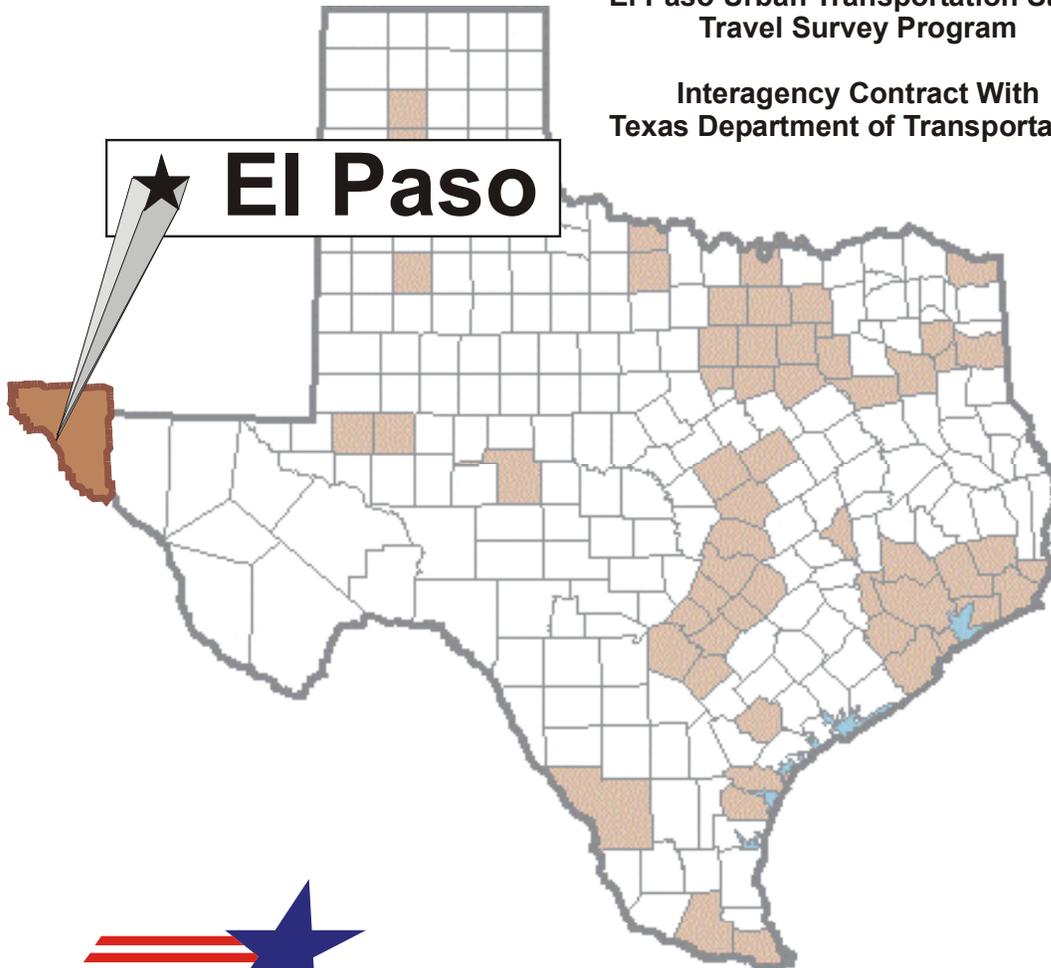# El Paso External Survey
Technical Summary

**El Paso Urban Transportation Study
Travel Survey Program**

**Interagency Contract With
Texas Department of Transportation**

★ **El Paso**

**Texas
Department
of Transportation**

**Prepared by the
Texas Transportation Institute
August 2003**

El Paso External Survey

TECHNICAL SUMMARY

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August 2003

INTRODUCTION

In 2002, the Transportation Planning and Programming (TPP) Division of the Texas Department of Transportation (TxDOT) funded an external station travel survey in the El Paso Transportation Study Area. The area included in this study includes all of El Paso County and a portion of the state of New Mexico. Figure 1 shows the El Paso Transportation Study Area.
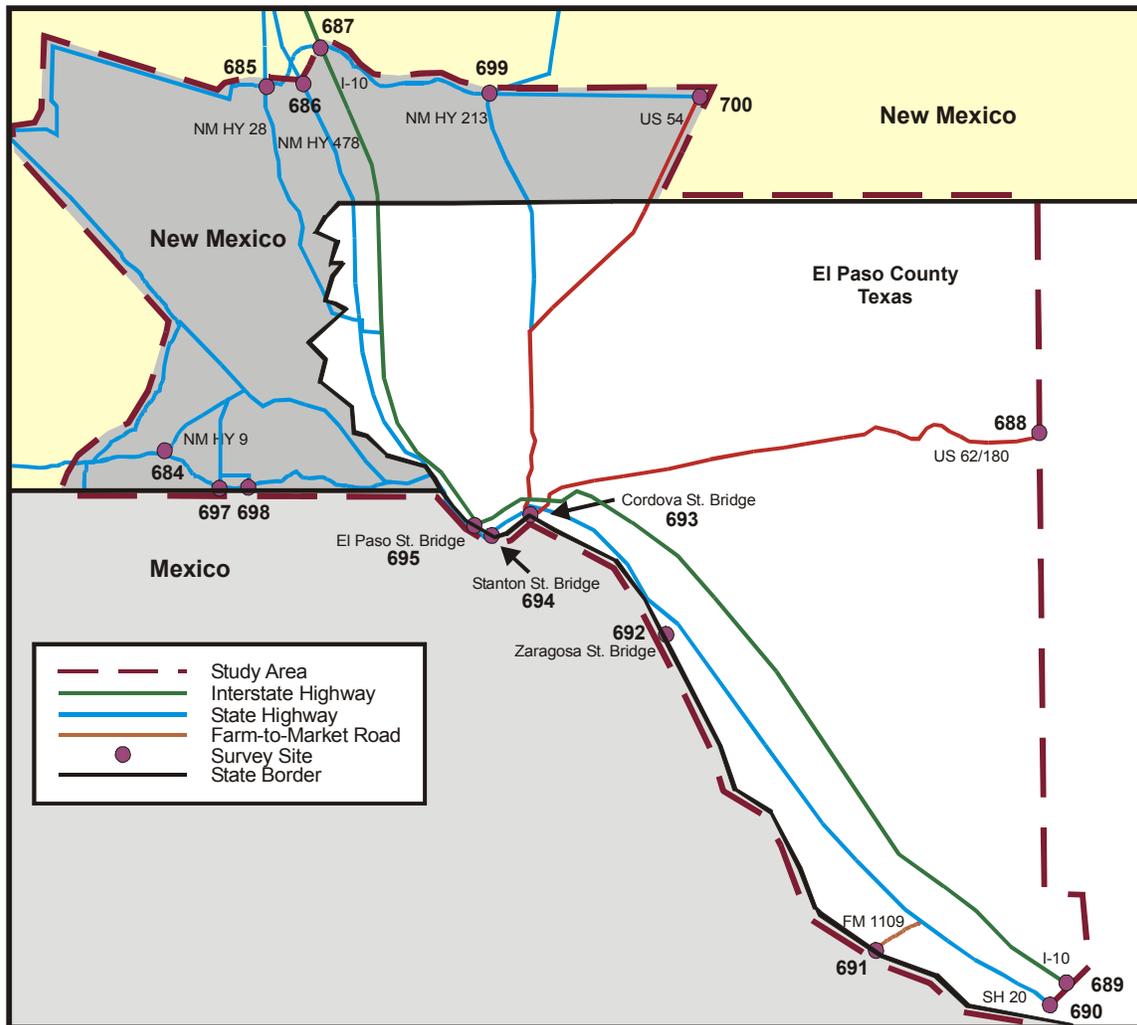

Figure 1. El Paso Transportation Study Area.

An external survey collects data through personal interviews to measure and identify travel patterns of vehicles and/or pedestrians entering and exiting the El Paso Transportation Study Area. Surveys are conducted during daylight hours for one day. At the same time the surveys are conducted, vehicle classification and pedestrian counts are performed at the survey site over a 24-hour period. These counts provide a basis for expanding the survey data to represent the average weekday movements into and out of the study area. Data are also collected on the movements of the vehicles during the day of the survey up to the point at which they are surveyed. This data provides a basis for estimating the amount of travel occurring in the study area prior to the time of the survey.

This report is a Technical Summary of the 2002 El Paso External Station Survey and documents the data collected and the analysis results for the El Paso Transportation Study Area.

EXTERNAL STATIONS

There were 16 locations identified in the El Paso transportation study area as external stations. These locations are transportation facilities that cross the study area boundary and represent a site where travelers may enter and leave the study area. Figure 2 shows these locations and the facilities associated with each location. Table 1 lists the external stations, their general location, and the 24-hour vehicle count. Surveys were conducted at all of the external stations. Pedestrian surveys were also conducted at five of the six border crossings. Table 2 lists these crossings and the pedestrian counts at each location.
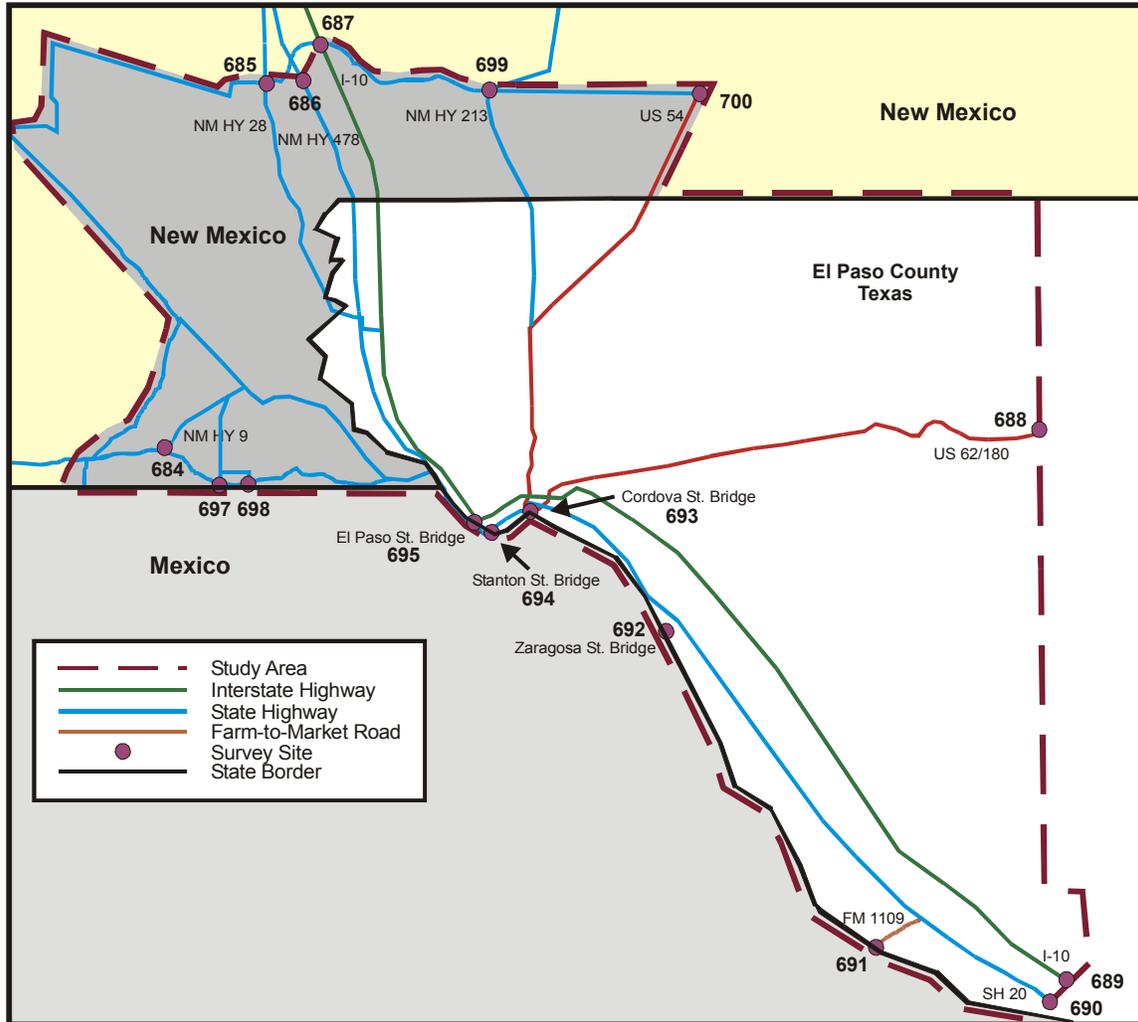
Figure 2. El Paso Transportation Study Area External Locations.

Table 1. El Paso Transportation Study Area External Stations.

Station Number	Facility	Location	Surveyed	24-Hour Vehicle Count		Location Group
				Inbound	Outbound	
693	Cordova Bridge Crossing	Mexico Border	Yes	37,657	24,377	Border
694	Stanton Street Bridge Crossing	Mexico Border	Yes	8,463	0	
695	El Paso Street Bridge Crossing	Mexico Border	Yes	9,413	10,041	
692	Zaragosa Bridge Crossing	Mexico Border	Yes	16,535	9,873	
691	Fabens Bridge Crossing	Mexico Border	Yes	1,701	1,075	
688	US 62/US 180	El Paso/Hudspeth County Line	Yes	840	559	East
689	IH 10 East	El Paso/Hudspeth County Line	Yes	5,581	6,293	
690	SH 20 East	El Paso/Hudspeth County Line	Yes	312	315	
697	Santa Teresa Port of Entry	New Mexico/Mexico Border	Yes	1,008	332	Border
698	Santa Teresa Cattle Crossing	New Mexico/Mexico Border	Yes	50	55	
684	Hwy 9	New Mexico	Yes	184	170	West
685	Hwy 28	New Mexico	Yes	794	850	North
686	Hwy 478	New Mexico	Yes	1,602	1,645	
687	IH 10 North	New Mexico	Yes	14,777	13,449	
699	Hwy 213	New Mexico	Yes	878	889	
700	US 54	New Mexico	Yes	1,111	1,920	

Table 2. External Stations with Pedestrian Surveys.

Station Number	Facility	24-Hour Pedestrian Count		Total
		Inbound	Outbound	
693	Cordova Bridge Crossing	15,443	14,158	29,601
695	El Paso Street Bridge Crossing	9,140	9,551	18,691
692	Zaragosa Bridge Crossing	2,248	2,381	4,629
691	Fabens Bridge Crossing	60	29	89
697	Santa Teresa Port of Entry Crossing	10	10	20

An external station survey was conducted in the El Paso Transportation Study Area in 1994. At that time, the study area consisted of just El Paso County in Texas. The expansion of the study area boundary to include a portion of New Mexico reduced the number of external stations from the 20 identified in 1994 to 16. The survey instruments were modified significantly between the two surveys and a comparison of the 2002 survey with the 1994 survey is not considered appropriate.

SURVEY METHODOLOGY

The methodology employed in the survey was personal interview. For the non-international border crossing sites, traffic control plans were set up in the outbound direction (i.e., leaving the study area), vehicles were directed into an area and trained survey personnel interviewed the drivers. Drivers of both commercial and non-commercial vehicles were interviewed with different survey instruments used for each type of vehicle.

At the international border crossings, traffic control plans were set up and vehicles in the inbound direction (inbound to the study area) were stopped and interviewed by trained personnel. Drivers of commercial and non-commercial vehicles were interviewed with different survey instruments. Questions at the international border crossings were worded slightly different from those asked at non-international crossings. The same basic information was collected, but the phrasing had to be slightly different since the direction of travel was different and the vehicles were crossing from Mexico. There were four international crossings that had no commercial vehicles. Those were the Stanton Street, El Paso Street, Fabens, and Santa Teresa Cattle Crossing bridges.

The pedestrian surveys were conducted as intercept surveys. As pedestrians crossed the bridges coming into Texas, they were stopped by trained interviewers and asked to participate in the survey. Those agreeing to participate were then interviewed and those not wishing to participate were allowed to proceed. It should be noted that in all of the surveys (vehicle and pedestrian) individuals were always asked to participate and given the opportunity to not be surveyed.

For a more detailed discussion and description of the survey methodology, see the report, *El Paso External Station Travel Survey* prepared by Gram Traffic Counting, Inc. in association with

Lockwood, Andrews, and Newman, Inc., January 2003. The survey instruments used in the survey are presented in the Appendix of this report.

DATA ANALYSIS

There were a total of five survey instruments used in the El Paso External Survey. One for non-commercial vehicles and one for commercial vehicles at international border crossings into the study area, one for pedestrians at international border crossings into the study area, and one for non-commercial vehicles and one for commercial vehicles at non-international border crossings outbound from the study area. Non-commercial vehicles are personal use passenger automobiles, trucks, and vans. Commercial vehicles are those used for commercial purposes and, in most cases, were heavy-duty trucks (e.g., 18 wheels). Most analyses presented in the following sections are for both non-commercial and commercial vehicles. Results are presented for international border crossings and non-international border crossings since these would be expected to be different due to the characteristics of trips and direction of travel. The results of the pedestrian surveys are presented in a separate section.

Trip Types

There are two types of trips identified in an external survey – external local trips and external through trips. A local trip is one where either the origin or destination of the trip is in the study area. A through trip is one traveling through the study area without stopping, i.e. both the origin and destination ends of the trip are outside the study area. Table 3 presents a breakdown of the survey data for non-commercial and commercial vehicles in terms of the trips identified as local or through movements. Cells with "NA" are locations where those types of vehicles were prohibited (e.g., commercial vehicles were not allowed to use the Stanton Street bridge). Some totals do not equal the sum of local and through trips because the respondent did not know if the trip was through or refused to answer the question.

6

Table 3. Survey Results by Type of Trip.

Station Number	Survey Direction	Facility	Non-Commercial Vehicle Surveys			Commercial Vehicle Surveys		
			Local	Through	Total	Local	Through	Total
693	Inbound	Cordova Bridge	304	4	308	139	1	141
694		Stanton Street Bridge	309	0	309	NA	NA	NA
695		El Paso Street Bridge	326	6	332	NA	NA	NA
692		Zaragosa Bridge	292	8	300	57	3	60
691	Both	Fabens Bridge	483	14	497	NA	NA	NA
688	Outbound	US 62/US 180	162	11	173	44	7	51
689		IH 10 East	219	63	282	49	19	68
690		SH 20 East	172	6	178	2	0	2
697	Inbound	Santa Teresa Port of Entry	237	41	278	54	3	57
698		Santa Teresa Cattle Crossing	2	0	2	NA	NA	NA
684	Outbound	Hwy 9	67	8	75	5	7	13
685		Hwy 28	329	3	332	13	1	14
686		Hwy 478	292	1	293	14	2	16
687		IH 10 North	145	28	173	156	49	209
699		Hwy 213	249	5	254	6	0	6
700		US 54	335	10	345	70	1	71
Totals			3,923	208	4,131	609	93	708

The second type of trip identified in the survey is a sub-category of external local trips. These are identified as resident and non-resident trips. A resident is a survey respondent that reported they resided (i.e., their home) in the El Paso Transportation Study Area. A non-resident is a respondent that reported they lived outside the El Paso Transportation Study Area. Table 4 presents the breakdown of the surveys by residents and non-residents and the number of reported trips within the study area. An important element of the data reported by non-residents is the number of trips made prior to being surveyed. Based on the information provided in the survey, these trips are evaluated to estimate the number of internal trips made by non-residents. An

internal trip is one where both ends (i.e., the origin and destination) are within the El Paso Transportation Study Area. These trips are typically referred to as non-home-based external local trips.

By measuring the number of non-residents that travel in and out of the El Paso Transportation Study Area and the number of internal trips they make, an estimate of the total internal trips in the El Paso Transportation Study Area attributable to individuals that do not live in the study area may be made. Since the surveys at the international crossings were inbound, it was not possible to measure the number of internal trips for those respondents.

Respondents were asked about the number of trips they made prior to being surveyed. For outbound vehicles (i.e., non-international crossings), this measures the number of trips that had occurred both in and out of the study area. For inbound vehicles (i.e., at international crossings), this measures the number of trips that occurred outside the study area. This is why no internal trips are shown for the international crossings.

Resident questions were only asked of respondents in non-commercial vehicles. Table 4 indicates that a high proportion (55 percent) of non-commercial travel in and out of the El Paso Transportation Study Area is by individuals that do not live in the area. The number of internal trips associated with those individuals is relatively small (0.26 trips per vehicle). The internal trips shown in Table 4 are only for surveys conducted in the outbound direction. It is likely that the number of internal trips made by vehicles crossing at the international borders would be higher than those crossing at non-international borders, especially for those in the downtown area of El Paso. Since surveys were conducted in both directions at the Fabens Bridge, one internal trip was reported out of the 81 non-residents surveyed in the outbound direction. Since the Fabens Bridge is located in a rural part of the county away from the City of El Paso, this was not unreasonable.

Table 4. Survey Results by Residency (Non-Commercial Vehicles Only).

Station Number	Survey Direction	Facility	Number of Surveys	Refusals	Residents	Pct.	Non Residents	Pct.	Internal Trips
693		Cordova Bridge	308	2	97	31.7	209	68.3	NA
694		Stanton Street Bridge	309	0	139	45.0	170	55.0	NA
695	Inbound	El Paso Street Bridge	332	0	123	37.0	209	63.0	NA
692		Zaragosa Bridge	300	0	141	47.0	159	53.0	NA
691	Both	Fabens Bridge	497	1	305	61.5	191	38.5	1
688		US 62/US 180	173	1	56	32.7	115	67.3	37
689	Outbound	IH 10 East	282	0	89	31.6	193	68.4	48
690		SH 20 East	178	0	68	38.2	110	61.8	73
697		Santa Teresa Port of Entry	278	1	90	36.3	158	63.7	NA
698	Inbound	Santa Teresa Cattle Crossing	2	0	2	100.0	0	0.0	NA
684		Hwy 9	75	0	27	39.7	41	60.3	21
685		Hwy 28	332	2	150	45.5	180	54.5	18
686	Outbound	Hwy 478	293	1	178	61.0	114	39.0	5
687		IH 10 North	173	0	79	46.2	92	53.8	10
699		Hwy 213	254	1	175	69.2	78	30.8	11
700		US 54	345	2	126	36.7	217	63.3	62
Totals			4,131	11	1,845	45.2	2,236	54.8	286

Grouping surveyed sites by general location, Figure 3 shows the percentage of surveyed non-commercial vehicles by residency. The two groups with the highest percentage of non-residents surveyed were the east and west groups (64 and 60 percent respectively). The percentage of non-residents crossing the border sites was only slightly higher (54 percent) than the percentage of residents (46 percent). This was unexpected and may represent an unusual situation in the El Paso and Juarez area. When the survey was conducted, it was noted that many vehicles crossing

the border into the El Paso region had been registered in Texas. When this was mentioned to a border patrol agent, he stated that many people had resident addresses in Texas but actually lived in Juarez. It is unknown how many of the people surveyed had dual residency but this could explain the almost equal percentages of residents and non-residents crossing the international borders. A similar survey in another border city, Laredo, found that upwards of 70 percent of the surveyed vehicles crossing the border did not live in the Laredo area. The survey sites in the north group were the only group where the percentage of residents (52 percent) was larger than the percentage of non-residents (48 percent). Table 1 shows the sites within each of the groups shown in Figure 3.
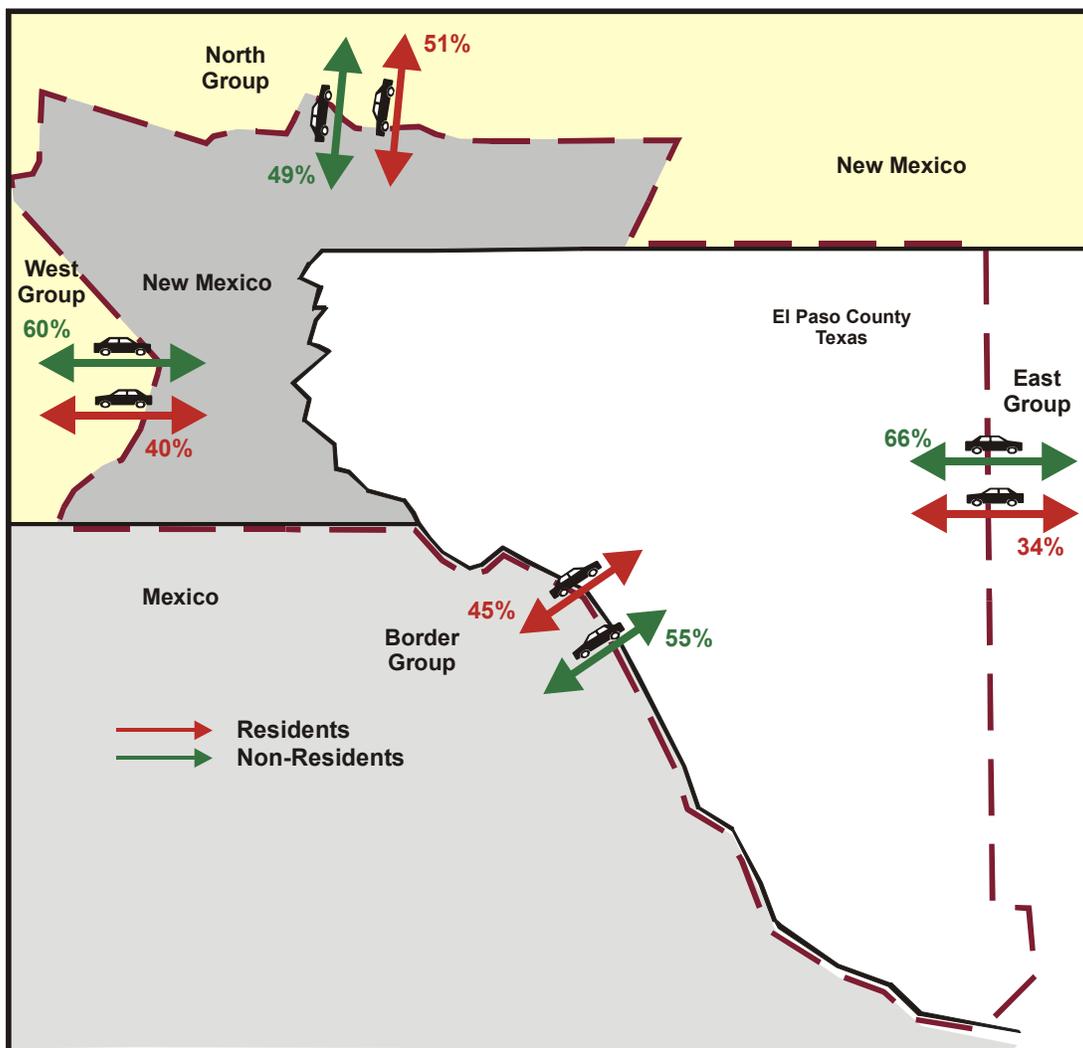
Figure 3. Surveyed Non-Commercial Vehicles by Residency.

Travel Purpose

To understand the reasons people travel, the survey included questions about the driver's purpose for being at the location where the trip began (i.e., trip origin) and the purpose for traveling to their destination. There were 15 purposes listed on the survey instrument for non-commercial vehicles and eight purposes on the commercial vehicle survey. Table 5 shows the purposes listed on the survey instruments.

Table 5. Trip Purposes Used in Survey.

Code	Non-Commercial Vehicle Trip Purpose	Code	Commercial Vehicle Trip Purpose
1	Home/Return Home	1	Base Location/Return to Base Location
2	Go/Return to Work	2	Delivery
3	Work Related	3	Pick Up
4	School	4	Maintenance
5	Vacation	5	Driver Needs (Lunch, etc.)
6	Visit Friends/Family	6	To Home
7	Eat Out	7	Buy Fuel
8	Shop	8	Other
9	Buy Gas	99	Refused/Unknown
10	Personal Business		
11	Pick Up/Drop Off Passenger		
12	Change Travel Mode		
13	Delivery		
14	Other		
15	Refused/Do Not Know		

For presenting the results of the survey, the trip purpose categories were combined into a fewer number, which capture the primary purposes for travel. For non-commercial vehicles, the trip purposes were combined as follows:

Category	Trip Purpose Codes
Home	1
Work	2 and 3
School	4
Personal	5, 6, 10, and 11
Shop	7, 8, and 9
Other	12, 13, 14, and 15

Figures 4 and 5 present the distribution of non-commercial vehicles by reported trip purpose at the origin of the trips for vehicles surveyed at non-international border crossings and at the international border crossings. Figures 6 and 7 present the distribution of non-commercial vehicles by the reported trip purpose at the destination of the trip for international and non-international crossings. At the international border crossings, nearly half (48 percent) of the non-commercial vehicles were traveling from home and 17 percent were traveling from work. At the non-international crossings, only 28 percent were traveling from home and 19 percent from work. The purposes for traveling to their destinations were also different between the international and non-international crossings. For the international crossings, 25 percent were traveling home, 18 percent were traveling to work, 23 percent were traveling to shop, and 23 percent were traveling for personal business. At the non-international crossings, 35 percent of the survey respondents reported they were traveling home, 28 percent were traveling to work, only 4 percent were traveling to shop, and 22 percent were traveling for personal business. Nearly one in every four vehicles crossing the border was traveling to shop.
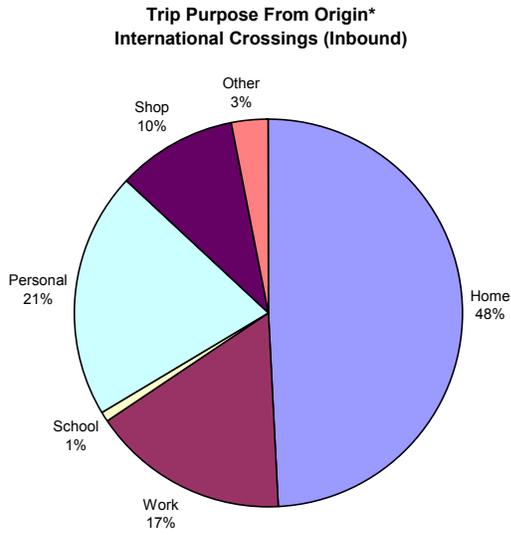
Trip Purpose From Origin*
International Crossings (Inbound)

Other 3%
Shop 10%
Personal 21%
School 1%
Home 48%
Work 17%

Figure 4. Non-Commercial Vehicles at International Crossings

Trip Purpose From Origin*
Non-International Crossings (Outbound)

Other 9%
Home 28%
Shop 28%
Work 19%
Personal 15%
School 1%
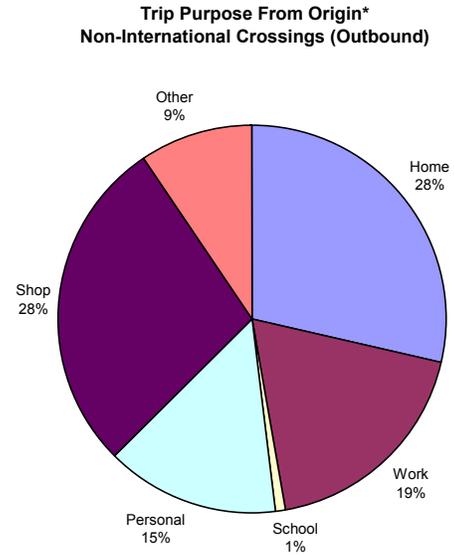
Figure 5. Non-Commercial Vehicles at Non-International Crossings.

Trip Purpose to Destination**
International Crossings (Inbound)

Other 3%
Shop 23%
Home 25%
Personal 23%
Work 18%
School 8%
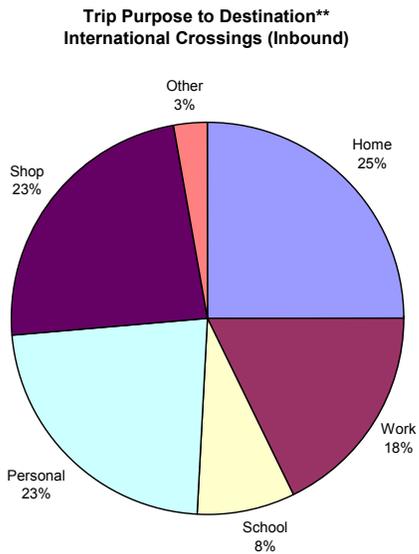
Figure 6. Non-Commercial Vehicles at International Crossings.

Trip Purpose to Destination**
Non-International Crossings (Outbound)

Other 10%
Shop 4%
sonal 2%
Home 35%
School 1%
Work 28%
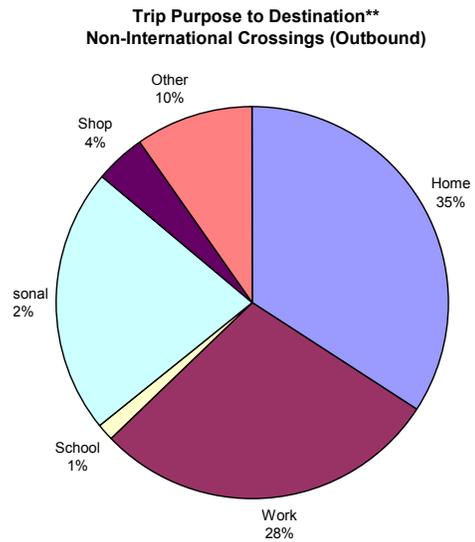
Figure 7. Non-Commercial Vehicles at Non-International Crossings.

* Origin is the location where the person began the trip.
** Destination is the location where the person is traveling.

The trip purposes normally used in travel demand modeling are home-based work (HBW), home-based non-work (HBNW), and non-home based (NHB). HBW trips are those that have one end of the trip at home and the other end of the trip at work. A trip that begins at home and ends at work would be a HBW trip and a trip that begins at work and ends at home would also be a HBW trip. An HBNW trip is a trip that either begins or ends at home and the other end of the trip is any location except work. An NHB trip is a trip that does not begin or end at home. Figure 8 shows the distribution of these trips at the international and non-international sites. It is interesting to note that there were about the same percentage of vehicles crossing into the study area via the international bridges as vehicles leaving the study area by non-international crossings with the trip purpose home-based work. The main differences in non-commercial vehicle trips on the international crossings versus the non-international crossings were found in the home-based non-work and non-home-based categories. More home-based non-work trips (i.e., in terms of percentage) were observed coming into the study area via the international bridges than leaving the area by non-international crossings. This reflects the dominance of trips from across the border into the study area for shopping and personal business.
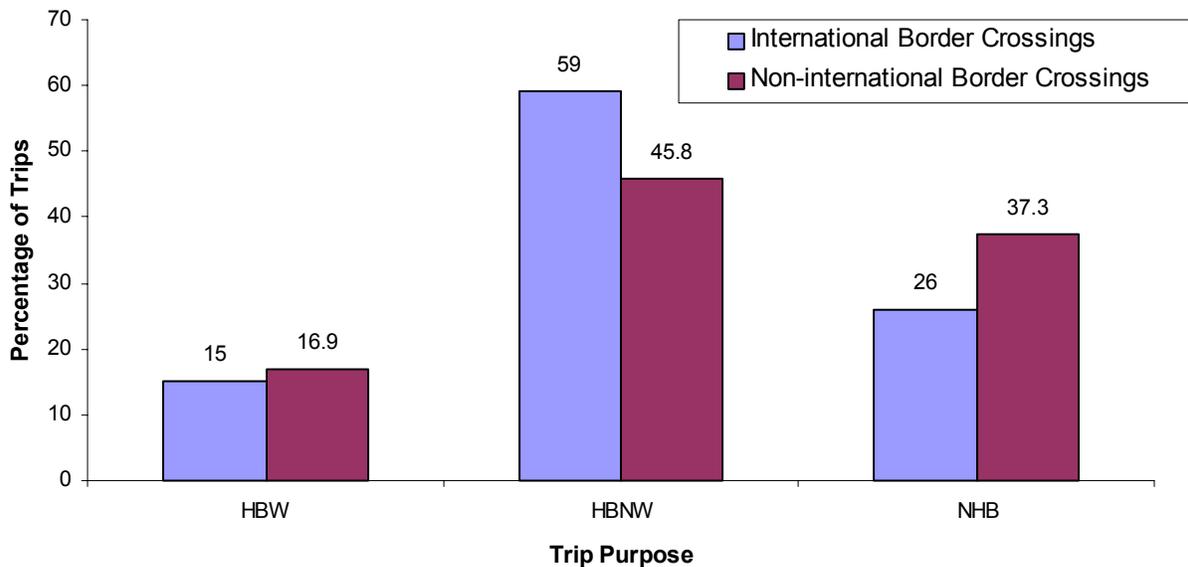

Figure 8. Distribution of Non-Commercial Vehicle Trips by Trip Purpose.

In addition to obtaining information on the purpose of travel, questions were asked to identify the type of place associated with each trip. For vehicles being surveyed in the inbound direction (at the international stations), the driver was asked the type of place they were traveling from and the type of place at their next destination. For vehicles being surveyed in the outbound direction (at the non-international stations except for Fabens bridge), the driver was only asked the type of place where their trip originated. Since the questions varied depending on survey direction, the results are presented separately for the international crossings and the non-international crossings. Tables 6 and 7 presents the results for the international and non-international sites.

Table 6. Type of Place at Trip Ends for International Sites.

Type of Place	Non-Commercial Vehicles				Commercial Vehicles			
	At Origin		At Destination		At Origin		At Destination	
	Number	Pct.	Number	Pct.	Number	Pct.	Number	Pct.
Office Building	110	5.4	143	7.1	8	3.1	2	0.8
Retail/Shopping/Gas	200	9.9	473	23.3	6	2.3	8	3.1
Industrial/Manufacturing/Warehouse	139	6.9	91	4.5	177	68.6	181	70.2
Medical	68	3.4	90	4.4	0		1	0.4
Educational (12th Grade or Lower)	28	1.4	75	3.7	0		1	0.4
Educational (College, Trade, Etc.)	17	0.8	161	7.9	0		0	
Government	34	1.7	30	1.5	6	2.3	2	0.8
Residential	1,256	62.0	726	35.8	14	5.4	3	1.2
Airport	2	0.1	18	0.9	0		2	0.8
Other	159	7.8	207	10.2	47	18.2	57	22.1
Unknown	13	0.6	12	0.6	0		1	0.4
Totals	2,026	100.0	2,026	100.0	258	100.0	258	100.0

Table 7. Type of Place at Trip Ends for Non-International Sites.

Type of Place	Non-Commercial Vehicles		Commercial Vehicles	
	At Origin of Trip		At Origin of Trip	
	Number	Pct.	Number	Pct.
Office Building	75	3.6	2	0.4
Retail/Shopping/Gas	477	22.7	197	43.8
Industrial/Manufacturing/Warehouse	69	3.3	145	32.2
Medical	76	3.6	0	
Educational (12th Grade or Lower)	39	1.9	5	1.1
Educational (College, Trade, Etc.)	20	1.0	1	0.2
Government	69	3.3	6	1.3
Residential	714	33.9	22	4.9
Airport	75	3.6	3	0.7
Other	471	22.4	68	15.1
Unknown	20	1.0	1	0.2
Totals	2,105	100.0	450	100.0

Comparing the type of place with the reported trip purposes provides a means of cross-referencing some of the trip purposes with the type of place for consistency. For example, at the international crossings, 10 percent of the surveyed non-commercial vehicles reported their purpose at the origin end of the trip to be shop. This compares favorably with the type of place reported at the origin end of the trip, which was 9.9 percent for Retail/Shopping/Gas. The dominant purpose reported for non-commercial vehicles at the international sites for the origin end of the trip was home (48 percent). The dominant type of place for the origin end of the surveyed trips at the international sites was residential (62 percent). The difference of 14 percent implies that residential places are the location of more activities than just being a home.

Similar results are found when examining the non-international sites. For example, the highest reported trip purpose at the origin of the trip for non-commercial vehicles was home (28 percent). The highest reported type of place for the origin of non-commercial vehicles was residential (34 percent). The difference of 6 percent implies that more activities are occurring at residential locations. The purpose of shopping at the origin end of the non-commercial trips was 28 percent at the non-international sites. The reported type of place of Retail/Shopping/Gas was 23 percent for the origin end of the non-commercial vehicle trips. While similar in magnitude,

the difference may indicate a need for more training of interviewers to maintain consistency in the survey responses.

The type of place reported for commercial vehicles at the international sites for the origin and destination trip ends was dominated by the categories of Industrial/Manufacturing/Warehouse and Other. These two accounted for 87 percent and 92 percent of the responses for commercial vehicles at the origin and destination end of the trips respectively. The implication here is that the type of place definitions used in commercial vehicle surveys needs further examination. It appears that using the same categories as non-commercial vehicles does not adequately capture the trip end descriptions for commercial vehicles. The reported type of places at the origin trip end for commercial vehicles at the non-international sites were dominated by three categories, Retail/Shopping/Gas (44 percent), Industrial/Manufacturing/Warehouse (32 percent), and Other (15 percent). These do not relate well with the trip purposes reported at the origins for commercial vehicles.

For commercial vehicles, the trip purposes shown in Table 5 were combined into the following five categories:

Category	Trip Purpose Codes
Base Location	1
Delivery	2
Pick Up	3
Support Functions	4, 5, 6, and 7
Other	8 and 99

Figures 9 through 12 present the distributions of commercial vehicle trips by reported trip purpose at the origin and destination of the trips for international and non-international crossings. The majority of commercial vehicles surveyed at international crossings (61 percent) were traveling from a pick up and 17 percent were traveling from their base location. Nearly half (45 percent) of the commercial vehicles surveyed at the non-international crossings reported they were traveling from a location involving a support function. This meant they were traveling from a location where they were performing maintenance, taking care of driver needs, purchasing fuel, etc. Only 36 percent of the surveyed commercial vehicles at the non-international crossings were

traveling from a pick up. The reported trip purpose at the destination of the trip for commercial vehicles at both international and non-international crossings was dominated by delivery. This implies a large amount of goods being transported into El Paso from Mexico and transported out of El Paso to points within the U.S. It is also interesting to note that one in every three commercial vehicles at the international crossings reported the purpose at their destination as pick up. It is uncertain whether the cargo being picked up was destined for Mexico or other areas in the nation. One in every five commercial vehicles at the non-international crossings reported their purpose at their destination as pick up.

Trip Purpose From Origin*
International Crossings (Inbound)

Other 4%
Base Location 17%
upport Functions 14%
Delivery 4%
Pick Up 61%
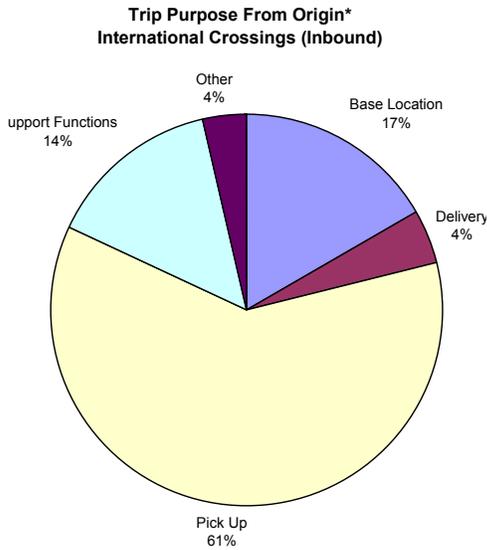
Figure 9. Distribution of Commercial Vehicle Trips by Trip Purpose at Origin.

Trip Purpose From Origin*
Non-International Crossings (Outbound)

Other 3%
Base Location 4%
Delivery 12%
ctions
Pick Up 36%
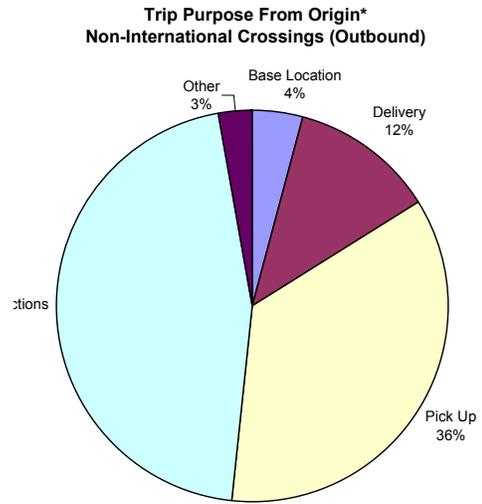
Figure 10. Distribution of Commercial Vehicle Trips by Trip Purpose at Origin.
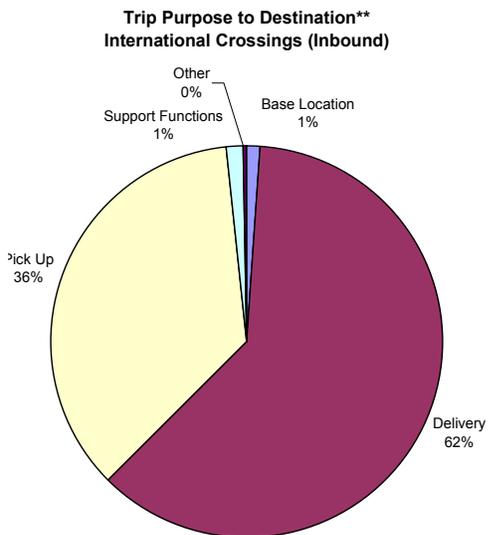
Trip Purpose to Destination**
International Crossings (Inbound)

Other 0%
Support Functions 1%
Base Location 1%
Pick Up 36%
Delivery 62%

Figure 11. Distribution of Commercial Vehicles by Trip Purpose at Destination.

Trip Purpose to Destination**
Non-International Crossings (Outbound)

Other 2%
Support Functions 7%
Base Location 4%
Pick Up 21%
Delivery 66%
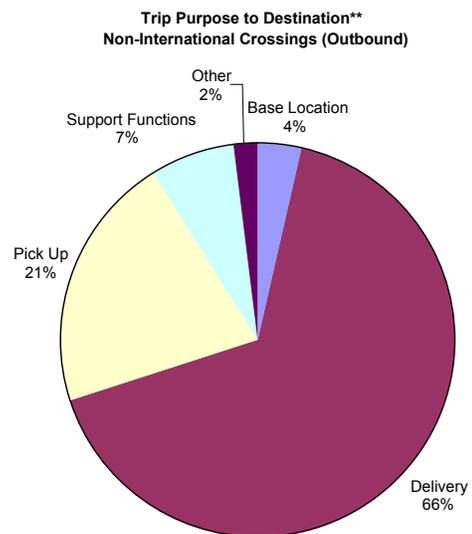
Figure 12. Distribution of Commercial Vehicles by Trip Purpose at Destination.

* Origin is the location where the person began the trip.
** Destination is the location where the person is traveling.

Time-of-Day

Vehicle classification counts were conducted at the survey sites on the same day as the surveys. These counts were for a 24-hour period and for most of the sites, conducted by time-of-day and direction of travel. Due to site restrictions, directional, time-of-day counts by vehicle classification were not conducted at four international bridge crossings. Time-of-day counts were conducted at the four international crossings for the inbound direction only. Vehicle classification counts were conducted for the 24-hour period. With the exception of those four international crossings, the time-of-day counts were conducted by direction and vehicle classification at all of the surveyed sites.

Figure 13 presents a comparison of the distribution of inbound vehicles (non-commercial plus commercial) at the international and non-international crossings. The morning peak for the non-international crossings occurs around 7 a.m. but is very short and drops slightly at 8 a.m., holds steady until around Noon and then increases gradually to the afternoon peak from 4 p.m. to 5 p.m. The morning peak for international crossings begins at 7 a.m. and lasts to 8 a.m. The traffic declines until around 10 a.m. when it begins increasing to peak at around Noon. The traffic holds steady until 4 p.m. when it begins to decline. The distributions of inbound traffic are fairly consistent between the international and non-international crossings. The international crossings have a larger sustained afternoon peak that is probably attributable to the border inspection, which would serve to meter and control the inbound movements allowing only a certain number of vehicles per hour to clear customs and enter the U.S.

Figure 14 presents a comparison of non-commercial and commercial vehicles inbound to the study area for all of the non-international stations. The distribution of non-commercial vehicles closely mirrors that shown for these stations in Figure 13. This implies that the volume of traffic inbound at these stations is dominated by non-commercial vehicles. It is interesting to note that the distribution of commercial vehicles inbound to the study area is fairly constant between 7 a.m. and 5 p.m. It does not exhibit a typical morning and evening peak. The volume of traffic for non-commercial and commercial vehicles declines beginning at 5 p.m.
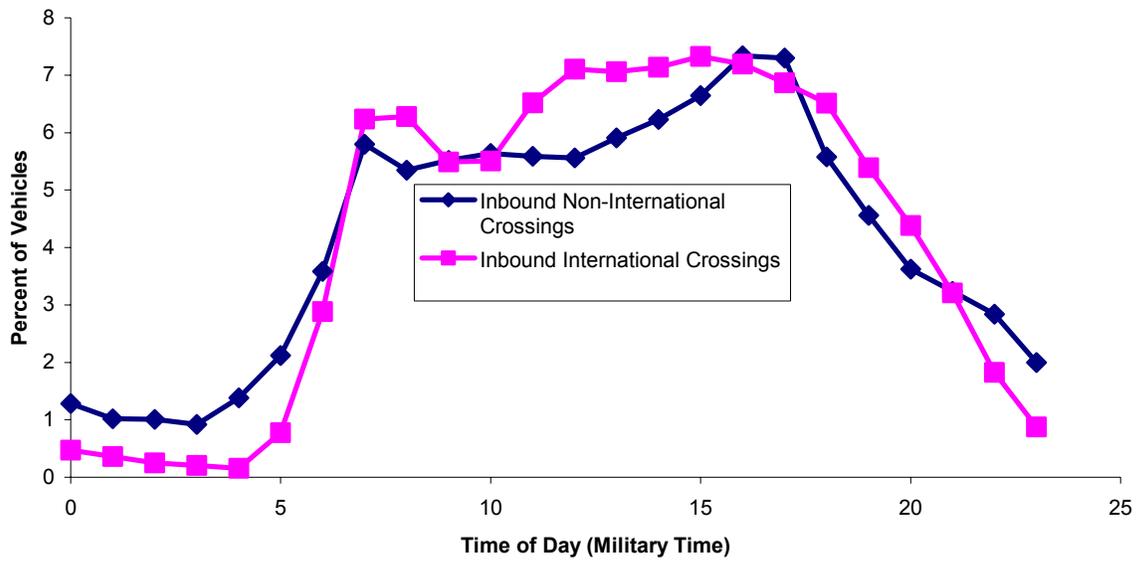
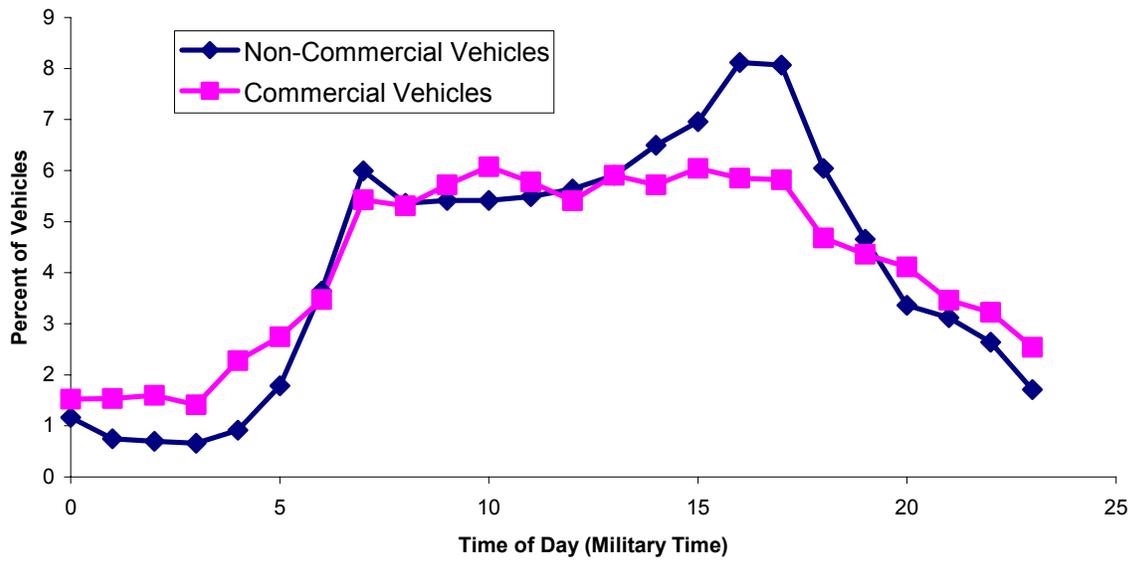**Figure 13. Distribution of Inbound Vehicles by Time-of-Day.**

Figure 14. Distribution of Inbound Vehicles at Non-International Sites by Time-of-Day.

21

Figures 15 and 16 present the distributions of non-commercial and commercial vehicles at the non-international sites for the inbound and outbound directions by time-of-day. These figures illustrate that the distributions of non-commercial and commercial vehicles are very similar between the inbound and outbound directions. Based on these data, it would be logical to assume that the inbound and outbound distributions at the international sites would also be similar. It should be noted that even if this assumption is made, the distributions for inbound and outbound vehicles (non-commercial and commercial) at the international sites may be different.
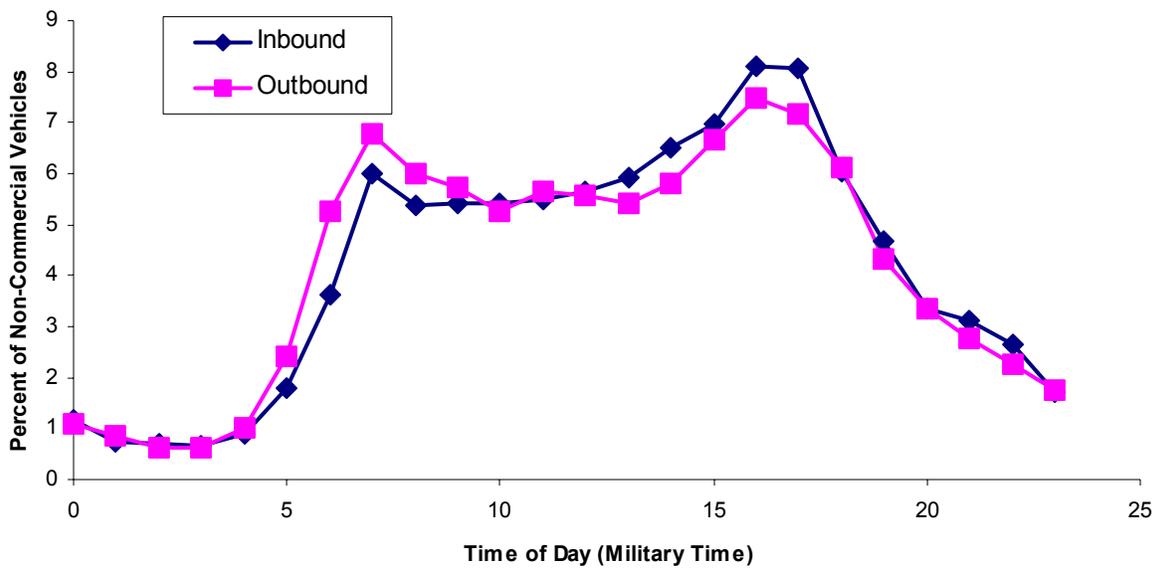
Figure 15. Distribution of Non-Commercial Vehicles by Time of Day at Non-International Sites.
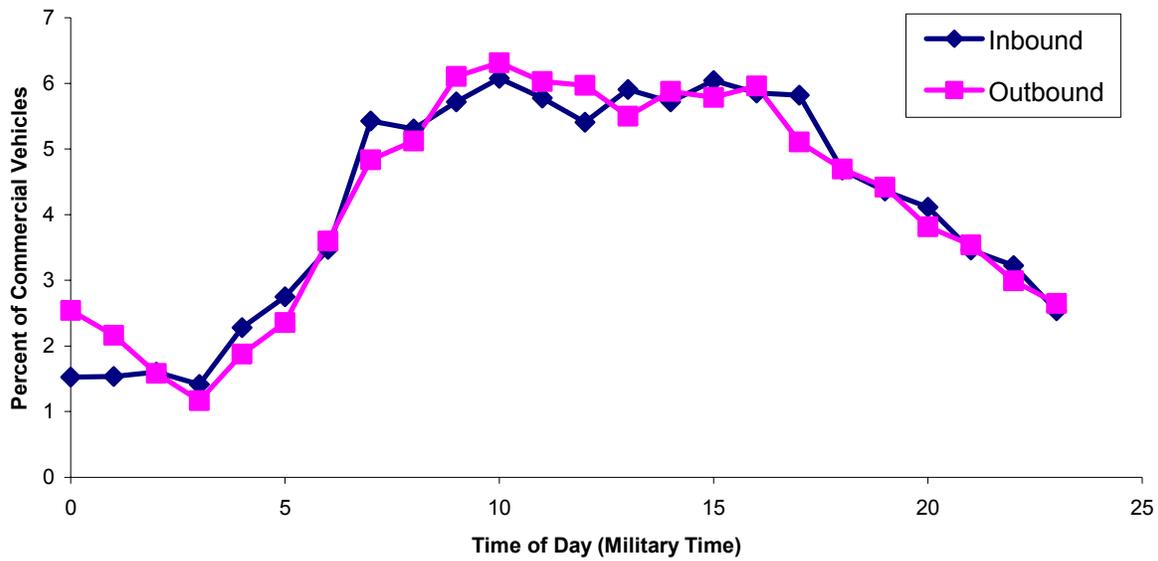
Figure 16. Distribution of Commercial Vehicles by Time of Day at Non-International Sites.

Vehicle Characteristics

In conducting the survey, interviewers collected data on the year, make, odometer readings, and model of each non-commercial and commercial vehicle surveyed. This provides insight as to the vehicles coming into and out of the study area by age and condition (implied by the number of miles on the odometer). Figure 17 presents the distributions of non-commercial and commercial vehicle by age as reported in the surveys. The average age of non-commercial vehicles was 8.6 years and commercial vehicles was 7.8 years. It is interesting to note that the similar statistic for Laredo was reversed (i.e., average age for non-commercial vehicles was 7.6 years and for commercial vehicles was 8.5 years). The median non-commercial vehicle age was 7.1 years and the median commercial vehicle age was 5.6 years. Figure 18 shows the average vehicle age.

Figure 19 presents the distribution of vehicles by age and average odometer reading for non-commercial and commercial vehicles. This data clearly shows the difference in mileage accumulation rates for commercial vehicles as compared to non-commercial vehicles. While the data appears to show declining mileage accumulation for vehicles over 20 years of age, this is most likely due to older odometers being limited to a maximum mileage of 99,999.99. When they reach this value, they roll over and begin again at 1. Table 8 presents the numerical values for the data shown in Figures 17 and 19. The average odometer reading for commercial vehicles

is three times that for non-commercial vehicles. Figure 20 presents the distributions of vehicles by their odometer reading (i.e., the range of reading). This figure is somewhat misleading since it only shows the percentage of vehicles up to the odometer range of 240,000 to 250,000 miles. Nearly 5 percent of the non-commercial vehicles had odometer readings above 250,000 and 53 percent of the commercial vehicles had odometer readings above 250,000 miles.
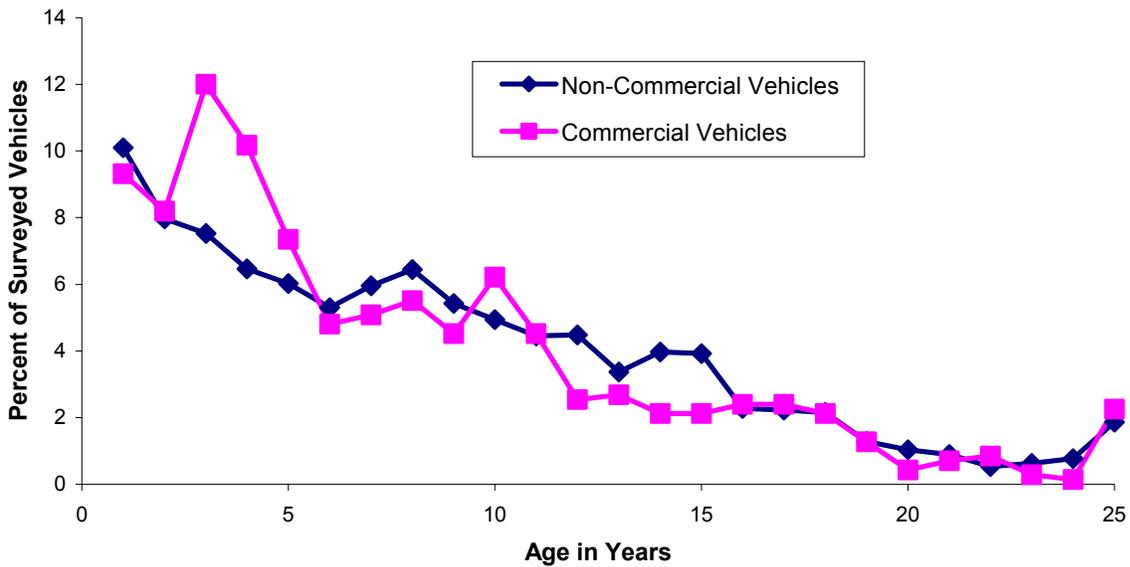

Figure 17: Distribution of Surveyed Vehicles by Age.

Figure 18. Average Vehicle Age.

Non-Commercial Vehicles - 8.6 Years

Commercial Vehicles - 7.8 Years

New Mexico

New Mexico

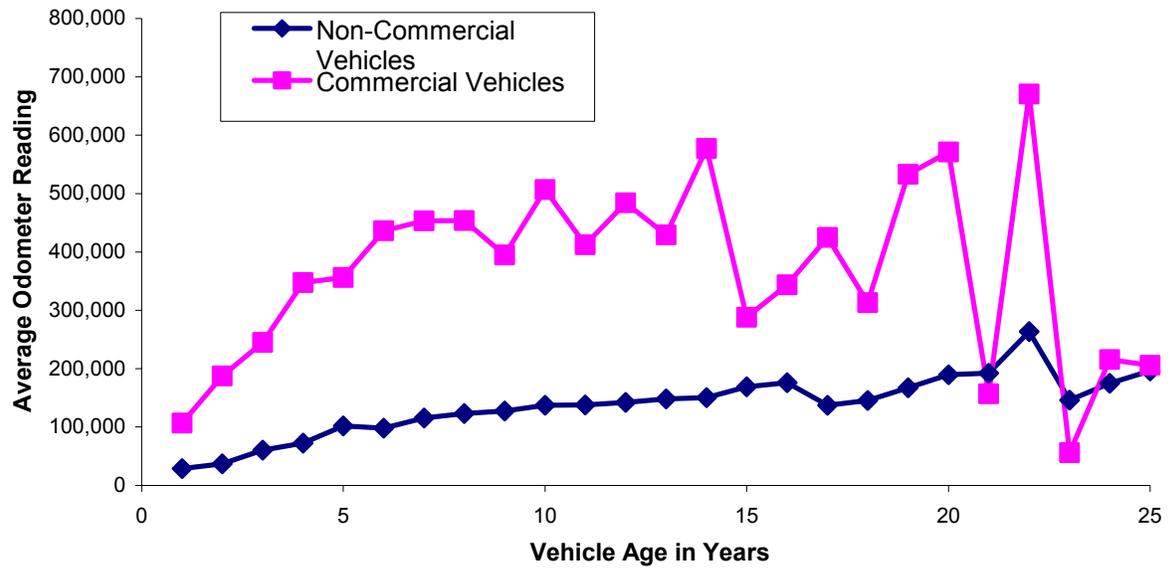Mexico

El Paso County
Texas

Figure 19: Average Odometer Readings for Vehicles by Age of Vehicle.

Table 8. Distribution of Surveyed Vehicles by Age and Average Odometer Readings.

| Vehicle Age	Non-Commercial Vehicles	Average Odometer Reading	Commercial Vehicles	Average Odometer Reading
1	416	28,667.5	65	106,935.9
2	328	37,210.9	57	187,375.8
3	311	60,674.1	85	245,279.6
4	266	72,270.8	72	347,461.4
5	248	102,018.2	51	356,419.8
6	217	98,289.8	33	436,047.6
7	241	115,255.9	35	453,314.2
8	261	123,249.5	39	453,492.7
9	222	127,541.2	31	395,094.2
10	201	137,330.3	43	506,842.4
11	183	137,774.7	29	412,155.8
12	181	142,341.2	17	484,151.2
13	132	148,329.4	19	429,097.4
14	158	150,295.7	15	577,484.4
15	155	168,756.4	15	288,340.1
16	87	175,865.5	16	343,730.2
17	90	137,012.5	17	424,911.5
18	79	145,416.4	14	312,925.7
19	53	166,982.6	9	533,232.4
20	41	189,437.4	3	571,127.3
21	35	192,250.5	5	156,844.8
22	21	263,587.3	5	670,162.2
23	25	146,190.2	2	56,027.5
24	28	174,661.3	1	215,546.0
25 +	74	195,934.5	14	205,783.7
Totals	4,053	107,629.2	692	340,956.8
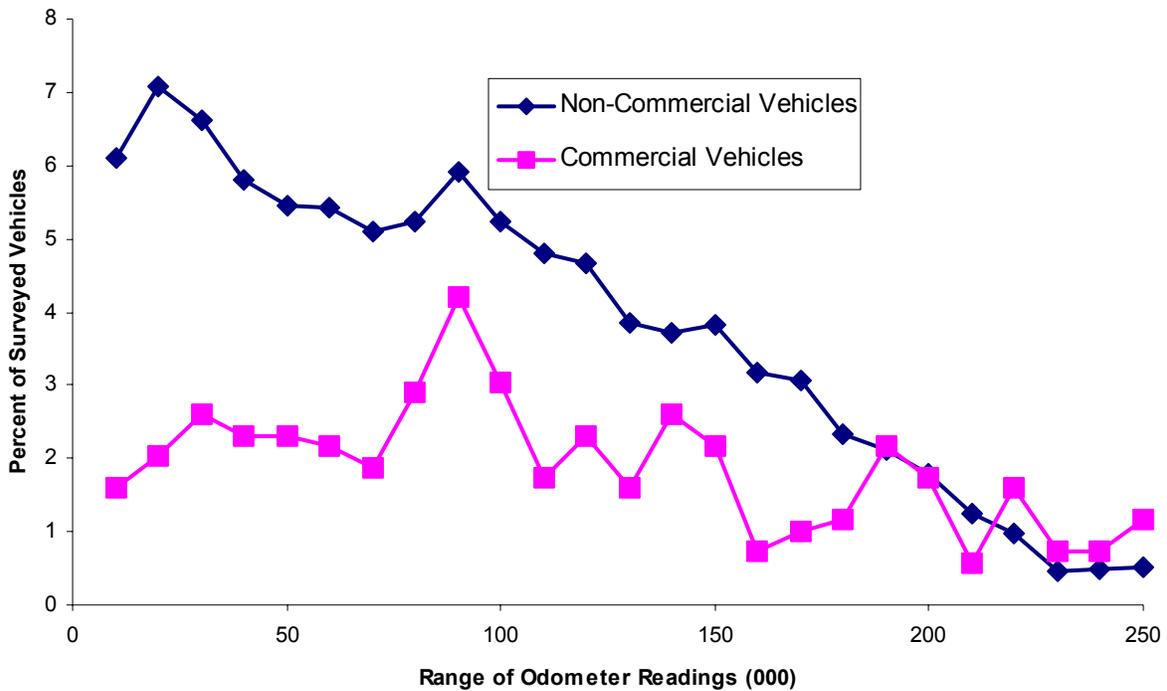
Figure 20. Distribution of Vehicles by Odometer Reading Range.

Vehicle Occupancy

As vehicles were surveyed, one of the data items recorded was the class (i.e., type) of vehicle and the number of persons in the vehicle. This information provides a means for estimating the number of persons traveling in and out of the El Paso Transportation Study Area. Table 9 presents the number of observed non-commercial and commercial vehicles by class and the average occupancy for each. The overall average occupancy for non-commercial vehicles was 1.71 and for commercial vehicles was 1.14. Figure 21 shows the average occupancy for the study area.
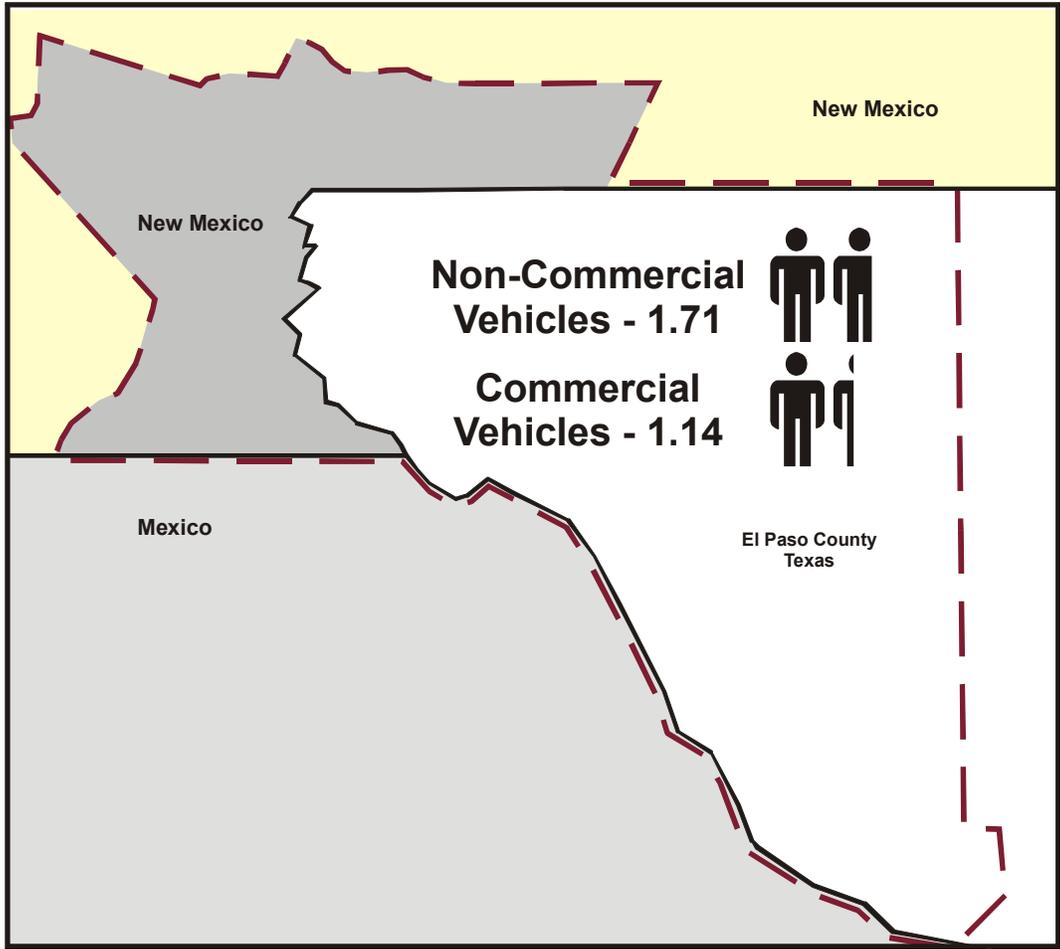
Figure 21. Average Vehicle Occupancy.

Table 9. Distribution of Surveyed Vehicles by Class and Average Occupancy

Non-Commercial Vehicle Classification	Observed Vehicles	Average Occupancy	Commercial Vehicle Classification	Observed Vehicles	Average Occupancy
Passenger Vehicle	4,049	1.71	Single Unit- 2 Axle 6 Wheels	104	1.16
Bus	21	1.52			
Taxi/Paid Limo	2	1.50	Single Unit – 3 Axle 10 Wheels	26	1.15
School Bus	2	4.00			
Motorcycle	8	1.25	Single Unit – 4 Axle 14 Wheels	38	1.24
Recreational Vehicle	11	2.00			
Other	37	1.33	Semi-Tractor Trailer Combinations	538	1.13

COMMERCIAL VEHICLE CARGO CHARACTERISTICS

Commercial vehicles are a major component of travel into, out of, and through the El Paso Transportation Study Area. Specific questions were included in the commercial vehicle surveys to obtain information on the cargo being transported, they type of facility where it was picked up and dropped off, and how the cargo was transported to the vehicle. Table 10 presents data on the number of commercial vehicles surveyed by survey site and whether or not their cargo was from Mexico Figure 22 shows trucks entering the U.S. at the Zaragosa Street Bridge. Nearly all of the commercial vehicles crossing into the study area over the international bridges were carrying cargo from Mexico. Over 40 percent of the commercial vehicles crossing at the international crossing into the study area were empty. In contrast, only 26 percent of the commercial vehicles leaving the study area at non-international crossings were empty. For those vehicles carrying cargo, 24 percent reported picking up their cargo at an intermodal facility and 20 percent reported they would be dropping off their cargo at an intermodal facility. An intermodal facility is one where cargo may be transferred between several

Figure 22. Trucks entering the U.S. at the Zaragosa Street check station.

different modes (e.g., rail to truck, pipeline to truck, etc.).

Figures 23 and 24 present the distribution of surveyed commercial vehicles by the type of transfer for their cargo at the origin (point of pick up) and at the destination (point of drop off). There were some vehicles that reported their cargo was transferred from a ship or a plane, these were so few they were included in the "Other" category. The majority of cargo transfers at both the origin and destination were from a warehouse facility. Truck to truck transfers were the second highest reported type of transfer at both the origin and destination. "Other" ranked third at both the origin and destination.

Table 10. Commercial Vehicles With Mexico Cargo

Station Number	Survey Direction	Facility	Surveyed Vehicles	Empty Vehicles	Vehicles With Mexico Cargo	Vehicles Without Mexico Cargo
693		Cordova Bridge	141	67	72	2
694		Stanton Street Bridge			No Commercial Vehicles	
695	Inbound	El Paso Street Bridge			No Commercial Vehicles	
692		Zaragosa Bridge	60	24	36	0
691		Fabens Bridge			No Commercial Vehicles	
688		US 62/US 180	51	35	0	16
689	Outbound	IH 10 East	68	13	1	49
690		SH 20 East	2	1	0	1
697	Inbound	Santa Teresa Port of Entry	57	18	38	0
698		Santa Teresa Cattle Crossing			No Commercial Vehicles	
684		Hwy 9	13	9	2	2
685		Hwy 28	14	5	2	7
686	Outbound	Hwy 478	16	3	0	13
687		IH 10 North	209	36	18	154
699		Hwy 213	6	0	0	6
700		US 54	71	17	6	42
Totals			708	228	175	292

Cargo Transfer at Point of Pick Up

Other
10%

Pipeline
4%

Truck
27%

Rail
1%

Warehouse
58%
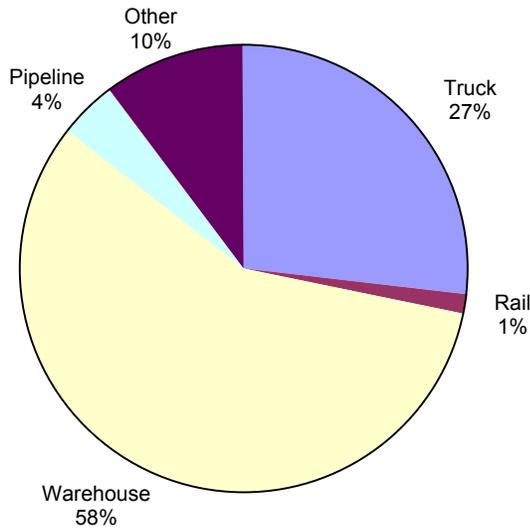
Cargo Transfer at Point of Drop Off

Other
30%

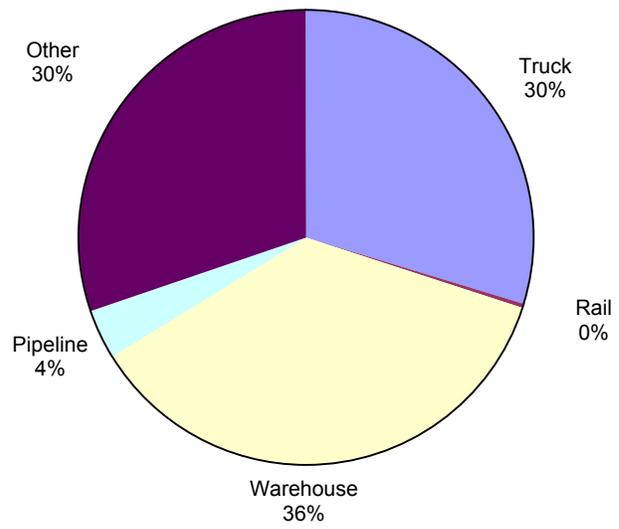Truck
30%

Pipeline
4%

Rail
0%

Warehouse
36%

Figure 23. Distribution of Commercial Vehicles by Transfer at Point of Cargo Pick Up.

Figure 24. Distribution of Commercial Vehicles by Transfer at Point of Cargo Drop Off.

Table 11 presents the breakdown of surveyed commercial vehicles by their reported cargo. The data are presented for international and non-international crossings. The distribution of commercial vehicles coming into the study area by cargo is significantly different from that for the commercial vehicles leaving the study area. Out of the 19 categories of cargo, 13 were reported being carried into the study area while 18 were reported being carried out of the study area. The dominant cargo (over 20 percent) being transported into the study area was manufactured goods and equipment products. The dominant cargo (14 percent) being transported out of the study area was food, health, and beauty products.

Table 11. Distribution of Commercial Vehicles by Type of Cargo

Type of Cargo	Surveyed Commercial Vehicles			
	International Crossings (Inbound)	Percent	Non-International Crossing (Outbound)	Percent
Farm Products	4	1.6	16	3.6
Forest Products	0		2	0.4
Marine Products	0		0	
Metals and Minerals	5	1.9	19	4.2
Food, Health, and Beauty Products	17	6.6	64	14.2
Tobacco Products	0		4	0.9
Textiles	7	2.7	9	2.0
Wood Products	10	3.9	20	4.4
Printed Matter	0		2	0.4
Chemical Products	6	2.3	8	1.8
Refined Petroleum or Coal Products	0		9	2.0
Rubber, Plastic, and Styrofoam Products	6	2.3	14	3.1
Clay, Concrete, Glass, or Stone Products	7	2.7	14	3.1
Manufactured Goods/Equipment Products	53	20.5	43	9.6
Wastes	12	4.7	3	0.7
Miscellaneous Shipments	1	0.4	25	5.6
Hazardous Materials	0		4	0.9
Transportation Products	7	2.7	19	4.2
Unclassified Cargo	14	5.4	48	10.7
Refused to Answer	0		1	0.2
Unknown to Driver	0		7	1.6
Empty	109	42.2	119	26.4
Totals	258	100.0	450	100.0

ORIGINS AND DESTINATIONS

A considerable effort was expended in the El Paso external station survey to capture the home locations for non-commercial vehicles as well as where the trips originated and were destined for both non-commercial and commercial vehicles. Questions were also asked for non-residents of the El Paso Transportation Study Area if they stayed overnight and the number of nights they stayed in the area. Not all of the survey respondents provided this information and the data

reported in this section is for the respondents that did not live in the El Paso Transportation Study Area.

Table 12 presents the number of non-commercial and commercial vehicle trips at the international sites reported as originating in Juarez and the number of respondents that reported they lived in Juarez. Since most of these sites directly connect Juarez to El Paso, the majority of the trips originated in Juarez.

Table 12. Originating Points for Trips at International Crossings.

Station Number	Survey Direction	Facility	Originated in Juarez*		Did Not Originate in Juarez		Lives in Juarez	
			Non-Commercial	Commercial	Non-Commercial	Commercial	Number	Pct.
693		Cordova Bridge	304	139	1	2	207	67.9
694		Stanton St Bridge	307	NA	0	NA	170	55.4
695		El Paso St Bridge	330	NA	2	NA	200	60.2
692		Zaragosa Bridge	299	54	1	6	146	48.7
691	Inbound	Fabens Bridge	108	NA	387	NA	81	16.4
697		Santa Teresa Port of Entry	231	45	47	12	106	38.1
698		Santa Teresa Cattle Crossing	0	NA	2	NA	0	0
Totals			1,579	238	440	20	910	45.1

* These trips do not include those identified as external through.

Table 13 presents data on the number of Texas and non-Texas residents surveyed in non-commercial vehicles at the non-international sites. These numbers exclude the number of respondents that reported living in the El Paso Transportation Study Area. The number of non-Texas residents surveyed outnumbered the Texas residents by three-to-one. Nearly 66 percent of the Texas residents surveyed at the non-international sites traveled from the top 10 locations reported in the survey. The number of distinct Texas cities reported in the survey was 74. These cities in order of the number of responses were Fort Hancock, Dell City, San Antonio, Hudspeth, Van Horn, Lubbock, Dallas, Houston, Midland, and Odessa. The non-Texas residents reported

over 200 different residences. Some came from foreign countries such as Australia, England, Germany, etc. The majority of non-Texas residents (67 percent) traveled from New Mexico.

Table 13. Non-Commercial Vehicle Place of Residence* at Non-International Sites.

Station Number	Survey Direction	Facility	Texas Residents	Percent**	Non-Texas Residents	Percent**
688		US 62/US 180	45	26.0	71	41.0
689		IH 10 East	96	34.0	97	34.4
690		SH 20 East	99	55.6	11	6.2
684		Hwy 9	1	1.3	46	61.3
685	Outbound	Hwy 28	4	1.2	176	53.0
686		Hwy 478	1	0.3	113	38.6
687		IH 10 North	16	9.2	78	45.1
699		Hwy 213	9	3.5	69	27.2
700		US 54	15	4.3	202	58.6
Totals			286	6.9	863	20.9

* Place of residence is for people that did not live in study area.
** Percent is the percentage of all non-commercial vehicles surveyed at the site.

For non-commercial vehicles at the international stations, the top three locations out of the 78 different locations reported as the origin of the trip were in Mexico, specifically the cities of Guadalupe, Caseta, and Chihuahua. For commercial vehicles, the top three locations out of the 12 reported as the origin of the trip were also in Mexico, specifically the cities of Chihuahua, Durango, and Samalayuca. Vehicles that originated their trip in Juarez were not included in these numbers.

In identifying the destinations for commercial vehicles, several responses were received which did not appear to make sense. For example, a commercial vehicle coming from Juarez into the El Paso Transportation Study Area reported their destination as Juarez. These responses, while appearing illogical, were reasoned to most likely represent situations where the vehicle was transporting goods into the study area, dropping them off, and returning to Juarez for possibly another load. This was a situation observed in Laredo and could possibly be a similar one in El Paso. The interviewer failed to have the driver identify where the load would be transported in the El Paso Transportation Study Area. These trips were modified and treated as

an external local trip with the destination zone unknown. It was assumed in these cases that Juarez was the destination of the vehicle.

A total of 154 distinct destinations out of Texas were reported for surveyed commercial vehicles. Destinations out of Texas were reported for 520 commercial vehicles. A total of 38 percent reported their destination as a location in Mexico. New Mexico was the second highest reported destination with 23 percent followed by locations in California for 16 percent of the vehicles. Arizona followed with nearly 12 percent. The majority of the commercial vehicles with destinations out of Texas were either traveling to Mexico or west.

Commercial vehicles traveling to destinations within Texas (not in study area) listed 25 distinct cities. The two top destinations listed were Houston and Dallas. Only 61 commercial vehicles were recorded with destinations in Texas outside of the El Paso Transportation Study Area.

PEDESTRIAN SURVEY

Pedestrians were surveyed at five international crossings. These surveys were intercept where the pedestrians were asked as they crossed into the U.S. if they would answer a few questions. Those that refused were allowed to continue and noted as a refusal. The purpose of the surveys was to collect information on the characteristics of pedestrian travel between Mexico and the El Paso Transportation Study Area. Table 14 presents the sites and number of pedestrians surveyed, refusals, and the total pedestrian counts at each location. It was noted that the Stanton Street Bridge also allowed pedestrians but only those traveling from the El Paso Transportation Study Area to Mexico. Since this was in the outbound direction, no pedestrians were surveyed. The 24-hour count at the Stanton Street Bridge was 2,146.

Table 14. Number of Pedestrians Surveyed.

Station Number	Survey Direction	Facility	Number of Surveys	24-Hour Counts		
				Inbound	Outbound	Total
691	Inbound	Fabens Bridge	26	60	29	89
692		Zaragosa Bridge	341	2,381	2,248	4,629
693		Cordova Bridge	191	15,443	14,158	29,601
695		El Paso Bridge	391	9,551	9,140	18,691
697		Santa Teresa POE	3	10	10	20
Totals			952	27,445	25,585	53,030

Pedestrians were asked for the purpose of their trip, at the location where they began the trip (i.e., the origin purpose) and the purpose for traveling to their next destination (i.e., the destination purpose). The responses were coded into one of 12 categories shown in Table 15. These purpose categories are similar to the ones used for vehicles.

Table 15. Pedestrian Trip Purpose Categories.

Code	Purpose	Code	Purpose	Code	Purpose
1	Home/Return Home	5	Vacation	9	Personal Business
2	Go/Return to Work	6	Visit Friends/Family	10	Delivery
3	Work Related	7	Eat Out	11	Other
4	School	8	Shop	12	Refused

For report presentation, the trip purpose codes shown in Table 9 were aggregated into the following six categories that capture the primary reasons for travel.

Category	Trip Purpose Codes
Home	1
Work	2 and 3
School	4
Personal	5, 6, and 9
Shop	7 and 8
Other	10, 11, and 12

Figures 25 and 26 present the distribution of surveyed pedestrians by the reported trip purpose (grouped in the above six categories) at the origin and destination of the trip. The majority of pedestrians surveyed (33 percent) were coming from work and from personal business (30 percent). Only 16 percent were traveling from home and 18 percent were coming from shopping. Somewhat surprisingly, the most cited trip purpose to their destination was home (38 percent) while only 26 percent were traveling into the study area to shop. Only 11 percent were traveling to work in the study area while 22 percent were traveling for personal business. Only 2 percent of the pedestrians reported traveling to school as the purpose of travel for both the origin and destination ends of the trip.

Trip Purpose from Origin*

Other 1%
Home 16%
Shop 18%
Work 33%
Personal 30%
School 2%
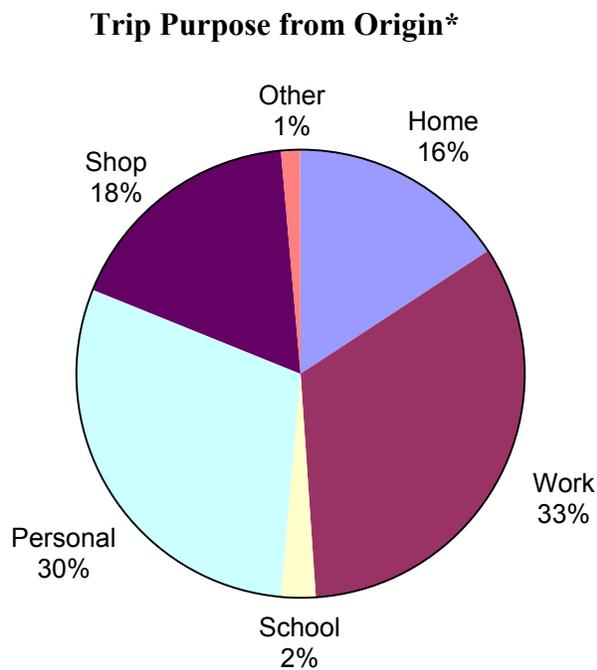
Figure 25. Distribution of Pedestrians by Origin Purpose.

Trip Purpose to Destination**

Other 1%
Shop 26%
Home 36%
Personal 22%
School 2%
Work 11%
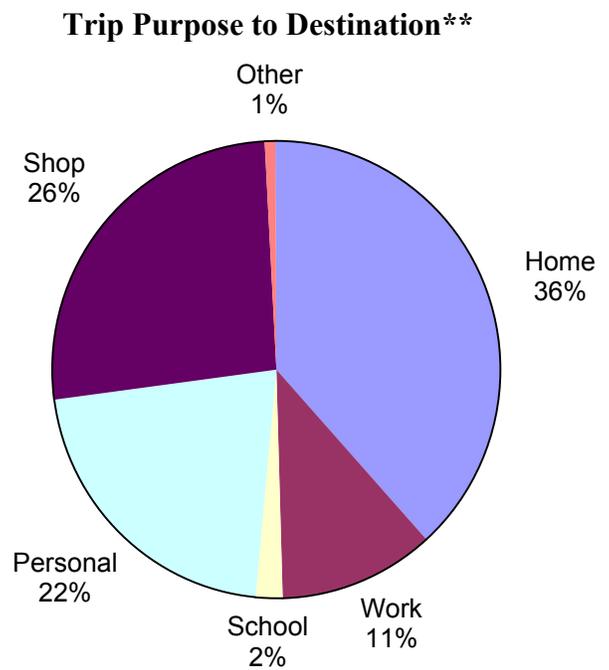
Figure 26. Distribution of Pedestrians by Destination Purpose.

One of the issues raised in a similar survey in Laredo, another border town, dealt with the question of whether individuals traveling from Mexico for the purpose of work would report it during the survey or state their reason for traveling as another purpose. Tables 16 and 17 present the number of surveys by trip purpose at the origin and destination ends of the trips by time period surveyed. The majority of pedestrians were traveling from work when surveyed and

traveling home. Considering pedestrians were surveyed as they entered the study area, this was surprising.

Table 16. Purpose at Origin for Pedestrians Surveyed by Time-of-Day.

Trip Purpose	Pedestrians Surveyed (Inbound)	Pedestrians Surveyed by Time of Day				
		Before 8 a.m.	8 a.m. to 10 a.m.	10 a.m. to 2 p.m.	2 p.m. to 5 p.m.	After 5 p.m.
Home/Return Home	151	10	29	74	32	6
Go/Return to Work	234	19	73	84	48	10
Work Related	81	4	28	32	15	2
School	23	4	8	4	7	0
Vacation	6	0	1	5	0	0
Visit Friends/Family	186	10	48	73	41	14
Eat Out	11	0	0	8	3	0
Shop	156	7	26	68	48	7
Personal Business	91	6	21	40	16	8
Delivery	5	1	2	0	1	1
Other	6	1	2	1	2	0
Refused	2	0	0	1	1	0
All Purposes	952	62	238	390	214	48

Table 17. Purpose to Destination for Pedestrians Surveyed by Time-of-Day.

Trip Purpose	Pedestrians Surveyed (Inbound)	Pedestrians Surveyed by Time of Day				
		Before 8 a.m.	8 a.m. to 10 a.m.	10 a.m. to 2 p.m.	2 p.m. to 5 p.m.	After 5 p.m.
Home/Return Home	366	23	113	136	84	10
Go/Return to Work	52	0	8	28	13	3
Work Related	53	2	12	17	15	7
School	17	4	2	7	2	2
Vacation	5	0	2	3	0	0
Visit Friends/Family	160	11	32	71	34	12
Eat Out	5	0	4	0	1	0
Shop	247	20	60	101	54	12
Personal Business	40	1	4	25	8	2
Delivery	5	1	1	2	1	0
Other	2	0	0	0	2	0
Refused	0	0	0	0	0	0
All Purposes	952	62	238	390	214	48

The trip purposes typically used in travel demand models combine both the origin and destination trip purpose into one (i.e., HBW, HBNW, and NHB). HBW trips are trips that have one end at work and one end at home. HBNW trips are those non-work trips that either begin or end at home. NHB trips are those that begin and end at locations other than home. Figure 27 presents the distribution of pedestrians surveyed by trip purpose and time-of-day. While the percentage of HBW trips does increase after 8 a.m., the increase does not seem abnormal since these trips were observed throughout the time period surveyed. The percentage of HBW trips for the day was very similar to that observed for vehicles crossing the border.
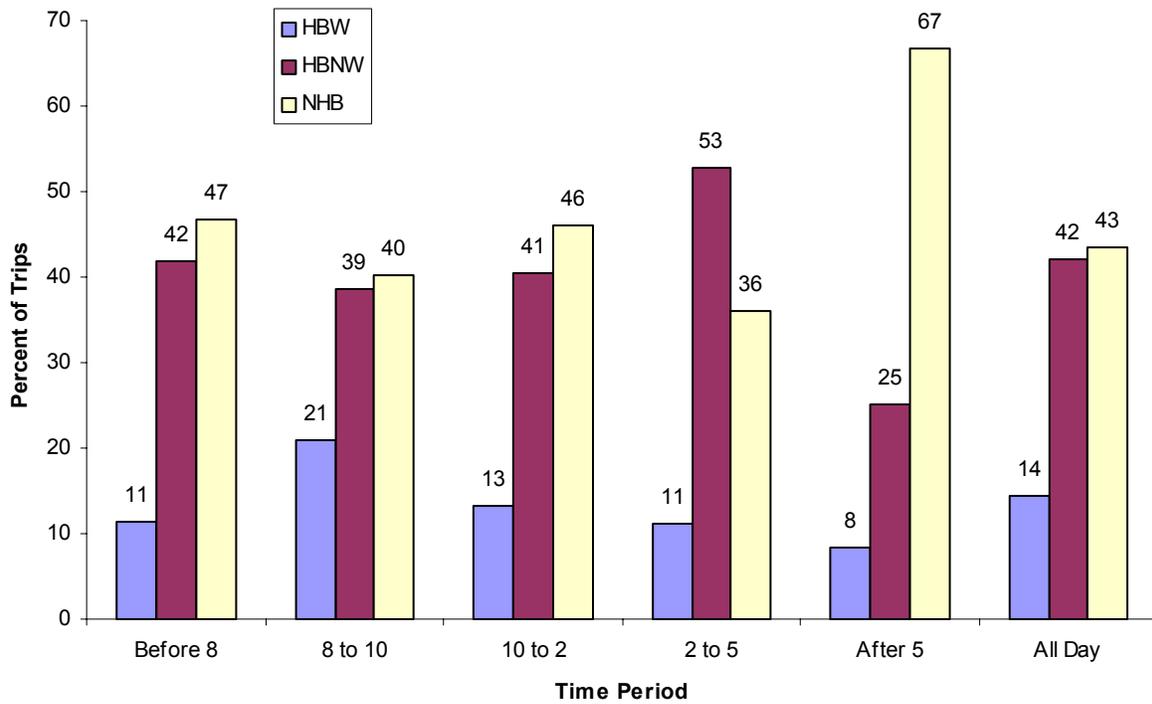
Figure 27. Distribution of Pedestrians Surveyed by Trip Purpose and Time-of-Day.

Pedestrians were also asked the mode of travel they used to reach the bridge they crossed over into the study area and the mode of travel they planned to use to travel to their destination after crossing. Table 18 presents the number of responses for each mode of travel listed on the survey instrument for travel to the bridge pedestrians crossed and for their travel to their next destination. The data in Table 18 show the dominance of passenger, bus, and walk modes for travel to and from the bridge of crossing.

Table 18. Pedestrian Mode of Travel To and From Entry Point Into Study Area.

Code	Mode of Travel	Number of Surveyed Pedestrians	
		To Bridge Where They Crossed	To Next Destination
1	Passenger (car/truck/van)	477	448
2	Bus	243	141
3	Taxi/Paid Limo	3	4
4	School Bus	0	1
5	Commercial Vehicle	6	8
6	Motorcycle	1	1
7	Recreational Vehicle	3	3
8	Walk	217	343
9	Other	1	3
10	Unknown	1	0
	All Modes Combined	952	952

Grouping the modes of travel into the following five major categories, Figures 28 and 29 present the distribution of pedestrian surveys by those categories to the bridge where they crossed and to their next destination after crossing the bridge.

Category	Mode of Travel Codes
Passenger in Personal Vehicle	1, 3, 6, and 7
Bus	2 and 4
Commercial Vehicle	5
Walk	8
Other	9 and 10

Half of the pedestrians surveyed (50.8 percent) traveled to the bridge as a passenger of a personal vehicle and nearly half of the pedestrians (47.9 percent) traveled from the bridge after crossing on foot to their next destination. This is significant in terms of the number of vehicle trips represented both to and from the bridges in the El Paso Transportation Study Area. Given that more than 50,000 pedestrians cross into and out of the study area by the bridges, this means that there are about 25,000 vehicle trips to and from the bridges for purposes of transporting

people from and to the bridges in the El Paso Transportation Study Area. This is in addition to the vehicles crossing the bridges. Only 36 percent were walking to their destination and 15 percent were taking a bus.
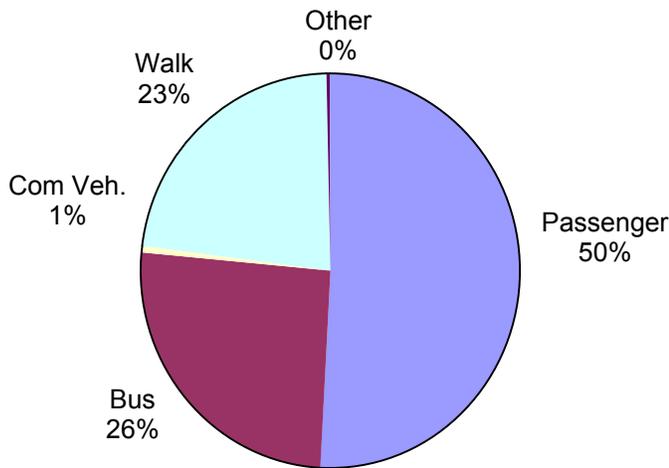
Figure 28. Distribution of Pedestrians by Mode of Travel to Bridge.
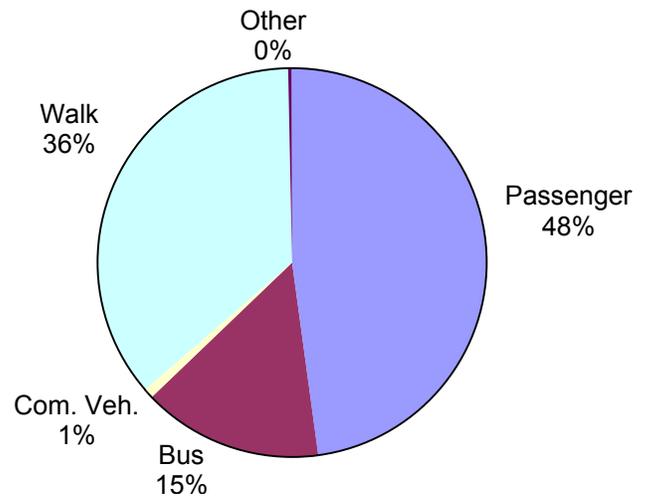
Figure 29. Distribution of Pedestrians by Mode of Travel from Bridge.

Pedestrians were also asked the number of stops/stores they planned to visit while in the El Paso Transportation Study Area. Figure 30 presents the distribution of the responses. The average number of stops/stores visited was just over two per person. When expanded for all of the pedestrians surveyed, this would imply that nearly 50,000 trips would be made in the El Paso Transportation Study Area.
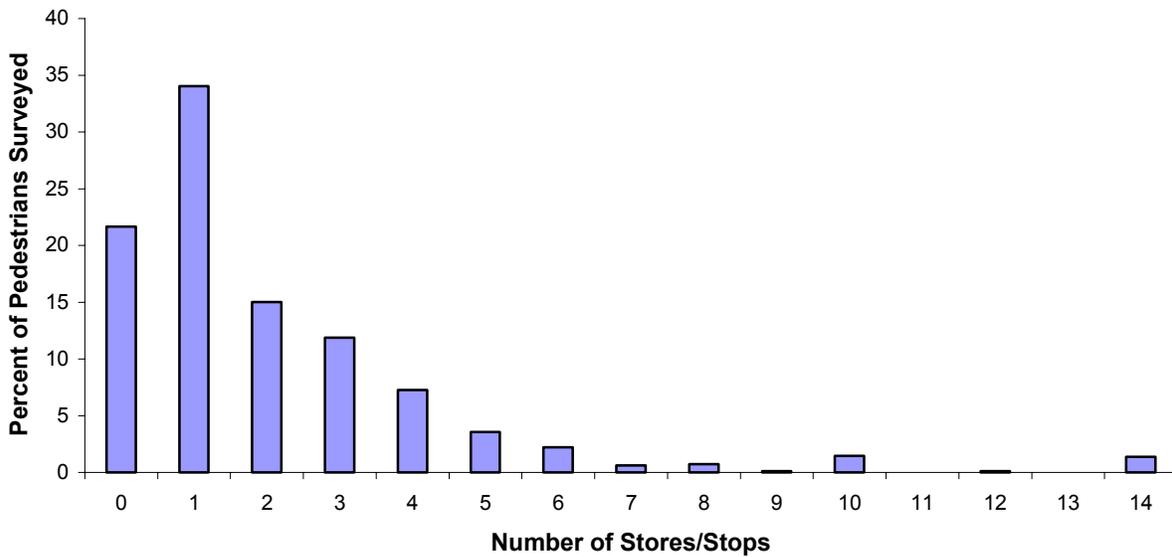
Figure 30. Distribution of Surveyed Pedestrians by Number of Stops/Stores Visited.

Pedestrians were also asked where they lived. Not surprisingly, the majority (74 percent) reported their residence as being in Mexico. The next largest group (24 percent) reported their residence as being in El Paso. A few (2 percent) reported their residence as other while a fractional percent reported living in Texas. Considering that only 54 percent of the non-commercial vehicles surveyed at the international crossings were not residents of the study area, the percentage of pedestrians crossing that do not live in the study area (76 percent) are significantly different.

Pedestrians were also asked the number of times per week they made the trip across the border. Figure 31 presents the distribution of responses for the pedestrians surveyed. The average times per week pedestrians made the trip was 2.2 times per week.
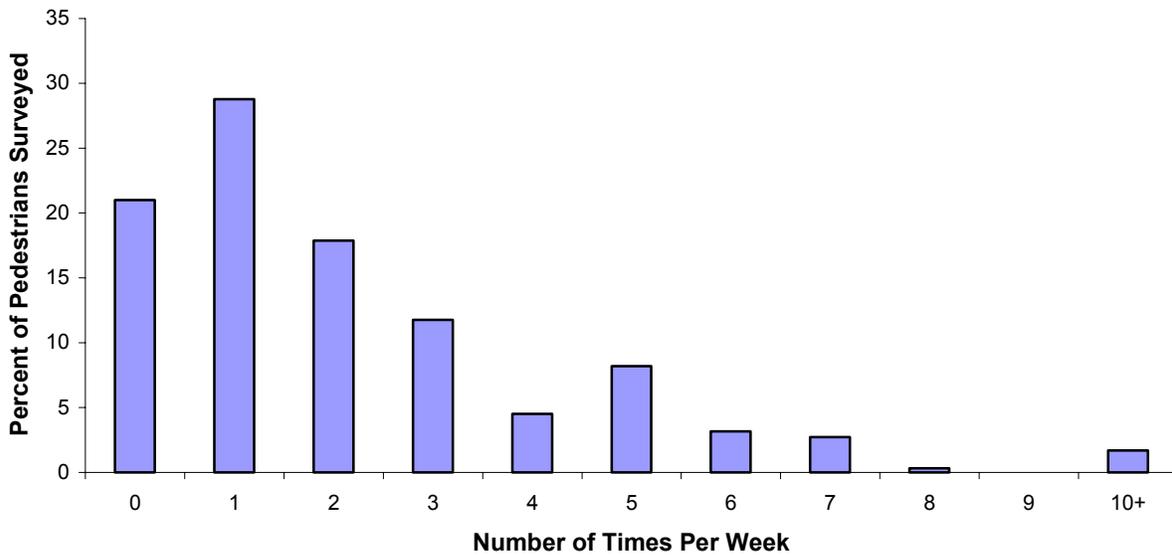
Figure 31. Distribution of Surveyed Pedestrians by Frequency of Trip.

In addition to the purpose of travel, pedestrians were also asked the type of place for both the place where their trip started (i.e., origin) and the place where they were traveling (i.e., destination). A total of 11 categories were identified and used in the survey. Table 19 presents the results in terms of the number of responses and percentages. The data in Table 19 indicates that 83 percent of the pedestrians reported their trip origin at a residential place while only 16 percent reported their purpose at the origin to be home/return home. The type of place at the destination end of the trip was residential for 37 percent of the pedestrians. This agrees closely with the 38 percent that reported home/return home as their purpose for traveling to their destination.

Table 19. Distribution of Pedestrians Surveyed by Type of Place.

Type of Place	At Origin of Trip		At Destination of Trip	
	Number	Percent	Number	Percent
Office Building	40	4.2	36	3.8
Retail/Shopping/Gas	31	3.3	299	31.4
Industrial/Manufacturing/Warehouse	36	3.8	122	12.8
Medical	14	1.5	19	2.0
Educational (12th Grade or Lower)	6	0.6	17	1.8
Educational (College, Trade, Etc.)	5	0.5	42	4.4
Government	12	1.3	26	2.7
Residential	790	83.0	354	37.2
Airport	1	0.1	3	0.3
Other	14	1.5	26	2.7
Unknown	3	0.3	8	0.8
Totals	952	100.0	952	100.0

SURVEY DATA EXPANSION

The survey data were expanded based on the 24-hour directional vehicle classification counts conducted at each survey site on the day the site was surveyed. The assumption is made that the traffic in the non-surveyed direction is a mirror image of the traffic in the surveyed direction. For example, if 10 percent of the surveyed outbound traffic was through trips, it is assumed that 10 percent of the inbound traffic will be through trips. It is also assumed that the surveyed vehicles are a representative sample of the vehicles at each site for the 24-hour period. Table 20 presents estimates of 24-hour through and local vehicle trips at each external station for the El Paso Transportation Study Area. The estimates of resident and visitor trips are based on the proportions of residents and visitors observed in the vehicle survey. Figure 32 shows the estimates of external-local vehicle trip movements by location group and Figure 33 shows the through vehicle trip movements between the location groups.

Table 20. Expanded Vehicle Survey Results by Station.

Station Number	Survey Direction*	Facility	Non-Commercial Vehicles			Commercial Vehicles			Resident Trips	Visitor Trips
			Local	Through	Total	Local	Through	Total		
693	Inbound	Cordova Bridge	58,443	936	59,379	2,632	23	2,655	18,823	40,556
694		Stanton Street Bridge	8,463	0	8,463	0	0	0	3,807	4,656
695		El Paso Street Bridge	19,114	340	19,454	0	0	0	7,207	12,247
692		Zaragosa Bridge	23,230	803	24,033	2,226	149	2,375	11,295	12,737
691	Both	Fabens Bridge	2,680	96	2,776	0	0	0	1,707	1,069
688	Outbound	US 62/US 180	925	50	975	377	47	424	319	656
689		IH 10 East	4,110	1,276	5,386	4,567	1,921	6,488	1,700	3,686
690		SH 20 East	472	17	489	138	0	138	187	302
697	Inbound	Santa Teresa Port of Entry	809	230	1,039	277	24	301	377	662
698		Santa Teresa Cattle Crossing	93	0	93	12	0	12	93	0
684	Outbound	Hwy 9	282	0	282	32	40	72	112	170
685		Hwy 28	1,431	14	1,445	199	0	199	657	788
686		Hwy 478	2,791	10	2,801	390	56	446	1,707	1,094
687		IH 10 North	16,543	3,016	19,559	6,692	1,975	8,667	9,036	10,523
699		Hwy 213	1,535	31	1,566	201	0	201	1,083	483
700		US 54	1,963	75	2,038	975	18	993	749	1,289
Totals			142,885	6,893	149,778	18,719	4,252	22,971	58,860	90,918

* Direction of travel for surveyed vehicles.
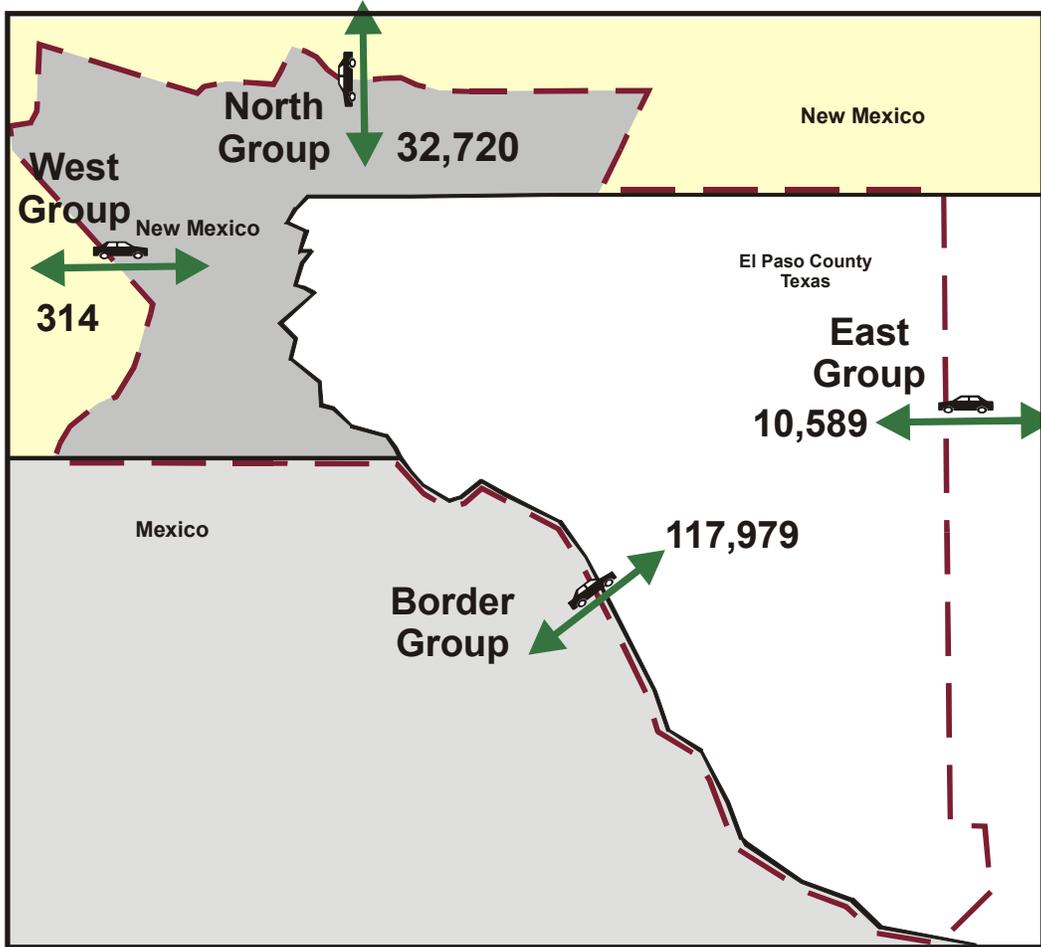
Figure 32. Estimates of External-Local Vehicle Trip Movements by Direction.
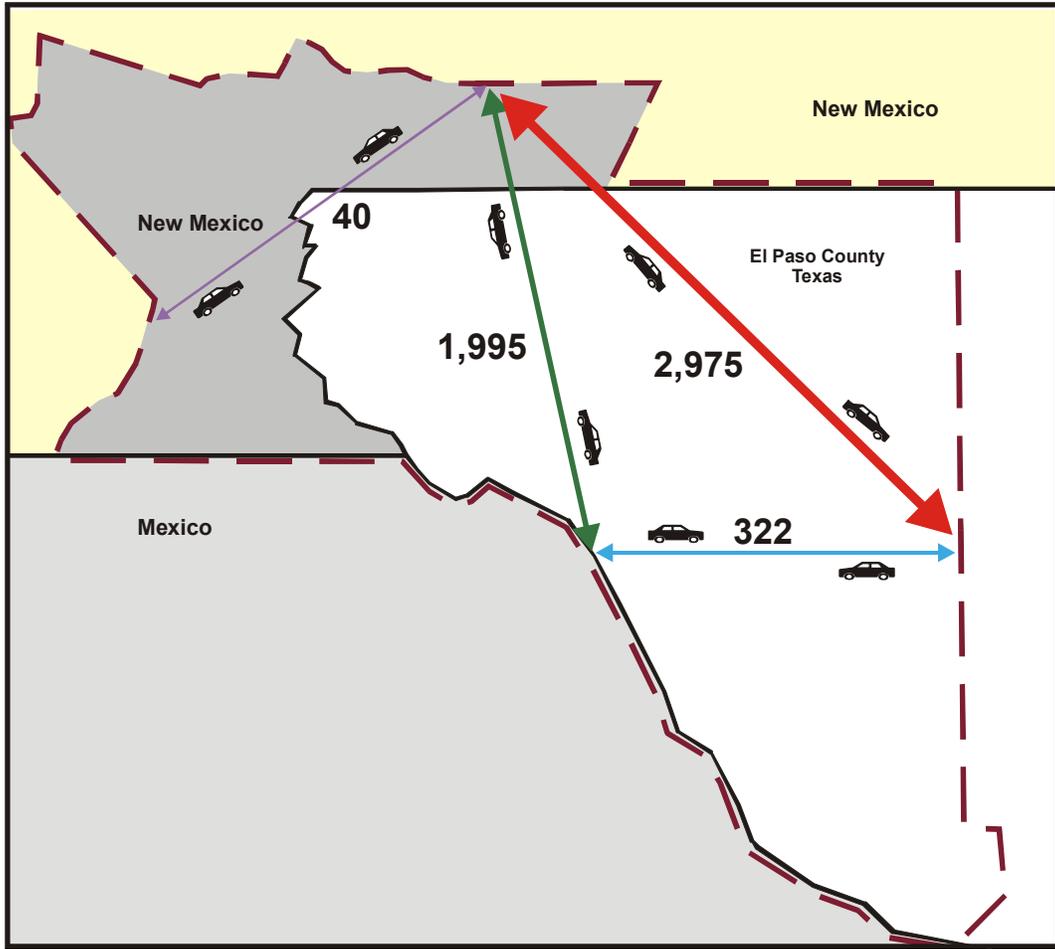
Figure 33. Estimates of Through Vehicle Trips by Location Group.

The expanded vehicle survey data were used to develop external station to zone estimates of non-commercial and commercial vehicle trips based on the geocoded origins and destinations for the surveyed trips. External station-to-zone person movements were also developed by mode of travel from the pedestrian surveys conducted at the international crossings. Vehicle miles of travel and average trip length information could not be developed because a final calibrated network for the El Paso Transportation Study Area is still under development.

SURVEY FINDINGS SUMMARY

An estimated 85,000 vehicles enter and leave the El Paso Transportation Study Area daily. The survey found that 13 percent of those are commercial vehicles. Nearly 7 percent of those vehicles travel through the study area without making a stop. Nearly 19 percent of the commercial

vehicles that enter and leave the study area are through trips. More than half (61 percent) of the non-commercial vehicles that travel into and out of the El Paso Transportation Study Area are driven by a person that does not live in the study area.

Based on the average vehicle occupancy found in the survey, an estimated 145,000 persons are entering and leaving the El Paso Transportation Study Area by non-commercial vehicles and 13,000 by commercial vehicles. An additional 27,000 persons enter and leave the study area by crossing on foot over the international bridges. In total, the population of the El Paso study area increases and decreases by an estimated 185,000 persons on an average weekday.

The reasons for travel were complex and indicate some unique travel characteristics in the El Paso study area. For example, nearly half of the persons traveling in non-commercial vehicles from Mexico into the study area were traveling from home and one fourth of the persons were traveling to home in the study area. A total of 17 percent were traveling from work and 18 percent were traveling to work. Over 30 percent were traveling from shopping or personal business and 46 percent were traveling to shop or for personal business. These patterns indicate the cities of Juarez and El Paso function much as a single urban area with commuting patterns moving both ways across the border.

The persons traveling in non-commercial vehicles moving out of the study area had some similarities to those moving across the border. For example, 28 percent were traveling from home and 35 percent were traveling to home. A total of 19 percent were traveling from work and 28 percent were traveling to work. Over 40 percent were traveling from shopping and personal business and 26 percent were traveling to shop or for personal business. This implies that there are commuters that live outside the study area and are commuting into the study area for work and other activities.

When the reasons for travel are entered into the categories used in travel demand models, the percentage of HBW trips at the international border is about the same as the percentage (15 percent versus 17 percent) at the non-international stations. There are roughly 13 percentage points difference in the HBNW and NHB trips between the international and non-international crossings.

Commercial vehicle drivers reported similar patterns in terms of their destination purpose between the international and non-international sites. The dominant purpose at the destination for commercial vehicles surveyed at international and non-international sites was to make a delivery.

The only major difference between commercial vehicles was with respect to the purpose at the origin end of their trip. Drivers surveyed coming into the study area at international sites reported that the dominant purpose (61 percent) at the origin of the trip was to pick up a cargo. Drivers surveyed at the non-international sites leaving the study area reported that the dominant purpose (45 percent) at the origin of the trip was support functions. This implies that a large number of the outbound commercial vehicles may be based in the El Paso Transportation Study Area.

The distributions of inbound vehicles by time of day are similar at international and non-international crossings. The morning peak occurs around 7 a.m. and is relatively short. Traffic is relatively constant throughout the day with the afternoon peak occurring from 4 p.m. to 5 p.m. The inbound distributions of non-commercial and commercial vehicles at non-international sites by time-of-day are similar. The distribution of commercial vehicles by time-of-day is constant throughout the day between 7 a.m. and 5 p.m. The distributions of inbound and outbound non-commercial vehicles at the non-international sites were similar, which supports the assumption of inbound travel being a mirror image of the outbound travel. The same was found for commercial vehicles.

The average age of non-commercial vehicles was 8.6 years old and the average age of commercial vehicles was 7.8 years old. This was opposite of the findings in the Laredo external survey where the commercial vehicles were older than the non-commercial vehicles. The average odometer reading for non-commercial vehicles was 107,000 miles and the average for commercial vehicles was nearly 350,000 miles.

Passenger vehicles were the dominant type of vehicle observed in non-commercial vehicles. The average vehicle occupancy was 1.71 persons per vehicle. The dominant type of commercial vehicle in the survey was semi-tractor trailer combination and the average vehicle occupancy was 1.14 persons per vehicle.

Of the 708 commercial vehicles surveyed, nearly one in every three was empty. Of the vehicles with cargo, over 36 percent were carrying cargo from Mexico. The majority of cargo was transferred at a warehouse facility. One out of every five commercial vehicles inbound from Mexico were carrying manufactured goods/equipment products. The most reported cargo outbound from the study area was food, health, and beauty products. Nearly all of the commercial vehicles surveyed that were inbound to the study area originated their trip in Juarez, Mexico. This was also true of the non-commercial vehicles with the exception of the Fabens

Bridge crossing. The number of commercial vehicles whose driver reported their destination as being out of Texas was 520 (73 percent of those surveyed). The number of distinct locations reported as the destination out of Texas totaled 154. The majority of commercial vehicles were traveling to Mexico or to a destination west of El Paso. More than half of the commercial vehicles were traveling to locations in New Mexico, California, or Arizona.

An estimated 27,000 pedestrians travel into and out of the El Paso Transportation Study Area daily. Nearly 1,000 pedestrians were surveyed in the inbound direction at the international border crossings. One of every three pedestrians surveyed reported they were traveling from work and 30 percent reported they were traveling from personal business. Only 16 percent were traveling from home. The most cited trip purpose to their destination was home (38 percent) while only 26 percent were traveling into the El Paso Transportation Study Area to shop. The survey results imply that there are a large number of individuals that live in the El Paso area and work in Mexico.

The majority of pedestrians reported traveling as a passenger in a vehicle both to and from the bridge where they crossed into the study area. Only 36 percent reported they were walking to their destination in the study area and 15 percent were taking a bus. These results indicate a large number of vehicle trips to and from the international bridges simply for the purpose of picking people up and transporting them to a destination in the study area. The average number of stops and/or stores visited was reported as just over two per person. It is estimated that pedestrians crossing the bridges from Mexico make nearly 50,000 person trips daily in the El Paso Transportation Study Area. In contrast to the non-commercial vehicles surveyed at the international crossings, nearly three-out-of-every-four pedestrians reported their residence as being in Mexico. The average number of times per week the pedestrians made the trip was reported as 2.2.

APPENDIX

EL PASO INTERNATIONAL CROSSING

NON-COMMERCIAL VEHICLE SURVEY   FORM - A

(Inbound El Paso)

Station # _____   Survey Date _____

Station Name/Location _____   Interviewer _____

For each vehicle you collect	Vehicle 1	Vehicle 2	Vehicle 3
Time	_____a.m. _____p.m.	_____a.m. _____p.m.	_____a.m. _____p.m.
Number of people in vehicle			
Vehicle Type			

Vehicle Type Options: **1)** Passenger (car/truck/van)   **2)** Bus   **3)** Taxi/Paid Limo   **4)** School Bus
5) Commercial Vehicle (over 1 ton)   **6)** Motorcycle   **7)** Recreational Vehicle   **8)** Other (specify in block)

QUESTIONS:	Vehicle 1	Vehicle 2	Vehicle 3
1. What year, make, and model is this vehicle? Gas (leaded, unleaded), diesel, propane or other fuel?	_____ Year _____ Make _____ Model Leaded ☐ Unleaded ☐ Diesel ☐ Propane ☐ Other ☐ _____	_____ Year _____ Make _____ Model Leaded ☐ Unleaded ☐ Diesel ☐ Propane ☐ Other ☐ _____	_____ Year _____ Make _____ Model Leaded ☐ Unleaded ☐ Diesel ☐ Propane ☐ Other ☐ _____
2. What is the mileage on your odometer?			
3. Do you live in Juarez? ***If No***	☐ Yes (go to 5) ☐ No ☐ Refused	☐ Yes (go to 5) ☐ No ☐ Refused	☐ Yes (go to 5) ☐ No ☐ Refused
3a. What city, state, and country (if other than Mexico) do you live in?	_____ _____ (city / state in Mexico, US, or other) ☐ Refused	_____ _____ (city / state in US or Mexico) ☐ Refused	_____ _____ (city / state in US or Mexico) ☐ Refused
4a. Did you enter Juarez today? ***If No***, what date did you enter Juarez?	☐ Yes (if yes, go to 4b) ☐ No _____(date) ☐ Refused	☐ Yes (if yes, go to 4b) ☐ No _____(date) ☐ Refused	☐ Yes (if yes, go to 4b) ☐ No _____(date) ☐ Refused
4b. Where outside of Juarez did you travel from? (city, state, country (if not Mexico))	_____ _____ (city / state in Mexico, US, or other) ☐ Refused	_____ _____ (city / state in US or Mexico) ☐ Refused	_____ _____ (city / state in US or Mexico) ☐ Refused

5. Where was the *last* place you got into your vehicle(place/address or nearest intersection/city)			
5a. What time did you leave that place? .	_____ a.m. _____ p.m.	_____ a.m. _____ p.m.	_____ a.m. _____ p.m.
5b. What type of place was that? (choose from type of place options)			
5c. What was your purpose for being at your last location? (Choose from trip purpose options)			
5d. Was that location in Juarez, MX?	☐ Yes ☐ No ☐ Refused	☐ Yes ☐ No ☐ Refused	☐ Yes ☐ No ☐ Refused

Type of Place Options: **1)** Office Building **2)** Retail/Shopping **3)** Industrial/Manufacturing **4)** Medical **5)** Educational (12th grade or lower) **6)** Educational (college, trade, etc.) **7)** Government **8)** Residential **9)** Airport **10)** Other (specify) **99)** Refused/Unknown

Trip Purpose Options: **1)** Home/Return home **2)** Go/Return to work **3)** Work-related **4)** School **5)** Vacation **6)** Visit Friends/Family **7)** Eat out **8)** Shop **9)** Buy gas **10)** Personal Business **11)** Pick-up/Drop-off passenger **12)** Change travel mode **13)** Delivery **14)** Other (specify) **99)** Refused/Unknown

6. Where is your next destination? (place/address or nearest intersection/city)			
6a. What is your purpose for traveling to this destination? (Choose from trip purpose options)			
6b. What type of place is that?			
6c. Is that location in El Paso County?	☐ Yes ☐ No ☐ Refused (if yes, go to 7)	☐ Yes ☐ No ☐ Refused (if yes, go to 7)	☐ Yes ☐ No ☐ Refused (if yes, go to 7)
6d. What road / highway will you be on when you leave El Paso County?			
7. Are you going to a location out of Texas?	☐ Yes ☐ No ☐ Refused (if no, go to 7d)	☐ Yes ☐ No ☐ Refused (if no, go to 7d)	☐ Yes ☐ No ☐ Refused (if no, go to 7d)
If Yes: 7a. What city and state are you going to?			
7b. What road / bridge will you use to leave Texas?			
7c. How many more days will you be in Texas?			
If No 7d. What city / county in Texas are you going to?			

To measure the amount of travel you made today, we need to know the number of places you have gone today. Would you please tell us:

8. Where did your first trip today begin? (city/county/landmark))			
9. Where did you go from there? (city/county/landmark)			
10. Where did you go next? (city/county/landmark)			
11. Where did you go next? (city/county/landmark)			
12. How many more places did you stop today?			

NOTE: Address, cross-street, and/or landmark information should be obtained for questions 8 through 11.

EL PASO INTERNATIONAL CROSSING
COMMERCIAL VEHICLE SURVEY   FORM B

(Inbound Direction To El Paso)

Station # _____   Survey Date _____

Station Name/Location _____   Interviewer _____

For each vehicle you collect:	Vehicle 1	Vehicle 2	Vehicle 3
1. Time	____a.m. ____p.m.	____a.m. ____p.m.	____a.m. ____p.m.
2. Number of people in vehicle			
3. Vehicle Classification			
4. What is the cargo (choose from vehicle cargo codes, if empty go to 12)			
5. Did the cargo originate in Mexico?	☐ Yes ☐ No ☐ Refused or Unknown	☐ Yes ☐ No ☐ Refused or Unknown	☐ Yes ☐ No ☐ Refused or Unknown
6. Where did you pick up your load? (place/address or nearest intersection and city)			
7. Was that location an inter-modal transfer or custom brokerage site?	☐ Yes ☐ No ☐ Refused or Unknown	☐ Yes ☐ No ☐ Refused or Unknown	☐ Yes ☐ No ☐ Refused or Unknown
8. How was your load transferred at that site (choose from transfer codes)?			
9. Where will you drop your cargo off? (place/address or nearest intersection and city)			
10. Is that location an inter-modal transfer or custom brokerage site?	☐ Yes ☐ No ☐ Refused or Unknown	☐ Yes ☐ No ☐ Refused or Unknown	☐ Yes ☐ No ☐ Refused or Unknown
11. How will the cargo be transferred at that site (choose from transfer codes)?			

Vehicle Classification Options: 1) Single Unit 2-axle (6 wheels)   2) Single Unit 3-axle (10 wheels)   3) Single Unit 4-axel (14 wheels)
4) Semi (all tractor-trailer combinations)   5) Other (specify)   99) Unknown

Cargo Transfer Options: 1) Truck-to-Truck   2) Rail-to-Truck   3) Ship-to-Truck   4) Airplane-to-Truck
5) Warehouse-to-Truck   6) Pipeline-to-Truck   7) Unknown   99) Refused

QUESTIONS:

12. What is the year and gross weight rating of this vehicle ? Gas (leaded, unleaded), diesel, propane or other fuel?	_____ Year _____ Gross Weight Leaded ☐ Unleaded ☐ Diesel ☐ Propane ☐ Other ☐ _____	_____ Year _____ Gross Weight Leaded ☐ Unleaded ☐ Diesel ☐ Propane ☐ Other ☐ _____	_____ Year _____ Gross Weight Leaded ☐ Unleaded ☐ Diesel ☐ Propane ☐ Other ☐ _____
13. What is the mileage on your odometer?			

14. Where are you coming from? (city, state, country (if other than Mexico)			
14a. Was that location in Juarez, MX?	☐ Yes ☐ No ☐ Refused (if yes, go to 16)	☐ Yes ☐ No ☐ Refused (if yes, go to 16)	☐ Yes ☐ No ☐ Refused (if yes, go to 16)
15. Did you enter Juarez today? *If No*, what date did you enter Juarez?	☐ Yes (if yes, go to 15a) ☐ No _____(date) ☐ Refused	☐ Yes (if yes, go to 15a) ☐ No _____(date) ☐ Refused	☐ Yes (if yes, go to 15a) ☐ No _____(date) ☐ Refused
15a. Where outside of Juarez did you travel from? (city, state, country (if not Mexico))			
16. Where was the *last* place you got into your vehicle? (place/address or nearest intersection/city)			
16a. What time did you leave that place?	_____a.m. _____p.m.	_____a.m. _____p.m.	_____a.m. _____p.m.
16b. What type of place was this? **(choose from type of place options).**			
16c. What was your purpose for being at your last location?	☐ Yes ☐ No ☐ Refused	☐ Yes ☐ No ☐ Refused	☐ Yes ☐ No ☐ Refused
16d. Was that location in Juarez, MX?			
17. Where is your next destination? **(place/address or nearest intersection/city)**			
17a. What is your purpose for traveling to this destination? (Choose from trip purpose options.)			
17b. What type of place is that? (choose from type of place options)	☐ Yes ☐ No ☐ Refused (if yes, go to 18)	☐ Yes ☐ No ☐ Refused (if yes, go to 18)	☐ Yes ☐ No ☐ Refused (if yes, go to 18)
17c. Is that location in El Paso County?			
17d. What road / highway will you be on when you leave El Paso County?			
18. Are you going to a location outside of Texas?	☐ Yes ☐ No ☐ Refused (If no go to 18d)	☐ Yes ☐ No ☐ Refused (if No go to 18d)	☐ Yes ☐ No ☐ Refused (If No go to 18d)
If Yes 18a. What city and state are you going to?			
18b. What road / bridge will you use to leave Texas?			

18c. How many more days will you be in Texas?			
If No 18d. What city / county in Texas are you going to?			

Type of Place Options: 1) Office Building 2) Retail/Shopping 3) Industrial/Manufacturing 4) Medical
5) Education (12th grade or lower) 6) Educational (college, trade, etc.) 7) Government
8) Residential 9) Airport 10) Other (Specify)

Trip Purpose Options: 1) Base location/return to base location 2) Delivery 3) Pick-up
4) Maintenance 5) Driver needs (lunch, etc.) 6) To Home 7) Buy fuel
8) Other (specify) 99) Refused/Unknown

To measure the amount of travel you made today, we need to know the places you have gone today. Would you please tell us:

19. Where did your first trip today begin? (city/county/landmark)			
20. Where did you go from there? (city/county/landmark)			
21. Where did you go next? (city/county/landmark)			
22. Where did you go next? (city/county/landmark)			
23. How many more places did you stop today?			
NOTE: Address, cross-street, and/or landmark information should be obtained for questions 19 through 22 (including locations in Mexico).			

Vehicle Cargo Codes

1 – Farm Products	Livestock, fertilizer, dirt, landscaping, etc.
2 – Forest Products	Trees, sod, etc.
3 – Marine Products	Fresh fish, seafood, etc.
4 – Metals and Minerals	Crude petroleum, natural gas, propane, metals, gypsum, etc.
5 – Food, Health, Beauty Products	Assorted food products, cosmetics, etc.
6 – Tobacco Products	Cigarettes, cigars, and chewing tobacco
7 – Textiles	Clothing, lines, etc
8 – Wood Products	Lumber, paper, cardboard, wood pulp, etc
9 – Printed Matter	Newspapers, magazines, books, etc.
10 – Chemical Products	Soaps, paints, household or industrial chemicals, etc
11 – Refined Petroleum or Coal Products	Gasoline, etc.
12 – Rubber, Plastic, Styrofoam Products	Finished products of rubber, plastic, or Styrofoam
13 – Clay, Concrete, Glass, or Stone	Finished products of clay, concrete, glass, or stone
14 – Manufactured Goods/Equipment	Miscellaneous products such as machinery, appliances, etc
15 – Wastes	Waste products, including scrap and recyclable materials
16 – Miscellaneous Shipments	U.S. Mail, U.P.S., Federal Express, and other mixed cargo
17 – Hazardous Materials	Hazardous chemicals and substances
18 – Transportation	Automobiles, Heavy Equipment, etc.
19 – Unclassified Cargo	Cargo not falling within one of the above categories
20 – Driver Refused to Answer	Driver refused to answer
21 – Unknown to Driver	Unknown to driver
22 - Empty	Empty

PEDESTRIAN SURVEY INTERVIEW   FORM – C

(Inbound to El Paso)

Station #

_____   Survey Date _____

Station Name/Location _____   Interviewer _____

For each person you collect:	Person 1	Person 2	Person 3
Time	a.m. p.m.	a.m. p.m.	a.m. p.m.
1. Where are you coming from? (place/address or nearest intersection/city)			
2. What type of place was this? (Choose from type of place options)			
3. What mode of transportation did you use to travel from your last location?			
4. What time did you leave that place?	_____ a.m. _____ p.m.	_____ a.m. _____ p.m.	_____ a.m. _____ p.m.
5. What was your purpose for being at that location?			
6. What is your next destination? (place/address or nearest intersection)			
7. What type of place is that? (choose from type of place options)			
8. How will you travel to that destination? (Choose from vehicle/mode options)			
9. What is the purpose of traveling to your next destination? (Choose from trip purpose options)			
10. How many places/stores do you plan to visit in El Paso today?			
11. Do you live in	☐ Mexico (go to 12) ☐ El Paso / El Paso Co (go to 12) ☐ Texas ☐ Other _____	☐ Mexico (go to 12) ☐ El Paso / El Paso Co (go to 6) ☐ Texas ☐ Other _____	☐ Mexico (go to 12) ☐ El Paso / El Paso Co (go to 6) ☐ Texas ☐ Other _____
12. How many times per week do you make this trip?			

Trip Purpose Options: 1)Home/Return Home 2)Go/Return to work 3)Work-related 4)School 5)Vacation
6)Visit Friends/Family 7)Eat out 8)Shop 9)Personal Business
10)Delivery 11)Other (specify) 99) Refused/Unknown

Type of Place Options: 1) Office Building 2.) Retail / Shopping / Gas 3.) Industrial / Manufacturing / Warehouse
4.) Medical 5.) Educational (12 grade or lower) 6.) Educational (college, trade, etc.)
7.) Government 8.) Residential 9.) Airport 10.) Other (specify)
99.) Refused / Unknown

Vehicle / Mode Options: 1) Passenger (car/truck/van) 2) Bus 3) Taxi/Paid Limo 4) School Bus
5) Commercial Vehicle 6) Motorcycle 7) Recreational Vehicle 8) Walk
(over 1 ton) 9) Other (specify in block) 99) Refused/Unknown

NON-COMMERCIAL VEHICLE SURVEY   FORM - D

(Outbound Direction from El Paso County)

Station # _____   Survey Date _____

Station Name/Location _____   Interviewer _____

For each vehicle you collect	Vehicle 1	Vehicle 2	Vehicle 3
Time	_____a.m. _____p.m.	_____ a.m. _____p.m.	_____a.m. _____p.m.
Number of people in vehicle			
Vehicle Type			

Vehicle Type Options: **1)** Passenger (car/truck/van)   **2)** Bus   **3)** Taxi/Paid Limo   **4)** School Bus
5) Commercial Vehicle (over 1 ton)   **6)** Motorcycle   **7)** Recreational Vehicle   **8)**Other (specify in block)

QUESTIONS:	Vehicle 1	Vehicle 2	Vehicle 3
1. What year, make, and model is this vehicle? Gas (leaded, unleaded), diesel, propane or other fuel?	_____ Year _____ Make _____ Model Leaded ☐ Unleaded ☐ Diesel ☐ Propane ☐ Other ☐ _____	_____ Year _____ Make _____ Model Leaded ☐ Unleaded ☐ Diesel ☐ Propane ☐ Other ☐ _____	_____ Year _____ Make _____ Model Leaded ☐ Unleaded ☐ Diesel ☐ Propane ☐ Other ☐ _____
2. What is the mileage on your odometer?			
3. Do you live in Texas?	☐ Yes ☐ No (go to 4) ☐ Refused (go to 4)	☐ Yes ☐ No (go to 4) ☐ Refused (go to 4)	☐ Yes ☐ No (go to 4) ☐ Refused (go to 4)
3a. Did you travel from home today?	☐ Yes ☐ No ☐ Refused	☐ Yes ☐ No ☐ Refused	☐ Yes ☐ No ☐ Refused
3b. What city/county is your home located in? ***If Not a resident of El Paso County ask:***			
3c. Did you stay in El Paso County overnight?	☐ Yes ☐ No ☐ Refused (if no, go to 5)	☐ Yes ☐ No ☐ Refused (if no, go to 5)	☐ Yes ☐ No ☐ Refused (if no, go to 5)
3d. How many nights have you stayed in El Paso / El Paso County **(after 3d, go to 5)**			
4. What city and state do you live in? (also write in city / state info for Mexico)	_____ _____ (city / state in US or Mexico) ☐ Refused	_____ _____ (city / state in US or Mexico) ☐ Refused	_____ _____ (city / state in US or Mexico) ☐ Refused
4a. Did you enter Texas today? ***If No***, what date did you enter Texas?	☐ Yes (if yes, go to 4b) ☐ No _____ (date) ☐ Refused	☐ Yes (if yes, go to 4b) ☐ No _____ (date) ☐ Refused	☐ Yes (if yes, go to 4b) ☐ No _____ (date) ☐ Refused
4b. Where outside of Texas did you travel from? (city, county, state)			
4c. What road / bridge did you use to enter Texas?			

4d. Did you stay in El Paso County overnight?	☐ Yes ☐ No ☐ Refused (if no, go to 5)	☐ Yes ☐ No ☐ Refused (if no, go to 5)	☐ Yes ☐ No ☐ Refused (if no, go to 5)
4e. How many nights have you stayed in El Paso / El Paso County?			
5. Where was the *last* place you got into your vehicle(place/address or nearest intersection/city)			
5a. What time did you leave that place? .	_____a.m. _____p.m.	_____a.m. _____p.m.	_____a.m. _____p.m.
5b. What type of place was that? (choose from type of place options)			
5c. What was your purpose for being at your last location? (Choose from trip purpose options)			
5d. Was that location in El Paso or El Paso County?	☐ Yes ☐ No ☐ Refused (Yes go to 6)	☐ Yes ☐ No ☐ Refused (Yes go to 6)	☐ Yes ☐ No ☐ Refused (Yes go to 6)
5e *If not in El Paso*, what road/bridge did you use to enter El Paso or El Paso County?			

Type of Place Options: 1) Office Building 2) Retail/Shopping 3) Industrial/Manufacturing 4) Medical
5) Education (12th grade or lower) 6) Educational (college, trade, etc. 7) Government
8) Residential 9) Airport 10) Other (Specify) 99) Refused/Unknown

Trip Purpose Options: 1) Home/Return home 2) Go/Return to work 3) Work-related 4) School 5) Vacation
6) Visit Friends/Family 7) Eat out 8) Shop 9) Buy gas 10) Personal Business 11) Pick-up/Drop-off passenger
12) Change travel mode 13) Delivery 14) Other (specify) 99) Refused/Unknown

6. Where is your next destination? (place/address or nearest intersection/city)			
6a. What is your purpose for traveling to this destination? (Choose from trip purpose options)			
7. Are you going to a location out of Texas?	☐ Yes ☐ No ☐ Refused (if no, go to 7d)	☐ Yes ☐ No ☐ Refused (if no, go to 7d)	☐ Yes ☐ No ☐ Refused (if no, go to 7d)
If Yes: 7a. What city and state are you going to?			
7b. What road / bridge will you use to leave Texas?			
7c. How many more days will you be in Texas?			
If No 7d. What city / county in Texas are you going to?			

To measure the amount of travel you made today, we need to know the number of places you have gone today. Would you please tell us:

8. Where did your first trip today begin? (city/county/landmark))			
9. Where did you go from there? (city/county/landmark)			
10. Where did you go next? (city/county/landmark)			
11. Where did you go next? (city/county/landmark)			
12. How many more places did you stop today?			

NOTE: Address, cross-street, and/or landmark information should be obtained for questions 8 through 11.

EL PASO EXTERNAL STATION
COMMERCIAL VEHICLE SURVEY   FORM E

(Outbound Direction from El Paso County)

Station # _____   Survey Date _____

Station Name/Location _____   Interviewer _____

For each vehicle you collect:	Vehicle 1	Vehicle 2	Vehicle 3
1. Time	____a.m. ____p.m.	____a.m. ____p.m.	____a.m. ____p.m.
2. Number of people in vehicle			
3. Vehicle Classification			
4. What is the cargo (choose from vehicle cargo codes, if empty go to 12)			
5. Did your cargo originate in Mexico?	☐ Yes ☐ No ☐ Refused or Unknown	☐ Yes ☐ No ☐ Refused or Unknown	☐ Yes ☐ No ☐ Refused or Unknown
6. Where did you pick up your load? (place/address or nearest intersection and city)			
7. Was that location an inter-modal transfer or custom brokerage site?	☐ Yes ☐ No ☐ Refused or Unknown	☐ Yes ☐ No ☐ Refused or Unknown	☐ Yes ☐ No ☐ Refused or Unknown
8. How was your load transferred at that site (choose from transfer codes)?			
9. Where will you drop your cargo off? (place/address or nearest intersection and city)			
10. Is that location an inter-modal transfer or custom brokerage site?	☐ Yes ☐ No ☐ Refused or Unknown	☐ Yes ☐ No ☐ Refused or Unknown	☐ Yes ☐ No ☐ Refused or Unknown
11. How will the cargo be transferred at that site (choose from transfer codes)?			

Vehicle Classification Options: 1) Single Unit 2-axle (6 wheels)   2) Single Unit 3-axle (10 wheels)   3) Single Unit 4-axel (14 wheels)
4) Semi (all tractor-trailer combinations)   5) Other (specify)   99) Unknown

Cargo Transfer Options: 1) Truck-to-Truck   2) Rail-to-Truck   3) Ship-to-Truck   4) Airplane-to-Truck
5) Warehouse-to-Truck   6) Pipeline-to-Truck   7) Unknown   99) Refused

QUESTIONS:

	Vehicle 1	Vehicle 2	Vehicle 3
12. What is the year and gross weight rating of this vehicle ? Gas (leaded, unleaded), diesel, propane or other fuel?	_____ Year _____ Gross Weight Leaded ☐ Unleaded ☐ Diesel ☐ Propane ☐ Other ☐ _____	_____ Year _____ Gross Weight Leaded ☐ Unleaded ☐ Diesel ☐ Propane ☐ Other ☐ _____	_____ Year _____ Gross Weight Leaded ☐ Unleaded ☐ Diesel ☐ Propane ☐ Other ☐ _____
13. What is the mileage on your odometer?			

14. Where are you coming from? (city / state in US or Mexico)			
14a. Was that location in El Paso County? ***If No ask:***	☐ Yes ☐ No ☐ Refused (If yes go to 16)	☐ Yes ☐ No ☐ Refused (If yes go to 16)	☐ Yes ☐ No ☐ Refused (If yes go to 16)
14b. Did you stay in El Paso County overnight?	☐ Yes ☐ No ☐ Refused (If No go to 15)	☐ Yes ☐ No ☐ Refused (If No go to 15)	☐ Yes ☐ No ☐ Refused (If No go to 15)
14c. How many nights have you stayed in El Paso / El Paso County			
15. Did you enter Texas today? ***If No***, what date did you enter Texas?	☐ Yes (if yes, go to 15a) ☐ No _____(date) ☐ Refused	☐ Yes (if yes, go to 15a) ☐ No _____(date) ☐ Refused	☐ Yes (if yes, go to 15a) ☐ No _____(date) ☐ Refused
15a. Where outside of Texas did you travel from? (city / state in US or Mexico)			
15b. What road or bridge did you use to enter Texas?			
16. Where was the last place you got into your vehicle? (place/address or nearest intersection/city)			
16a. What time did you leave that place?	_____a.m. _____p.m.	_____a.m. _____p.m.	_____a.m. _____p.m.
16b. What type of place was this? **(choose from type of place options).**			
16c. **What was your purpose for being at you last location?**	☐ Yes ☐ No ☐ Refused (Yes go to 17)	☐ Yes ☐ No ☐Refused (Yes go to 17)	☐ Yes ☐ No ☐ Refused (Yes go to 17)
16d. Was that location in El Paso or El Paso County/			
16e. *If not in El Paso*, what road / bridge did you use to enter El Paso / El Paso County?			
17. Where is your next destination? **(place/address or nearest intersection/city)**			
17a. What is your purpose for traveling to this destination? (Choose from trip purpose options.)			
18. Are you going to a location outside of Texas?	☐ Yes ☐ No ☐ Refused (If no go to 18d)	☐ Yes ☐ No ☐ Refused (if No go to 18d)	☐ Yes ☐ No ☐ Refused (If No go to 18d)
If Yes 18a. What city and state are you going to?			
18b. What road / bridge will you use to leave Texas?			

18c. How many more days will you be in Texas?			
If No 18d. What city / county in Texas are you going to?			

Type of Place Options: 1) Office Building 2) Retail/Shopping 3) Industrial/Manufacturing 4) Medical
5) Education (12th grade or lower) 6) Educational (college, trade, etc. 7) Government
8) Residential 9) Airport 10) Other (Specify)

Trip Purpose Options: 1) Base location/return to base location 2) Delivery 3) Pick-up
4) Maintenance 5) Driver needs (lunch, etc.) 6) To Home 7) Buy fuel
8) Other (specify) 99) Refused/Unknown

To measure the amount of travel you made today, we need to know the places you have gone today. Would you please tell us:

19. Where did your first trip today begin? (city/county/landmark)			
20. Where did you go from there? (city/county/landmark)			
21. Where did you go next? (city/county/landmark)			
22. Where did you go next? (city/county/landmark)			
23. Where did you go next? (city/county/landmark)			
24. Where did you go next? (city/county/landmark)			
25. Where did you go next? (city/county/landmark)			
26. How many more places did you stop today?			
NOTE: Address, cross-street, and/or landmark information should be obtained for questions 19 through 25 (including locations in Mexico).			

Vehicle Cargo Codes

1 – Farm Products	Livestock, fertilizer, dirt, landscaping, etc.
2 – Forest Products	Trees, sod, etc.
3 – Marine Products	Fresh fish, seafood, etc.
4 – Metals and Minerals	Crude petroleum, natural gas, propane, metals, gypsum, etc.
5 – Food, Health, Beauty Products	Assorted food products, cosmetics, etc.
6 – Tobacco Products	Cigarettes, cigars, and chewing tobacco
7 – Textiles	Clothing, lines, etc
8 – Wood Products	Lumber, paper, cardboard, wood pulp, etc
9 – Printed Matter	Newspapers, magazines, books, etc.
10 – Chemical Products	Soaps, paints, household or industrial chemicals, etc
11 – Refined Petroleum or Coal Products	Gasoline, etc.
12 – Rubber, Plastic, Styrofoam Products	Finished products of rubber, plastic, or Styrofoam
13 – Clay, Concrete, Glass, or Stone	Finished products of clay, concrete, glass, or stone
14 – Manufactured Goods/Equipment	Miscellaneous products such as machinery, appliances, etc
15 – Wastes	Waste products, including scrap and recyclable materials
16 – Miscellaneous Shipments	U.S. Mail, U.P.S., Federal Express, and other mixed cargo
17 – Hazardous Materials	Hazardous chemicals and substances
18 – Transportation	Automobiles, Heavy Equipment, etc.
19 – Unclassified Cargo	Cargo not falling within one of the above categories
20 – Driver Refused to Answer	Driver refused to answer
21 – Unknown to Driver	Unknown to driver
22 - Empty	Empty