,466	$87,466	$0	$0
57311	POLYVINYL CHLORIDE, NOT MIXED WITH OTHER SUBSTANCE	$120,310	$120,310	$0	$0	$11,960	$11,960	$0	$0
57312	POLYVINYL CHLORIDE, NONPLASTICIZED	$135,285	$135,285	$0	$0	$50,152	$50,152	$0	$0
57313	POLYVINYL CHLORIDE, MIXED, PLASTICIZED, IN PRIMARY FORMS	$9,540,509	$9,540,509	$0	$0	$9,018,229	$9,018,229	$0	$0
57392	VINYL CHLORIDE COPOLYMERS, IN PRIMARY FORMS	$245,934	$245,934	$0	$0	$229,046	$229,046	$0	$0
57394	FLUORO-POLYMERS, IN PRIMARY FORMS	$0	$0	$0	$0	$9,371	$9,371	$0	$0
57399	POLYMERS OF VINYL CHLORIDE & OTHER HALOLEFINS	$43,498	$43,498	$0	$0	$36,576	$36,576	$0	$0
57411	POLYACETALS, IN PRIMARY FORMS	$10,771	$10,771	$0	$0	$12,225	$12,225	$0	$0
57419	POLYETHER RESINS, OTHER THAN POLYACETALS, IN PRIMARY FORMS	$603,227	$603,227	$0	$0	$0	$0	$0	$0
57420	EPOXIDE RESINS, IN PRIMARY FORMS	$6,449,640	$6,449,640	$0	$0	$2,901,989	$2,901,989	$0	$0

SITC CODE	SITC CODE DESCRIPTION	1999 TOTAL VALUE	1999 SURFACE VALUE	1999 AIR VALUE	1999 VESSEL VALUE	1998 TOTAL VALUE	1998 SURFACE VALUE	1998 AIR VALUE	1998 VESSEL VALUE
57431	POLYCARBONATES, IN PRIMARY FORMS	$83,379	$83,379	$0	$0	$23,400	$23,400	$0	$0
57433	POLYETHYLENE TEREPHTHALATE, IN PRIMARY FORMS	$249,380	$249,380	$0	$0	$65,906	$65,906	$0	$0
57434	POLYESTERS IN PRIMARY FORMS, UNSATURATED	$3,781,684	$3,781,684	$0	$0	$2,335,660	$2,335,660	$0	$0
57439	POLYESTERS IN PRIMARY FORMS, SATURATED	$8,968	$8,968	$0	$0	$51,038	$51,038	$0	$0
57511	POLYPROPYLENE, IN PRIMARY FORMS	$3,932,039	$3,932,039	$0	$0	$3,567,322	$3,567,322	$0	$0
57513	PROPYLENE COPOLYMERS, IN PRIMARY FORMS	$329,664	$329,664	$0	$0	$94,505	$94,505	$0	$0
57519	POLYMERS OF OLEFINS, IN PRIMARY FORMS	$179,369	$179,369	$0	$0	$19,994	$19,994	$0	$0
57529	ACRYLIC POLYMERS, IN PRIMARY FORMS	$630,582	$630,582	$0	$0	$24,630	$24,630	$0	$0
57531	POLYAMIDE	$77,354	$77,354	$0	$0	$21,523	$21,523	$0	$0
57539	POLYAMIDES, IN PRIMARY FORMS	$49,296	$49,296	$0	$0	$0	$0	$0	$0
57541	UREA & THIOUREA RESINS, IN PRIMARY FORMS	$6,501	$6,501	$0	$0	$89,837	$89,837	$0	$0
57544	PHENOLIC RESINS, IN PRIMARY FORMS	$29,585	$29,585	$0	$0	$0	$0	$0	$0
57545	POLYURETHANES, IN PRIMARY FORMS	$664,174	$664,174	$0	$0	$588,134	$588,134	$0	$0
57552	CELLULOSE ACETATES, PLASTICISED, IN PRIMARY FORMS	$327,226	$327,226	$0	$0	$57,577	$57,577	$0	$0
57553	CELLULOSE NITRATES (INCLUDING COLLODIONS), IN PRIMARY FORM	$0	$0	$0	$0	$3,447	$3,447	$0	$0
57554	CELLULOSE ETHERS, IN PRIMARY FORMS	$66,272	$66,272	$0	$0	$468,960	$468,960	$0	$0

SITC CODE	SITC CODE DESCRIPTION	1999 TOTAL VALUE	1999 SURFACE VALUE	1999 AIR VALUE	1999 VESSEL VALUE	1998 TOTAL VALUE	1998 SURFACE VALUE	1998 AIR VALUE	1998 VESSEL VALUE
57559	CELLULOSE & ITS CHEMICAL DERIVATIVES, IN PRIMARY FORMS	$0	$0	$0	$0	$18,583	$18,583	$0	$0
57591	POLYMERS OF VINYL ACETATE, IN PRIMARY FORMS	$0	$0	$0	$0	$83,879	$83,879	$0	$0
57592	POLYMERS OF VINYL ESTERS; VINYL POLYMERS	$12,500	$12,500	$0	$0	$69,658	$69,658	$0	$0
57593	SILICONES, IN PRIMARY FORMS	$467,372	$467,372	$0	$0	$264,971	$264,971	$0	$0
57594	ALGINIC ACID, ITS SALTS AND ESTERS, PRIMARY FORMS	$0	$0	$0	$0	$10,080	$10,080	$0	$0
57595	NATURAL POLYMERS & MODIFIED NATURAL POLYMERS	$2,416,203	$2,416,203	$0	$0	$116,374	$116,374	$0	$0
57596	PETRO RESINS, POLYTERPENES & PLASTICS	$1,912,335	$1,912,335	$0	$0	$462,405	$462,405	$0	$0
57597	ION-EXCHANGERS, BASED ON PLASTICS IN PRIMARY FORMS	$8,728	$8,728	$0	$0	$21,167	$21,167	$0	$0
57910	WASTE, PARINGS AND SCRAP, POLYMERS OF ETHYLENE	$0	$0	$0	$0	$2,850	$2,850	$0	$0
57990	WASTE, PARINGS AND SCRAP, OF PLASTICS	$1,451,400	$1,451,400	$0	$0	$518,834	$518,834	$0	$0
57	**Total**	**$39,777,458**	**$39,777,458**	**$0**	**$0**	**$30,827,037**	**$30,827,037**	**$0**	**$0**
59110	INSECTICIDES, PACKED FOR RETAIL SALE	$1,783,186	$1,783,186	$0	$0	$1,858,827	$1,858,827	$0	$0
59120	FUNGICIDES, PACKED FOR RETAIL SALE ETC	$1,032,427	$1,032,427	$0	$0	$1,947,935	$1,947,935	$0	$0
59130	HERBICIDES, ANTISPROUTING PRODUCTS, RETAIL	$0	$0	$0	$0	$198,809	$198,809	$0	$0
59141	DISINFECTANTS, PACKED FOR RETAIL SALE	$178,332	$178,332	$0	$0	$0	$0	$0	$0
59149	RODENTICIDES & SIMILAR PRODUCTS, RETAIL	$0	$0	$0	$0	$69,420	$69,420	$0	$0
59211	WHEAT STARCH	$4,345	$4,345	$0	$0	$0	$0	$0	$0
59212	CORN (MAIZE) STARCH	$57,816	$57,816	$0	$0	$27,974	$27,974	$0	$0
59215	STARCHES	$15,980	$15,980	$0	$0	$15,942	$15,942	$0	$0
59217	WHEAT GLUTEN, DRIED OR NOT	$28,500	$28,500	$0	$0	$57,290	$57,290	$0	$0

SITC CODE	SITC CODE DESCRIPTION	1999 TOTAL VALUE	1999 SURFACE VALUE	1999 AIR VALUE	1999 VESSEL VALUE	1998 TOTAL VALUE	1998 SURFACE VALUE	1998 AIR VALUE	1998 VESSEL VALUE
59226	DEXTRINS AND OTHER MODIFIED STARCHES	$39,755	$39,755	$0	$0	$0	$0	$0	$0
59227	GLUES FROM STARCHES, DEXTRINS OR OTHER MOD STARCHES	$18,858	$18,858	$0	$0	$132,363	$132,363	$0	$0
59229	PREPARED GLUES & ADHESIVES; RETAIL	$3,250,615	$3,250,615	$0	$0	$2,243,368	$2,243,368	$0	$0
59312	PREPARED EXPLOSIVES, OTHER THAN PROPELLENT POWDERS	$73,050	$73,050	$0	$0	$0	$0	$0	$0
59721	ANTIKNOCK PREPARATIONS	$0	$0	$0	$0	$11,754	$11,754	$0	$0
59725	ADDITIVES FOR LUBRICATING OILS	$53,481	$53,481	$0	$0	$739,395	$739,395	$0	$0
59729	ADDITIVES FOR LIQUIDS SUBSTITUTING FOR MIN OIL NES	$14,607	$14,607	$0	$0	$6,123	$6,123	$0	$0
59731	HYDRAULIC BRAKE OR TRANSMISSION FLUIDS, UNDER 70% OIL	$386,090	$386,090	$0	$0	$16,392	$16,392	$0	$0
59733	ANTIFREEZING PREPARATIONS AND DEICING FLUIDS	$747,132	$747,132	$0	$0	$471,564	$471,564	$0	$0
59772	LUBRICATING PREPS, CONTAINING PETROLEUM OILS	$9,961	$9,961	$0	$0	$7,836	$7,836	$0	$0
59773	PRODUCTS TO TREAT TEXTILES	$13,210	$13,210	$0	$0	$0	$0	$0	$0
59774	LUBRICATING PREPS, CONTAINING OIL	$257,617	$257,617	$0	$0	$234,447	$234,447	$0	$0
59812	RESIDUAL LYES FROM THE MANUFACTURE OF WOOD PULP	$10,400	$10,400	$0	$0	$19,020	$19,020	$0	$0
59813	WOOD OR SULFATE TURPENTINE; PINE OIL	$0	$0	$0	$0	$11,471	$11,471	$0	$0
59814	ROSIN ACIDS AND DERIVATIVES; ROSIN OILS	$0	$0	$0	$0	$6,840	$6,840	$0	$0
59818	WOOD TAR; WOOD TAR OILS; WOOD CREOSOTE	$0	$0	$0	$0	$5,662	$5,662	$0	$0
59839	ARTIFICIAL AND PREPARED WAXES	$37,443	$37,443	$0	$0	$40,135	$40,135	$0	$0

SITC CODE	SITC CODE DESCRIPTION	1999 TOTAL VALUE	1999 SURFACE VALUE	1999 AIR VALUE	1999 VESSEL VALUE	1998 TOTAL VALUE	1998 SURFACE VALUE	1998 AIR VALUE	1998 VESSEL VALUE
59850	CHEM ELEMENTS & COMPDS TO USE IN ELECTRONICS	$14,008	$14,008	$0	$0	$0	$0	$0	$0
59861	GRAPHITES (ARTIFICIAL, COLLOIDAL ETC) & PREPS ETC	$6,617	$6,617	$0	$0	$15,830	$15,830	$0	$0
59864	ACTIVATED CARBON	$13,519	$13,519	$0	$0	$17,606	$17,606	$0	$0
59867	PREPARED CULTURE MEDIA TO DEVELOP MICRO-ORGANISMS	$28,755	$28,755	$0	$0	$17,173	$17,173	$0	$0
59869	COMPOSITE DIAGNOSTIC OR LAB REAGENTS	$83,512	$83,512	$0	$0	$22,166	$22,166	$0	$0
59881	SUPPORTED CATALYSTS, NICKEL OR ITS COMPDS ACTIVITY	$16,801	$16,801	$0	$0	$60,070	$60,070	$0	$0
59889	CATALYSTS AND CATALYTIC PREPARATIONS	$554,491	$554,491	$0	$0	$70,800	$70,800	$0	$0
59891	FINISHING AGENTS FOR TEXTILE, PAPER	$30,634	$30,634	$0	$0	$0	$0	$0	$0
59893	COMP PLASTICIZERS, ANTIOXID FOR RUB OR PLASTC	$100,633	$100,633	$0	$0	$50,590	$50,590	$0	$0
59896	METAL PICKLING PREP; FLUXES; SOLDER PREPS	$836,717	$836,717	$0	$0	$930,031	$930,031	$0	$0
59897	PREPARED ADDITIVES FOR CEMENTS, MORTARS, CONCRETES	$15,069	$15,069	$0	$0	$142,113	$142,113	$0	$0
59898	NONREFRACTORY MORTARS AND CONCRETES	$22,919	$22,919	$0	$0	$22,433	$22,433	$0	$0
59899	CHEMICAL PRODUCTS AND PREPARATIONS	$2,218,749	$2,218,749	$0	$0	$797,872	$797,872	$0	$0
59	**Total**	**$11,955,229**	**$11,955,229**	**$0**	**$0**	**$10,269,251**	**$10,269,251**	**$0**	**$0**

APPENDIX C

Calexico Public Institutions

City Government

The City of Calexico's website is www.calexico.ca.gov.

Police Department
420 E. 5th
Calexico, California 92231
Contact: Bradley Ramos, Operations Commander
Telephone: (760) 768-2140

Fire Department (Station 1)
430 E. 5th
Calexico, California 92231
Contact: Carlos Escalante, Fire Chief
Telephone: (760) 768-2150

Fire Department (Station 2)
900 W. Grant Street
Calexico, California 92231
Telephone: (760) 768-2155

Economic Development Department
608 Heber Avenue
Calexico, California 92231
Contact: Julia Osuna,
Economic Development Specialist
Telephone: (760) 768-2177

Planning Department
608 Heber Avenue
Calexico, California 92231
Telephone: (760) 768-2118

Calexico Chamber of Commerce
1100 Imperial Avenue
P.O. Box 948
Calexico, CA 92232
Telephone: (760) 357-1166
Website: calexicochamber.ca.gov/

Health Care

Information obtained from City of Calexico's website at www.calexico.ca.gov.

El Centro Regional Medical Center
1415 Ross Avenue
El Centro, California 92244
(760) 339-7100

Clinicas de Salud del Pueblo, Inc.
223 W. Cole Road
Calexico, California 92231
Telephone: (760) 357-2020

Valley Family Care Centers
2451 Rockwood Avenue, suite 101
Calexico, California 92231
Telephone: (760) 357-0508

Pioneers Health Center
731 W. Cesar Chavez Blvd
Calexico, California 92231
Telephone: (760) 357-4850

Imperial Valley Women's Clinic
408 E. 3rd St., suite "D"
Calexico, California 92231
Telephone: (760) 357-9962

Calexico Medical Center
447 E. 10th Street
Calexico, California 92231
Telephone: (760) 768-9688

Education

Information obtained from City of Calexico's website at www.calexico.ca.gov:

Elementary Schools

Calexico Unified School District
901 Andrade Avenue
Calexico, CA 92231
Telephone: (760) 357-7351

Blanche Charles Elementary School
1201 Kloke Road
Calexico, CA 92231
Telephone: (760) 357-7375

Dool Elementary School
800 Encinas Avenue
Calexico, CA 92231
Telephone: (760) 357-7400

Kennedy Gardens Elementary School
2300 Rockwood Avenue
Calexico, CA 92231
Telephone: (760) 357-7416

Mains Elementary School
655 W. Sheridan
Calexico, CA 92231
Telephone: (760) 357-7410

Rockwood Elementary School
1000 Rockwood Avenue
Calexico, CA 92231
Telephone: (760) 357-7390

Junior High and High Schools

De Anza Jr. High School
824 Blair Avenue
Calexico, CA 92231
Telephone: (760) 357-7425

William Moreno Jr. High School
1202 Kloke Road
Calexico, CA 92231
Telephone: (760) 357-7437

Calexico High School
1030 Encinas Avenue
Calexico, CA 92231
Telephone: (760) 357-7440

Vincent Memorial High School
525 W. Sheridan
Calexico, CA 92231
Telephone: (760) 357-3461

Aurora High School
641 Rockwood Avenue
Calexico, CA 92231
Telephone: (760) 357-7480

Our Lady of Guadalupe School
445 Rockwood Avenue
Calexico, CA 92231
Telephone: (760) 357-2532

Calexico Mission Academy
601 E. 1st Street
Calexico, CA 92231
Telephone: (760) 357-3711

College and University

San Diego State University
720 Heber Avenue
Calexico, CA 92231
Telephone: (760) 768-5500

Imperial Valley College External Center
1501 Imperial Avenue
Calexico, CA 92231
Telephone: (760) 768-9740