Corpus Christi Study Area Travel Survey

Task 3.0
External Travel Survey

May 1997

Submitted to:
Corpus Christi Metropolitan Planning Organization

Submitted by:
Parsons Brinckerhoff
Quade & Douglas, Inc.

TEXAS TRANSPORTATION INSTITUTE
TRANSPORTATION PLANNING PROGRAM
This report was prepared in cooperation with the Texas Department of Transportation (TxDOT), U.S. Department of Transportation, Federal Highway Administration (FHWA), and Texas Transportation Institute (TTI). The contents of this report reflect the views of the authors who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of TxDOT or FHWA at the time of publication. This report does not constitute a standard, specification, or regulation.

May 1997

FINAL REPORT
Corpus Christi External Travel Survey
Table of Contents

3.0 Introduction .................................................................................................................. 1

3.1 Survey Methodology and Design ................................................................................ 1
  3.1.1 Site Selection ......................................................................................................... 1
  3.1.2 Survey Sample ...................................................................................................... 2
  3.1.3 Pilot Survey .......................................................................................................... 2
  3.1.4 Survey Questionnaires ......................................................................................... 4
    3.1.4.1 Passenger Vehicles ....................................................................................... 4
    3.1.4.2 Commercial Vehicles .................................................................................... 5
  3.1.5 Survey Schedule .................................................................................................. 5
  3.1.6 Traffic Control Plans ........................................................................................... 6
    3.1.6.1 Law Enforcement .......................................................................................... 7

3.2 Surveyor Training ....................................................................................................... 7

3.3 Conducting the Survey ............................................................................................... 8
  3.3.1 Survey Set-Up ...................................................................................................... 8
    3.3.1.1 Station Summary .......................................................................................... 9
  3.3.2 Survey Completion .............................................................................................. 9
  3.3.3 Survey Procedures .............................................................................................. 9
  3.3.4 Field Quality Control ......................................................................................... 10
  3.3.5 Traffic Counts ..................................................................................................... 10
  3.3.6 Public Awareness ............................................................................................... 11

3.4 Data Preparation ........................................................................................................ 11
  3.4.1 Geocoding Survey Data ..................................................................................... 11

3.5 Summary of Survey Findings ..................................................................................... 12

TABLES AND FIGURES
Table 3.1 1994 Average Daily Traffic (ADT) Counts, By Station ........................................ 2
Table 3.2 External Survey Schedule .................................................................................. 6
Table 3.3 External Station Zone Numbers ......................................................................... 12
Table 3.4 Station Summary - Surveys and Traffic Counts .................................................. 14
Table 3.5 Station Summary - External-Through and External-Local Trips ......................... 15
Table 3.6 Commuter Trips by Trip Purpose by External Station ......................................... 16
Table 3.7 Overnight Trips by Trip Purpose by External Station .......................................... 17
Table 3.8 Corpus Christi External Station Classification Counts ......................................... 18
Table 3.9 Survey Notes and Observations .......................................................................... 19

APPENDICES
Appendix A External Station Map
Appendix B Pilot Survey Forms
Appendix C Survey Forms
Appendix D Traffic Control Plans
Appendix E External Survey Procedure Manual
Appendix F Station Summary

FINAL REPORT
3.0 INTRODUCTION

The Corpus Christi Metropolitan Planning Organization (MPO), in cooperation with the Texas Department of Transportation (TxDOT) and the Federal Highway Administration, selected Parsons Brinckerhoff Quade and Douglas, Inc. (PB) to collect and summarize data related to current travel characteristics in the Corpus Christi metropolitan study area which includes both Nueces and San Patricio Counties and a small portion of Aransas County. Parsons Brinckerhoff conducted seven travel surveys, each independently developed and executed, between April, 1996 and April, 1997. These surveys included: a 24 hour activity and travel survey of 1,550 households, in which travel diary information was collected by phone; full and partial surveys of four special generators, including Driscoll Children's Hospital, Naval Air Station-Corpus Christi, Naval Station-Ingleside, and Texas A&M University-Corpus Christi; an on-board transit survey of Regional Transportation Authority (RTA-"The B") passengers; a vehicle operations survey including collection of speed-delay and vehicle classification data; a commercial vehicle survey of 509 vehicles/drivers; an external travel survey including 18 stations on major travel routes leaving the study area; and a preliminary investigation of possibly initiating a stated preference survey.

This report discusses the design and execution of the external survey in addition to a summary of data collected. The MPO and TxDOT established 18 survey sites for the study area (Nueces and San Patricio counties). The purpose of the external travel survey was to collect data on the number and characteristics of person and vehicle trips, including trucks, traveling through the study area (external-through trips) and traveling from within the local study area to outside the study area (external-local trips).

The survey focused on outbound trips from Nueces and San Patricio counties since inbound and outbound daily traffic volumes are generally balanced for the majority of roadway facilities serving the study area. Thus, inbound trips were assumed to mirror the outbound surveyed trips. The data collected will be used primarily to update the travel demand model for the Corpus Christi metropolitan area, but will also be used for regional air quality planning and modeling.

3.1 SURVEY METHODOLOGY AND DESIGN

The methodology and design of this on-site, roadside survey were based on recent PB external travel survey experience in Amarillo, Beaumont, Port Arthur, Brownsville, Houston, and San Antonio. Input received from TxDOT, TTI, and the MPO, as well as pilot survey results, contributed to the final survey design.

3.1.1 Site Selection

External surveys were conducted at 18 sites (outbound direction) along the perimeter of the two-county study area. A map included in Appendix A shows the location of each external station. The PB survey manager and Corpus Christi TxDOT maintenance supervisor analyzed each field location to note alignment constraints affecting sight distance, proximity of driveways and crossroads, and signing and
personnel requirements. Each site was also analyzed by TxDOT (Austin) personnel. The survey sites were situated close to the study area boundary, with consideration of logistical and safety concerns.

### 3.1.2 Survey Sample

The sample size varied by survey site. The MPO, TxDOT, and PB agreed to survey for up to 12 continuous or total daylight hours (typically 7:00 a.m. to 7:00 p.m.) at each site to capture both peak and off-peak travel. A minimum of 300 usable surveys were to be collected at external stations having 12-hour volumes of 1,000 or more in the outbound direction. A number or percentage of commercial vehicles was not specified as a survey goal, but a representative number was sampled throughout the day at each site. For stations with less than 1,000 outbound vehicles over 12-hours, an attempt was made to survey all outbound vehicles.

There are actually 22 total external stations defined for the study area of which 18 were surveyed. The other four were not included as a result of relatively low volumes and consideration of overall costs. Table 3.1 provides a list of the 18 external survey stations, the respective county, number of lanes, and 1994 average daily traffic (ADT) for each location. Although the actual study area consists of San Patricio and Nueces counties, Jim Wells and Aransas counties are indicated in the table because the station locations were across the Nueces and San Patricio county lines, requiring coordination with law enforcement in the aforementioned counties outside the study area.

**Table 3.1**

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>County</th>
<th>Lanes</th>
<th>1994 ADT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>US 77 North</td>
<td>San Patricio</td>
<td>4</td>
<td>8,500</td>
</tr>
<tr>
<td>2</td>
<td>FM 136</td>
<td>San Patricio</td>
<td>2</td>
<td>2,900</td>
</tr>
<tr>
<td>3</td>
<td>SH 188</td>
<td>San Patricio</td>
<td>2</td>
<td>1,400</td>
</tr>
<tr>
<td>4</td>
<td>FM 1069</td>
<td>Aransas</td>
<td>2</td>
<td>2,200</td>
</tr>
<tr>
<td>5</td>
<td>SH 35</td>
<td>Aransas</td>
<td>2</td>
<td>9,300</td>
</tr>
<tr>
<td>7</td>
<td>Park Road 22</td>
<td>Nueces</td>
<td>4</td>
<td>800</td>
</tr>
<tr>
<td>8</td>
<td>US 77 South</td>
<td>Nueces</td>
<td>4</td>
<td>16,600</td>
</tr>
<tr>
<td>9</td>
<td>Business US 77</td>
<td>Nueces</td>
<td>4</td>
<td>7,300</td>
</tr>
<tr>
<td>11</td>
<td>FM 665</td>
<td>Nueces</td>
<td>2</td>
<td>3,000</td>
</tr>
<tr>
<td>12</td>
<td>SH 44</td>
<td>Nueces</td>
<td>4</td>
<td>6,600</td>
</tr>
<tr>
<td>13</td>
<td>County Road 352</td>
<td>Jim Wells</td>
<td>2</td>
<td>200</td>
</tr>
<tr>
<td>14</td>
<td>FM 624</td>
<td>Jim Wells</td>
<td>2</td>
<td>4,300</td>
</tr>
<tr>
<td>15</td>
<td>FM 70</td>
<td>Jim Wells</td>
<td>2</td>
<td>500</td>
</tr>
<tr>
<td>16</td>
<td>SH 359 South</td>
<td>Jim Wells</td>
<td>2</td>
<td>2,900</td>
</tr>
<tr>
<td>18</td>
<td>FM 3024</td>
<td>San Patricio</td>
<td>2</td>
<td>600</td>
</tr>
<tr>
<td>19</td>
<td>IH 37</td>
<td>San Patricio</td>
<td>4</td>
<td>11,200</td>
</tr>
<tr>
<td>20</td>
<td>SH 359 North</td>
<td>San Patricio</td>
<td>2</td>
<td>3,700</td>
</tr>
<tr>
<td>22</td>
<td>US 181</td>
<td>San Patricio</td>
<td>2</td>
<td>2,200</td>
</tr>
</tbody>
</table>

Source: Texas Department of Transportation, 1994.

### 3.1.3 Pilot Survey

A pilot survey was performed on May 7, 1996, during the spring survey period. The location was on SH 44 west of Agua Dulce (Station #12), on the Nueces-Jim Wells county line (between Alice and Corpus Christi). The pilot was conducted between 10:00 a.m. and 5:30 p.m. Traffic control with appropriate...
External Travel Survey

signs and cones was coordinated with TxDOT maintenance personnel and deputies from the Nueces County Sheriff's Department.

Survey personnel consisted primarily of local survey staff with previous training and experience in conducting the on-board transit survey. On-site staff was supplemented by additional PB personnel, staff from TxDOT (Austin), and an observer from TTI. A training session was conducted at the PB office the day before the pilot survey to familiarize staff with the purpose and content of the various forms, basic procedures in conducting the survey, and safety precautions and issues to be aware of while surveying.

The purpose of the pilot survey was to test new survey procedures to identify more accurately commuter and overnight visitor travel patterns that comprise a portion of external-local trips. Review of previous survey results in other Texas metropolitan areas identified a probable underreporting of local trips made by visitors traveling through an area. Specifically, the pilot test consisted of survey instruments and methodologies to collect data on the number of trips made internally by persons who were overnight visitors to the Corpus Christi study area, or who made trips into the study area on a regular or frequent basis, or were traveling into the study area just for the day. These persons included tourists, relatives, and/or business travelers. Three methods were tested—a short intercept survey at the external station, a longer intercept survey, and the use of a mail-back survey instrument. Only vehicles with persons identified as regularly making trips into the Corpus Christi study area, or who were just there for the day, or identified as overnight visitors to the study area were included in this pilot test.

An attempt was made to determine the best form and procedure to identify external-through trips and external-local trips. A further attempt was made to stratify the external trips into commuter versus overnight visitor trips. The three survey instruments were divided into a short roadside interview followed by either a mail-back postcard survey, short on-site survey, or longer on-site survey. Examples of the forms can be found in Appendix B. The forms used were as follows:

1. A short survey form was used to identify travelers who would be selected to receive a postcard. Drivers who were passing through the study area, or who lived in Nueces or San Patricio County or a certain small area of Aransas County did not receive a postcard. These drivers were not considered to be commuters or overnight visitors. Only if they resided outside the aforementioned areas did they receive one of two postcard surveys—Option 1 or Option 2. Option 1 asked for the number of stops or trips made that day, whereas Option 2 asked for more detailed trip information and specific addresses. The short survey forms that had been administered on site were then matched to a number on the postcards that were returned from the commuters and overnight visitors.

2. Option 1 was also administered as an on-site survey that asked for more detailed information than the Option 1 postcard, but was designed to gather the same type of information, that is, number of stops or trips.

3. Option 2 was administered as an on-site survey, as well, which asked for more detailed information than the Option 2 postcard while designed to collect the same data—number of stops or trips, with specific addresses.

During the pilot survey, 425 intercept forms were used in handing out postcards, 139 interviews were conducted using the Option 1 long form, and 95 interviews were performed using the Option 2 long form.

The pilot survey data were reviewed by both TxDOT and PB and further analyzed by TTI over the summer months. The result was a final recommendation of the preferred form and methodology to be used during the full external survey in the fall. The long form survey administered on site was selected as the procedure and instrument for the full survey.
3.1.4 Survey Questionnaires

Based on pilot survey analysis and recommendations, two survey questionnaires were used during the external survey. One survey was designed for passenger vehicles and motorcycles with another designed specifically for commercial vehicles (trucks). The forms were reproduced on legal size paper; white for passenger vehicles and light blue for commercial vehicles. Examples of the forms (reduced to 8.5x11) are included in Appendix C.

3.1.4.1 Passenger Vehicles

Each form was designed to record information from three vehicles. The general information at the top of each form consisted of the station number, station name/location, the survey date, and name of the interviewer.

The first three questions sought the following information:
- Time
- Number of people in the vehicle
- Vehicle type

These were arranged for the surveyor to complete upon observation as the vehicle approached the survey site. The applicable vehicle types specified were:
- Passenger (car/truck/van)
- Bus
- Taxi/paid limo
- School bus
- Commercial vehicle (over 1 ton)
- Motorcycle
- Recreational vehicle
- Other

Additional information requested for each vehicle included:
- Year
- Make
- Model
- Fuel Type (gas, diesel, other)
- Mileage

These last five items were collected primarily for air quality analysis requirements.

The remainder of the form focused on trip origin/destination information, trip purpose, determination of external-local or external-through trips, and further determination of commuter or overnight visitor status for local trips. As a means of identifying commuter and overnight visitor trips, the following data were requested:
- Last place the driver boarded the vehicle (address/place name/nearest intersection)
- If that location was outside Nueces and San Patricio Counties
  - If “yes,” what highway or street the vehicle was on when it entered Nueces or San Patricio County (end of interview)
  - If “no,” approximate time driver left that location
- Purpose for being at that location
- Purpose for traveling to next destination
- If residence was in Nueces or San Patricio County
  - If “yes,” end of interview
  - If “no,” whether driver stayed in the two-county area overnight
A measure of each driver's travel for the day was determined by requesting the location of where the first trip of the day began followed by a request for identification of subsequent stops prior to being interviewed (up to seven were recorded). As a means of further clarification, it was agreed that vehicles passing through the Corpus Christi study area that made an incidental stop would be classified as external-local trips.

3.1.4.2 Commercial Vehicles
The commercial vehicle form followed basically the same format. The general information at the top of the form was the same. In addition to the time, number of people in the vehicle, and vehicle classification, the cargo type was also requested. The classifications specified for commercial vehicles were:

- Single-unit, two-axle (six wheels)
- Single-unit, three-axle (ten wheels)
- Single-unit, four-axle (14 wheels)
- Semi (all tractor-trailer combinations)
- Other

Additional vehicle information requested included:
- Year
- Gross vehicle weight (GVW)
- Mileage

The origin/destination questions, external-local and external-through trip determination, departure time, and trip purpose questions followed the same format as for passenger vehicles. However, the final question requested the designation of highways or routes used as listed on the form. Routes which were indicated by the driver but not included on the form list were written in as additional information. For listing of trip purpose options (passenger and commercial vehicles), vehicle cargo codes, and highway routes, refer to the survey forms in Appendix C.

3.1.5 Survey Schedule
The external surveys were conducted Monday through Thursday during the month of September, 1996. Surveys were conducted in the outbound direction for up to 12 continuous daylight hours at each site to capture average weekday travel patterns. A maximum of two external stations per travel day were surveyed because of staff and traffic control device considerations. Table 3.2 provides the survey schedule for the 18 survey sites.

All surveys were performed under favorable weather conditions. No site survey was canceled, so none required rescheduling as a result of adverse weather. Although a continuous survey during daylight hours was planned in order to obtain a reliable sample, external factors such as weather and/or emergency situations caused discontinuation and resumption of surveying in some instances. When postponement was required, all survey crew members (TxDOT, PB, and county law enforcement) were removed from their designated sites on the roadway and resumed their positions when conditions were deemed safe.

The only schedule adjustments to continuous surveying involved an occasional delay in start time as a result of fog, drizzle, and/or damp road conditions, or stopping early in the evening as a result of impending weather or limited visibility. These instances were few and did not affect samples of surveys collected.
## Table 3.2
External Survey Schedule

<table>
<thead>
<tr>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>HOLIDAY</td>
<td></td>
<td></td>
<td>SURVEYOR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TRAINING</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Station #12)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SH 44</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>Station #11</td>
<td>Station #12</td>
<td>Stations</td>
<td></td>
<td></td>
<td>OFFICE</td>
<td>OFFICE</td>
</tr>
<tr>
<td>FM 665</td>
<td>SH 44</td>
<td>#15 &amp; #16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FM 70 &amp; SH 359</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>16</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>20</td>
<td>21</td>
</tr>
<tr>
<td>Station #4</td>
<td>Station #5</td>
<td>Stations</td>
<td></td>
<td></td>
<td>OFFICE</td>
<td>OFFICE</td>
</tr>
<tr>
<td>FM 1069</td>
<td>SH 35</td>
<td>#2 &amp; #3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FM 136 &amp; SH 188</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>23</td>
<td>24</td>
<td>25</td>
<td>26</td>
<td>27</td>
<td>28</td>
</tr>
<tr>
<td>Station #22</td>
<td>Station #20</td>
<td>Station #19</td>
<td></td>
<td></td>
<td>OFFICE</td>
<td>OFFICE</td>
</tr>
<tr>
<td>US 181</td>
<td>SH 359</td>
<td>IH 37</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>30</td>
<td>1- OCT</td>
<td>2- OCT</td>
<td>3- OCT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Station #9</td>
<td>Station #8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bus, US 77</td>
<td>US 77 South</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Parsons Brinckerhoff, 1996

### 3.1.6 Traffic Control Plans

The 18 sites selected to be surveyed, typically consisted of three different lane arrangements with varying shoulder widths:
- Two-lane, undivided
- Four-lane, undivided
- Four-lane, divided

Two traffic control plans (TCP) were developed, including one for two-lane and one for four-lane facilities. The traffic control plans developed were similar to other traffic control plans successfully utilized in previous surveys. The plans were developed in accordance with guidelines in the Texas Manual on Uniform Traffic Control Devices (MUTCD) and were reviewed and approved by TxDOT. Using the plans as a guide, Corpus Christi TxDOT maintenance personnel responsible for setting up...
traffic control modified the traffic control plans on a site by site basis in conformity with the MUTCD. Examples of the two- and four-lane traffic control plans can be found in Appendix C.

Before each survey, a videotape was made of the traffic control devices in place. This provided a record of the set-up and allowed the supervisor to perform a final visual check to ensure the signs were in place and easily visible from the road.

Since the survey was designed to collect outbound traffic data, the traffic control plan was structured to allow inbound traffic to pass uninterrupted behind the surveyors. However, several of the two-lane roadway external stations offered limited surface area on which to conduct a survey. Therefore, a safety zone (three- to four-foot wide coned area) was created in the middle of the roadway to accommodate surveyors. This permitted inbound traffic to use the paved surface, while it forced outbound vehicles to drive slowly with their outside tires on unpaved surface.

All warning signs were 48 inches in height and width, diamond-shaped, and colored orange with black lettering. A regulatory stop sign, red with white text, and a general sign, green with white text, thanking drivers for their participation, were also used at each survey site. Traffic cones were fluorescent orange and 28 inches in height.

In accordance with the traffic control plan, signs were placed in both directions on the two-lane facilities. The purpose for signs in the inbound direction was to inform the motorists of the survey, slow the traffic through the site, and advise drivers not to pass other vehicles in the vicinity of the survey site. The outbound direction had additional signs preparing the motorist to stop. Policy guidelines were developed to expedite traffic flow and prevent long traffic queues. These guidelines set a maximum queue length of 3/4 mile for stopped survey candidates. Once the threshold was reached, interviewers were pulled from the road and traffic was flagged through. No additional cars were directed into the survey queue until congestion diminished.

On four-lane divided and undivided roadways, outbound traffic was merged into one lane. Merging traffic into one lane ahead of the survey location was necessary for law enforcement officers and/or TxDOT personnel to make eye contact with motorists, enabling them to either direct traffic into the survey queue or flag them through the site.

Only vehicles selected to be surveyed were directed onto the outside shoulder of the outbound lane, typically 10 feet wide and paved. The law enforcement officer and/or TxDOT personnel stood at the head of the survey safety zone and directed a block of vehicles into the survey queue. When the surveying zone was clear, the officer would direct vehicles (equal to the number of surveyors) from the traffic stream onto the shoulder to be surveyed. All other traffic was allowed to continue through the site without stopping.

3.1.6.1 Law Enforcement

The speed at which many vehicles tended to approach survey sites heightened safety concerns. Consequently, PB contracted with off-duty county law enforcement officers to assist with the surveys conducted within their respective counties. Law enforcement officers directed traffic and slowed vehicles traveling through the survey site, helping to provide safety to the personnel performing the survey and the traveling public.

3.2 Surveyor Training

The pilot survey discussed in section 3.1.2 had been conducted in May, during the spring survey period primarily to test and select the preferred survey format. Upon initiating the fall survey period and full
external survey schedule, additional local staff was hired and additional formal training was conducted along with another pilot survey for training purposes.

The first part of the training session was conducted in the PB project office by the PB survey managers. In addition to the local survey staff, others in attendance included personnel from TxDOT (Austin) and the Corpus Christi MPO.

The purpose of the survey, survey materials and daily survey routine were explained. Required duties and procedures of survey field staff, as outlined in the survey procedure manual, were also discussed. A copy of the procedure manual can be found in Appendix E. During the training session surveyors also conducted mock interviews with other survey staff to practice delivering questions and recording responses. The practice interviews not only provided a good opportunity for task managers to observe and coach survey staff, but also encouraged useful questions regarding the purpose and intent of information requested on the form. A variety of scenarios were also created and practiced so that experience was gained in responding to different types of people and questions encountered in the field.

Surveyors were instructed not to force anyone to participate in the survey, but to encourage participation by informing respondents about data relevance and its intended use by city, county, and state agencies to plan area transportation improvements. Surveyors were also instructed how to classify vehicles based on the vehicle classification categories at the bottom of the survey form. The importance of proper appearance and attitude was stressed, given that surveyors represented PB, the MPO, and TxDOT.

In addition to survey procedures, safety measures were also stressed. Since surveyors would be exposed to moving traffic, high temperatures, and humidity, the need to remain alert, wear safety vests, and take necessary precautions was emphasized.

Upon completing training indoors, survey staff conducted an additional pilot survey for several hours the same afternoon. The location was SH 44 west of Agua Dulce (Station 12). Traffic control was coordinated with TxDOT maintenance personnel and a deputy from the Nueces County Sheriff's Department as before. The pilot survey allowed the survey manager to monitor and give feedback to trainees on their verbal delivery, as well as recording accuracy, completeness, and legibility.

### 3.3 CONDUCTING THE SURVEY

Survey hours were typically from 7:00 a.m. to 7:00 p.m. However, the daily schedule typically consisted of activities from 6:00 a.m. to 8:00 p.m. Given that the average distance to each site was around 30 miles from the PB office, surveyors were scheduled to meet at the PB office and be ready to leave by 6:15 a.m.

#### 3.3.1 Survey Set-Up

The morning and afternoon shifts typically carpooled with the survey manager. By carpooling, individual survey staff members did not have to worry about finding every site. Carpooling also allowed the task manager to know before starting time if a surveyor was running late. It also provided a central location for staff to leave and pick up materials, and call if running late or unable to come and it reduced the number of vehicles parked on the side of the road at the site.

Morning preparations also included gathering sufficient supplies to have on site for the day, such as ice water, survey forms, pencils, pencil sharpeners, name tags, charged video camera, charged portable...
phone, clip boards, hard hats, safety vests, complimentary “Don’t Mess With Texas” trash bags, and lunch.

Upon arrival at the site, the TxDOT maintenance personnel were typically in the process of completing the traffic control set-up. Signs and cones were placed as soon as enough daylight existed for good visibility. Surveyors assisted in distributing supplies among the survey team as the survey manager gave any special instructions for beginning the survey. The survey manager also checked with TxDOT maintenance personnel and instructed the sheriff on-site as to the survey procedures and process for directing vehicles into the survey queue. After the traffic control set-up was checked and videotaped, and with weather and visibility conditions permitting, the survey process was started.

Surveyors were instructed to bring their own food and beverages, if desired, for periodic on-site breaks. They also had access to the PB vehicle to go to nearby stores or restaurants for restroom breaks. Surveyors were instructed not to leave their station unless relieved by another surveyor.

3.3.1.1 Station Summary
Upon initiating the survey process, the survey manager filled out a station summary sheet. An example can be found in Appendix E. Information recorded at the beginning of the day included:

- Station number
- Station location
- Survey date
- Survey day
- Start time
- Weather conditions
- Sheriff deputy’s name
- Surveyor’s names
- On-site manager
- Any additional comments

Information added upon completion of the survey included:

- End time
- Number of passenger vehicle surveys
- Number of commercial vehicle surveys

3.3.2 Survey Completion

The afternoon shift typically arrived at 1:00 p.m., via carpool with the afternoon survey manager. Materials were exchanged in addition to any comments regarding the survey progress and/or site characteristics. Upon completion of the day’s survey at 7:00 p.m., materials were collected and surveyors prepared to leave as TxDOT maintenance personnel prepared to remove the cones and signs from the survey area. Upon returning to the office, via carpool, schedules for the following day were reviewed, surveys were tallied, and materials were organized for the next day’s survey.

3.3.3 Survey Procedures

For each survey site a minimum of one surveyor, a PB survey manager, TxDOT maintenance personnel, and a law enforcement official were required at all times. Depending on traffic volumes, surveyors required ranged from one to five.

To provide for survey consistency, the PB field supervisor was in charge not only of overseeing survey procedures, but also in answering any inquiries regarding survey procedures. Prior to each survey, the survey manager reviewed and discussed survey procedures.
For each interviewed vehicle, the actual survey was initiated by the surveyor’s brief self-introduction and explanation of the purpose and sponsor of the survey. Drivers were asked if they would be willing to participate. If any drivers were unwilling to be surveyed, they were thanked and "REFUSED" was indicated on the forms. No vehicle was allowed to exit the queue until all vehicles in front were released through the designated exit point for re-entering traffic. Upon successful completion of a survey, the driver and/or passengers were offered free "Don't Mess With Texas" trash bags and thanked for their participation. Completion of the survey took an average of five minutes, which included directing vehicles into the queue, conducting the surveys, and clearing vehicles from the survey queue.

Vehicle queuing differed slightly on two-lane and four-lane facilities. Law enforcement officers and TxDOT employees were responsible for directing vehicles on two-lane roadways to slow their speeds as they approached the survey site. Surveys were administered to the drivers of the respective vehicles that passed through the survey site in the outbound direction. When congestion occurred, the surveying process was halted and vehicles were flagged through the survey site. Once congestion or queuing diminished, the survey process resumed.

On four-lane roadways, the law enforcement officers and/or a TxDOT employee stood before the double cones in the outside traffic lane and directed the appropriate number of vehicles into the survey queue. The number of vehicles directed into the survey queue was equal to the number of surveyors. When the survey queue was cleared of vehicles or as vehicles exited the survey queue, another set of vehicles was directed into the queue to be surveyed. The officers were instructed to include a mix of commercial vehicles with others directed into the queue. The remaining vehicles were directed to continue through the survey site using the inside traffic lane. This procedure not only provided random sampling of the outbound drivers, but a minimum delay to the traveling public. On both two-lane and four-lane roadways, vehicles were surveyed on the outside shoulder in at least a three to four foot wide safety area.

### 3.3.4 Field Quality Control

External survey quality control consisted of a multi-stage process:
- Monitoring surveyor actions
- Randomly checking collected data during the course of a survey
- Unscheduled, impromptu site visits

Surveyors were unobtrusively monitored by the survey manager during the data collection effort. This monitoring process was designed to assess surveyor courtesy towards respondents as well as monitor surveyor technique and skill. If errors or a need for improvement were noticed in a surveyor’s questioning technique they were identified and corrected. Likewise, survey forms were periodically retrieved from each surveyor to check recording accuracy, completeness, and legibility. Thus, areas of surveyor technique could be improved over the course of the day instead of waiting until the end of the survey day.

Unannounced visits by TxDOT and PB personnel unfamiliar to surveyors were a further means of randomly monitoring survey progress and methodology. These personnel would visit the external survey locations unannounced to review traffic control and survey personnel. Recommendations noted during the visit were relayed to the field supervisor for implementation.

### 3.3.5 Traffic Counts

In addition to the surveys collected at each external station, 24-hour traffic counts for both inbound and outbound directions were also collected near the survey site. These counts were collected in 15-minute increments using automatic vehicle counters, which also classified the traffic into 13 vehicle classes. The counts will be used to expand the sample survey results to the universe of vehicles traveling.
through each site. In most cases, the counts were conducted on the day of the survey, although three (7, 9, and 12) were recounted on another day as a result of counter tube failures or equipment malfunction.

### 3.3.6 Public Awareness

Public participation is paramount in conducting a successful travel survey. Since several travel survey efforts were underway during the spring and fall survey periods, a program was designed to publicize the purpose and importance of the travel survey effort. During both the spring and fall periods, radio stations and editors of the local and surrounding community newspapers were contacted and sent press releases describing the survey effort and tasks involving public participation. To inform the public, a press conference was held the first week in May in combination with the MPO Policy Committee meeting. During the external survey in September, external survey field staff were interviewed by Channel 10 (KZTV-CBS) for broadcast during the morning news. The TxDOT public information officer in Corpus Christi provided valuable assistance in coordinating the public awareness efforts during the survey periods.

### 3.4 DATA PREPARATION

The editing, data entry, and geocoding comprised the last stage of survey execution. Prior to data entry, each form was edited by survey staff to remedy illegible responses, correct or complete addresses for proper geocoding, and adjust illogical responses where possible. The administrative header was checked to ensure completeness of information including external station number, station name and location, survey date, and interviewer's name. The remaining survey information was checked for thoroughness (i.e., all boxes contained legible answers which fit question format) and conformity with survey responses within the same survey. Surveys were also checked for appropriate a.m. or p.m. arrival time designation.

Editors also checked for overall legibility and whether addresses could be mapped. Either the location name and address or site name and nearest intersection were required on the forms. If the location name was identified without the address, editors used the phone book to locate the correct address. Edited forms were reviewed a final time by the survey task manager to monitor forms requiring additional editing. The forms were then submitted in batches for data entry.

#### 3.4.1 Geocoding Survey Data

Following data entry, trip addresses were geocoded. The geocode is the traffic analysis zone number that corresponds to the origin or destination location identified on the survey form. There are 416 internal zones in the Corpus Christi study area. These zones are geographical areas smaller than census tracts. Each survey station was also assigned a zone number as indicated in Table 3.3.

Two geocoding methods, electronic and manual, were utilized. Addresses were first electronically geocoded with the use of a geographic information system. Using the electronic process, both a zone number and latitude and longitude were assigned to a location. Typical reasons for data not matching electronically were misspelled street names, pairs of streets incorrectly identified as intersecting, address numbers not within the data base range, and place names given instead of addresses. A visual on-screen check was performed after each batch was run to verify consistency of electronic zone assignments.

The data from responses not electronically geocoded were printed and geocoded manually by survey staff using city and county maps, phone books, and personal knowledge of the study area. Locations
not geocoded were ultimately identified on the official traffic zone maps provided by TxDOT and the corresponding zone number was assigned to each location manually. Manually geocoded locations were assigned a zone number but not longitude and latitude.

A total of 6,327 records were data entered for the regular vehicle survey. Approximately 78 percent were geocoded electronically. The remaining 22 percent represents 20 percent which were geocoded manually, one percent which were outside the study area, and approximately one percent which were unable to be geocoded. A total of 479 records were data entered for the commercial vehicle portion of the survey. Approximately 91 percent were geocoded electronically. The remaining nine percent represents six percent which were geocoded manually and three percent which were unable to be geocoded.

Table 3.3
External Station Zone Numbers

<table>
<thead>
<tr>
<th>Station #</th>
<th>Zone #</th>
<th>Location</th>
<th>County</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>417</td>
<td>US 77 North</td>
<td>San Patricio</td>
</tr>
<tr>
<td>2</td>
<td>418</td>
<td>FM 136</td>
<td>San Patricio</td>
</tr>
<tr>
<td>3</td>
<td>419</td>
<td>SH 188</td>
<td>San Patricio</td>
</tr>
<tr>
<td>4</td>
<td>420</td>
<td>FM 1069</td>
<td>Aransas</td>
</tr>
<tr>
<td>5</td>
<td>421</td>
<td>SH 35</td>
<td>Aransas</td>
</tr>
<tr>
<td>7</td>
<td>423</td>
<td>Park Road 22</td>
<td>Nueces</td>
</tr>
<tr>
<td>8</td>
<td>424</td>
<td>US 77 South</td>
<td>Nueces</td>
</tr>
<tr>
<td>9</td>
<td>425</td>
<td>Business US 77</td>
<td>Nueces</td>
</tr>
<tr>
<td>11</td>
<td>427</td>
<td>FM 665</td>
<td>Nueces</td>
</tr>
<tr>
<td>12</td>
<td>428</td>
<td>SH 44</td>
<td>Nueces</td>
</tr>
<tr>
<td>13</td>
<td>429</td>
<td>County Road 352</td>
<td>Jim Wells</td>
</tr>
<tr>
<td>14</td>
<td>430</td>
<td>FM 624</td>
<td>Jim Wells</td>
</tr>
<tr>
<td>15</td>
<td>431</td>
<td>FM 70</td>
<td>Jim Wells</td>
</tr>
<tr>
<td>16</td>
<td>432</td>
<td>SH 359 South</td>
<td>Jim Wells</td>
</tr>
<tr>
<td>18</td>
<td>434</td>
<td>FM 3024</td>
<td>San Patricio</td>
</tr>
<tr>
<td>19</td>
<td>435</td>
<td>IH 37</td>
<td>San Patricio</td>
</tr>
<tr>
<td>20</td>
<td>436</td>
<td>SH 359 North</td>
<td>San Patricio</td>
</tr>
<tr>
<td>22</td>
<td>438</td>
<td>US 181</td>
<td>San Patricio</td>
</tr>
</tbody>
</table>

Source: Parsons Brinckerhoff, 1996

3.5 SUMMARY OF SURVEY FINDINGS

Table 3.4 provides a summary by station of the survey starting and ending times, the number of passenger and commercial vehicle surveys collected, the number of refusals noted, the 24-hour outbound and inbound volumes recorded, and comments regarding weather or other conditions affecting the schedule. Of the refusals noted, only one was a commercial vehicle. In comparing the 24-hour counts to the volumes in Table 3.1, it should be noted that those volumes are average daily traffic volumes (ADT) that have been factored for seasonal variations, whereas the 24-hour traffic counts collected by classification have not been adjusted for seasonal variations.

Table 3.5 provides a summary by station of the number of external-through and external-local trips for the passenger and commercial vehicle surveys collected. Of the external-local trips, the reported number of resident and non-resident commuter trips are shown in addition to the reported number which stayed overnight.
Table 3.6 provides a summary by station for commuter trips (resident and non-resident) by destination trip purpose. Table 3.7 provides a similar summary by destination trip purpose for overnight trips. Table 3.8 provides a summary by station of 24 hour counts by vehicle classification. Table 3.9 provides observations noted during the survey which may be of interest during further evaluation of the data collected.
Table 3.6 provides a summary by station for commuter trips (resident and non-resident) by destination trip purpose. Table 3.7 provides a similar summary by destination trip purpose for overnight trips. Table 3.8 provides a summary by station of 24 hour counts by vehicle classification. Table 3.9 provides observations noted during the survey which may be of interest during further evaluation of the data collected.
### Table 3.4
Station Summary - Surveys and Traffic Counts

<table>
<thead>
<tr>
<th>Sta #</th>
<th>Zone #</th>
<th>Location</th>
<th>Survey Time</th>
<th>Number of Surveys</th>
<th>24-Hour Count</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Start</td>
<td>End</td>
<td>Passenger</td>
<td>Commercial</td>
</tr>
<tr>
<td>1</td>
<td>417</td>
<td>US 77 N</td>
<td>8:55 a</td>
<td>5:55 p</td>
<td>336</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>418</td>
<td>FM 136</td>
<td>7:20 a</td>
<td>6:45 p</td>
<td>400</td>
<td>36</td>
</tr>
<tr>
<td>3</td>
<td>419</td>
<td>SH 188</td>
<td>7:30 a</td>
<td>6:45 p</td>
<td>315</td>
<td>24</td>
</tr>
<tr>
<td>4</td>
<td>420</td>
<td>FM 1069</td>
<td>7:20 a</td>
<td>6:50 p</td>
<td>401</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>421</td>
<td>SH 35</td>
<td>7:20 a</td>
<td>6:45 p</td>
<td>386</td>
<td>56</td>
</tr>
<tr>
<td>6</td>
<td>422</td>
<td>SH 35</td>
<td>7:20 a</td>
<td>6:45 p</td>
<td>386</td>
<td>56</td>
</tr>
<tr>
<td>7</td>
<td>423</td>
<td>Park Rd 22</td>
<td>7:15 a</td>
<td>6:40 p</td>
<td>242</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>424</td>
<td>US 77 S</td>
<td>8:30 a</td>
<td>7:00 p</td>
<td>441</td>
<td>69</td>
</tr>
<tr>
<td>9</td>
<td>425</td>
<td>Bus. US 77</td>
<td>8:30 a</td>
<td>6:50 p</td>
<td>502</td>
<td>14</td>
</tr>
<tr>
<td>10</td>
<td>426</td>
<td>FM 665</td>
<td>7:30 a</td>
<td>6:45 p</td>
<td>431</td>
<td>27</td>
</tr>
<tr>
<td>11</td>
<td>427</td>
<td>SH 44</td>
<td>7:30 a</td>
<td>6:45 p</td>
<td>388</td>
<td>38</td>
</tr>
<tr>
<td>12</td>
<td>428</td>
<td>Co Rd 352</td>
<td>7:30 a</td>
<td>6:35 p</td>
<td>61</td>
<td>0</td>
</tr>
<tr>
<td>13</td>
<td>429</td>
<td>FM 624</td>
<td>7:30 a</td>
<td>7:00 p</td>
<td>441</td>
<td>43</td>
</tr>
<tr>
<td>14</td>
<td>430</td>
<td>FM 70</td>
<td>8:00 a</td>
<td>6:45 p</td>
<td>137</td>
<td>13</td>
</tr>
<tr>
<td>15</td>
<td>431</td>
<td>SH 359 S</td>
<td>7:45 a</td>
<td>7:00 p</td>
<td>355</td>
<td>20</td>
</tr>
<tr>
<td>16</td>
<td>432</td>
<td>FM 3024</td>
<td>7:20 a</td>
<td>7:00 p</td>
<td>225</td>
<td>7</td>
</tr>
<tr>
<td>17</td>
<td>433</td>
<td>IH 37</td>
<td>7:35 a</td>
<td>6:45 p</td>
<td>472</td>
<td>32</td>
</tr>
<tr>
<td>18</td>
<td>434</td>
<td>SH 359 N</td>
<td>7:25 a</td>
<td>6:45 p</td>
<td>408</td>
<td>40</td>
</tr>
<tr>
<td>19</td>
<td>435</td>
<td>US 181</td>
<td>7:25 a</td>
<td>6:50 p</td>
<td>384</td>
<td>32</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Not actual refusals but someone who had already been through the station
** Mainlanes only
Notes: Nine noted overall - respondent spoke limited English; of total, only one commercial vehicle refusal
Source: Parsons Brinckerhoff, 1997
<table>
<thead>
<tr>
<th>Sta #</th>
<th>Zone #</th>
<th>Location</th>
<th>Passenger Vehicle Surveys</th>
<th>Through</th>
<th>Local</th>
<th>Resident</th>
<th>Commuter Non-Resident</th>
<th>Overnight Visitor</th>
<th>Commercial Vehicle Surveys</th>
<th>Through</th>
<th>Local</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>417</td>
<td>US 77 North</td>
<td>336</td>
<td>108</td>
<td>226</td>
<td>80</td>
<td>98</td>
<td>35</td>
<td>20</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>418</td>
<td>FM 136</td>
<td>400</td>
<td>29</td>
<td>371</td>
<td>188</td>
<td>155</td>
<td>16</td>
<td>36</td>
<td>3</td>
<td>33</td>
</tr>
<tr>
<td>3</td>
<td>419</td>
<td>SH 188</td>
<td>315</td>
<td>224</td>
<td>91</td>
<td>46</td>
<td>35</td>
<td>2</td>
<td>24</td>
<td>19</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>420</td>
<td>FM 1069</td>
<td>401</td>
<td>9</td>
<td>392</td>
<td>146</td>
<td>199</td>
<td>12</td>
<td>5</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>421</td>
<td>SH 35</td>
<td>388</td>
<td>12</td>
<td>375</td>
<td>149</td>
<td>169</td>
<td>10</td>
<td>56</td>
<td>8</td>
<td>46</td>
</tr>
<tr>
<td>7</td>
<td>423</td>
<td>Park Rd 22</td>
<td>242</td>
<td>34</td>
<td>208</td>
<td>88</td>
<td>28</td>
<td>73</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>424</td>
<td>US 77 South</td>
<td>441</td>
<td>75</td>
<td>366</td>
<td>148</td>
<td>175</td>
<td>19</td>
<td>69</td>
<td>27</td>
<td>42</td>
</tr>
<tr>
<td>9</td>
<td>425</td>
<td>Bus, US 77</td>
<td>502</td>
<td>23</td>
<td>478</td>
<td>278</td>
<td>167</td>
<td>6</td>
<td>14</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>11</td>
<td>427</td>
<td>FM 665</td>
<td>431</td>
<td>178</td>
<td>253</td>
<td>114</td>
<td>110</td>
<td>4</td>
<td>27</td>
<td>5</td>
<td>21</td>
</tr>
<tr>
<td>12</td>
<td>428</td>
<td>SH 44</td>
<td>388</td>
<td>13</td>
<td>374</td>
<td>160</td>
<td>179</td>
<td>11</td>
<td>38</td>
<td>4</td>
<td>34</td>
</tr>
<tr>
<td>13</td>
<td>429</td>
<td>Co Rd 352</td>
<td>61</td>
<td>8</td>
<td>53</td>
<td>16</td>
<td>31</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>430</td>
<td>FM 624</td>
<td>441</td>
<td>14</td>
<td>426</td>
<td>173</td>
<td>223</td>
<td>9</td>
<td>43</td>
<td>4</td>
<td>38</td>
</tr>
<tr>
<td>15</td>
<td>431</td>
<td>FM 70</td>
<td>137</td>
<td>22</td>
<td>110</td>
<td>46</td>
<td>49</td>
<td>5</td>
<td>13</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>16</td>
<td>432</td>
<td>SH 359 North</td>
<td>355</td>
<td>86</td>
<td>269</td>
<td>125</td>
<td>127</td>
<td>6</td>
<td>20</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>18</td>
<td>434</td>
<td>FM 3024</td>
<td>225</td>
<td>24</td>
<td>200</td>
<td>72</td>
<td>116</td>
<td>5</td>
<td>7</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>19</td>
<td>435</td>
<td>IH 37</td>
<td>472</td>
<td>62</td>
<td>410</td>
<td>182</td>
<td>131</td>
<td>76</td>
<td>32</td>
<td>6</td>
<td>26</td>
</tr>
<tr>
<td>20</td>
<td>436</td>
<td>SH 359 South</td>
<td>408</td>
<td>70</td>
<td>338</td>
<td>165</td>
<td>144</td>
<td>14</td>
<td>40</td>
<td>10</td>
<td>29</td>
</tr>
<tr>
<td>22</td>
<td>438</td>
<td>US 181</td>
<td>384</td>
<td>36</td>
<td>347</td>
<td>127</td>
<td>160</td>
<td>40</td>
<td>32</td>
<td>3</td>
<td>29</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td>6,327</td>
<td>1,027</td>
<td>5,287</td>
<td>2,303</td>
<td>2,296</td>
<td>343</td>
<td>479</td>
<td>108</td>
<td>364</td>
</tr>
</tbody>
</table>

Note: Sum of Through and Local will not always equal the total number of surveys. Some trips not indicated on form.

Note: Sum of Resident, Commuter Non-Resident, and Overnight Visitors may not equal Local trips because of missing responses to Resident question.

Source: Parsons Brinckerhoff, 1997
### Table 3.6
Commuter Trips by Destination Trip Purpose by External Station

| Sta # | Zone # | Location          | 0 | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | Total |
|-------|--------|-------------------|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|------|
| 1     | 417    | US 77 North       | 0 | 59 |    | 21 | 1  | 7  | 1  | 1  | 0  | 1  | 1  | 0  | 0  | 0  | 0  | 98   |
| 2     | 418    | FM 136            | 0 | 131| 6  | 11 | 1  | 7  | 0  | 0  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 157  |
| 3     | 419    | SH 188            | 0 | 20 | 1  | 8  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 35   |
| 4     | 420    | FM 1069           | 0 | 157| 4  | 14 | 0  | 4  | 1  | 2  | 0  | 0  | 13 | 1  | 0  | 1  | 1  | 199  |
| 5     | 421    | SH 35             | 0 | 137| 5  | 14 | 1  | 1  | 3  | 0  | 0  | 1  | 5  | 1  | 0  | 1  | 1  | 169  |
| 7     | 423    | Park Rd 22        | 0 | 2  | 0  | 2  | 0  | 25 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 29   |
| 8     | 424    | US 77 South       | 0 | 133| 2  | 24 | 1  | 12 | 1  | 0  | 0  | 1  | 2  | 0  | 0  | 0  | 0  | 176  |
| 9     | 425    | Bus. US 77        | 0 | 121| 3  | 21 | 6  | 2  | 4  | 1  | 0  | 0  | 8  | 1  | 0  | 0  | 0  | 167  |
| 11    | 427    | FM 666            | 0 | 73 | 5  | 16 | 0  | 4  | 0  | 0  | 0  | 5  | 6  | 0  | 0  | 1  | 0  | 110  |
| 12    | 428    | SH 44             | 2 | 105| 18 | 26 | 8  | 2  | 0  | 0  | 0  | 5  | 11 | 0  | 0  | 0  | 1  | 179  |
| 13    | 429    | Co Rd 352         | 2 | 27 | 0  | 1  | 0  | 1  | 0  | 0  | 0  | 0  | 0  | 0  | 1  | 0  | 0  | 31   |
| 14    | 430    | FM 624            | 0 | 183| 4  | 18 | 1  | 3  | 1  | 0  | 0  | 1  | 5  | 7  | 0  | 1  | 0  | 224  |
| 15    | 431    | FM 70             | 0 | 44 | 0  | 2  | 0  | 1  | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 0  | 49   |
| 16    | 432    | SH 359 North       | 0 | 88 | 7  | 17 | 0  | 3  | 3  | 1  | 0  | 0  | 4  | 1  | 0  | 2  | 0  | 127  |
| 18    | 434    | FM 3024           | 0 | 105| 4  | 5  | 0  | 0  | 0  | 0  | 0  | 2  | 0  | 0  | 0  | 0  | 0  | 119  |
| 19    | 435    | IH 37             | 0 | 94 | 1  | 25 | 0  | 2  | 0  | 0  | 0  | 0  | 8  | 0  | 0  | 1  | 0  | 131  |
| 20    | 436    | SH 359 South       | 0 | 109| 3  | 15 | 3  | 4  | 1  | 1  | 0  | 0  | 8  | 0  | 1  | 1  | 0  | 146  |
| 22    | 438    | US 181            | 0 | 136| 2  | 14 | 1  | 2  | 0  | 0  | 0  | 4  | 1  | 0  | 0  | 0  | 0  | 160  |
| **Total** | **1724** | **65** | **257** | **23** | **96** | **16** | **6** | **0** | **14** | **84** | **16** | **1** | **7** | **3** | **2** | **2306** |

| Percentage | .09 | 74.76 | 2.82 | 11.14 | 3.73 | .69 | .26 | 0 | .61 | 3.64 | .69 | .04 | .3 | .13 | .09 | 100 |

Source: Parsons Brinckerhoff, 1997

**Definition of Trip Purpose Codes**

1) Home/Return home
2) Go to work
3) Work-related
4) School
5) Social Recreation
6) Eat out
7) Shop
8) Buy gas
9) Medical
10) Personal business
11) Pick-up/Drop-off passenger
12) Change travel mode
13) Delivery
14) Other
15) Refused/Unknown
### Table 3.7

**Overnight Trips by Destination Trip Purpose by External Station**

<table>
<thead>
<tr>
<th>Sta #</th>
<th>Zone #</th>
<th>Location</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>417</td>
<td>US 77 North</td>
<td>1</td>
<td>23</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>418</td>
<td>FM 136</td>
<td>0</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>419</td>
<td>SH 188</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>420</td>
<td>FM 1069</td>
<td>0</td>
<td>8</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>421</td>
<td>SH 35</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>7</td>
<td>423</td>
<td>Park Rd 22</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>69</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>73</td>
</tr>
<tr>
<td>8</td>
<td>424</td>
<td>US 77 South</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>9</td>
<td>425</td>
<td>Bus. US 77</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>11</td>
<td>427</td>
<td>FM 665</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>12</td>
<td>428</td>
<td>SH 44</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>13</td>
<td>429</td>
<td>Co Rd 352</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>14</td>
<td>430</td>
<td>FM 624</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>15</td>
<td>431</td>
<td>FM 70</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>16</td>
<td>432</td>
<td>SH 359 North</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>18</td>
<td>434</td>
<td>FM 3024</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>19</td>
<td>435</td>
<td>IH 37</td>
<td>1</td>
<td>43</td>
<td>0</td>
<td>19</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>76</td>
</tr>
<tr>
<td>20</td>
<td>436</td>
<td>SH 359 South</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>22</td>
<td>438</td>
<td>US 181</td>
<td>0</td>
<td>33</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

**Total**

|                      | 2  | 151 | 7  | 46 | 2  | 88 | 2  | 6  | 0  | 4  | 32 | 2  | 0  | 0  | 1  | 0  | 343 |

| Percentage           | .58| 44.02| 2.04| 13.41| .58| 25.66| .58| 1.75| 0  | 1.17| 9.33| .58| 0  | .29| 0  | 100 |

**Source:** Parsons Brinckerhoff, 1997

**Definition of Trip Purpose Codes**

1) Home/Return home  
2) Go to work  
3) Work-related  
4) School  
5) Social Recreation  
6) Eat out  
7) Shop  
8) Buy gas  
9) Medical  
10) Personal business  
11) Pick-up/Drop-off passenger  
12) Change travel mode  
13) Delivery  
14) Other  
15) Refused/Unknown

*PARSONS  
BRINCKERHOFF*
## Table 3.8
Corpus Christi External Station Classification Counts

<table>
<thead>
<tr>
<th>Sta #</th>
<th>Zone #</th>
<th>Location</th>
<th>Cycle</th>
<th>Carr</th>
<th>2A-4T</th>
<th>Buses</th>
<th>2A-SU</th>
<th>3A-SU</th>
<th>4A-SU</th>
<th>4A-ST</th>
<th>6A-ST</th>
<th>6A-MT</th>
<th>6A-MT</th>
<th>7A-MT</th>
<th>None</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>417</td>
<td>US 77 North</td>
<td>224</td>
<td>3,985</td>
<td>1,998</td>
<td>44</td>
<td>615</td>
<td>131</td>
<td>14</td>
<td>339</td>
<td>1,453</td>
<td>35</td>
<td>56</td>
<td>12</td>
<td>10</td>
<td>0</td>
<td>504</td>
</tr>
<tr>
<td>2</td>
<td>418</td>
<td>FM 136</td>
<td>11</td>
<td>1,700</td>
<td>1,078</td>
<td>39</td>
<td>137</td>
<td>12</td>
<td>0</td>
<td>47</td>
<td>73</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>54</td>
</tr>
<tr>
<td>3</td>
<td>419</td>
<td>SH 188</td>
<td>3</td>
<td>564</td>
<td>424</td>
<td>4</td>
<td>125</td>
<td>9</td>
<td>0</td>
<td>44</td>
<td>49</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>420</td>
<td>FM 1089</td>
<td>11</td>
<td>1,215</td>
<td>685</td>
<td>10</td>
<td>77</td>
<td>23</td>
<td>0</td>
<td>18</td>
<td>8</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>42</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>421</td>
<td>SH 35</td>
<td>25</td>
<td>5,360</td>
<td>2,436</td>
<td>44</td>
<td>288</td>
<td>68</td>
<td>11</td>
<td>118</td>
<td>177</td>
<td>15</td>
<td>1</td>
<td>0</td>
<td>8</td>
<td>192</td>
<td>8,743</td>
</tr>
<tr>
<td>6</td>
<td>422</td>
<td>Park Road 22</td>
<td>4</td>
<td>471</td>
<td>191</td>
<td>5</td>
<td>29</td>
<td>9</td>
<td>0</td>
<td>36</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>26</td>
<td>771</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>423</td>
<td>US 77 South</td>
<td>660</td>
<td>6,151</td>
<td>3,657</td>
<td>121</td>
<td>551</td>
<td>186</td>
<td>20</td>
<td>252</td>
<td>1,403</td>
<td>137</td>
<td>58</td>
<td>13</td>
<td>59</td>
<td>0</td>
<td>982</td>
</tr>
<tr>
<td>8</td>
<td>424</td>
<td>Business US77</td>
<td>84</td>
<td>4,813</td>
<td>1,648</td>
<td>24</td>
<td>209</td>
<td>42</td>
<td>2</td>
<td>36</td>
<td>49</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>241</td>
</tr>
<tr>
<td>9</td>
<td>425</td>
<td>FM 665</td>
<td>5</td>
<td>1,548</td>
<td>797</td>
<td>9</td>
<td>141</td>
<td>35</td>
<td>0</td>
<td>38</td>
<td>66</td>
<td>5</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>105</td>
<td>2,754</td>
</tr>
<tr>
<td>10</td>
<td>426</td>
<td>SH 44</td>
<td>138</td>
<td>4,103</td>
<td>1,841</td>
<td>104</td>
<td>445</td>
<td>170</td>
<td>16</td>
<td>140</td>
<td>283</td>
<td>32</td>
<td>5</td>
<td>0</td>
<td>36</td>
<td>0</td>
<td>919</td>
</tr>
<tr>
<td>11</td>
<td>427</td>
<td>CR 352</td>
<td>0</td>
<td>26</td>
<td>128</td>
<td>3</td>
<td>64</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>241</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>428</td>
<td>FM 624</td>
<td>7</td>
<td>1,365</td>
<td>654</td>
<td>13</td>
<td>175</td>
<td>229</td>
<td>7</td>
<td>32</td>
<td>66</td>
<td>19</td>
<td>0</td>
<td>0</td>
<td>35</td>
<td>0</td>
<td>440</td>
</tr>
<tr>
<td>13</td>
<td>429</td>
<td>FM 70</td>
<td>2</td>
<td>244</td>
<td>150</td>
<td>3</td>
<td>32</td>
<td>3</td>
<td>0</td>
<td>12</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>460</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>430</td>
<td>SH 359 South</td>
<td>7</td>
<td>1,790</td>
<td>841</td>
<td>16</td>
<td>158</td>
<td>34</td>
<td>5</td>
<td>65</td>
<td>68</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>69</td>
<td>3,063</td>
</tr>
<tr>
<td>15</td>
<td>431</td>
<td>FM 3024</td>
<td>3</td>
<td>366</td>
<td>256</td>
<td>5</td>
<td>53</td>
<td>5</td>
<td>0</td>
<td>4</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>706</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>432</td>
<td>IH 37</td>
<td>154</td>
<td>4,782</td>
<td>1,165</td>
<td>40</td>
<td>125</td>
<td>82</td>
<td>13</td>
<td>166</td>
<td>1,073</td>
<td>18</td>
<td>36</td>
<td>9</td>
<td>7</td>
<td>0</td>
<td>427</td>
</tr>
<tr>
<td>17</td>
<td>433</td>
<td>SH 359 North</td>
<td>10</td>
<td>2,189</td>
<td>1,003</td>
<td>18</td>
<td>130</td>
<td>51</td>
<td>4</td>
<td>68</td>
<td>70</td>
<td>22</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>101</td>
</tr>
<tr>
<td>18</td>
<td>434</td>
<td>US 181</td>
<td>8</td>
<td>1,690</td>
<td>916</td>
<td>20</td>
<td>134</td>
<td>25</td>
<td>3</td>
<td>76</td>
<td>64</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>5</td>
<td>64</td>
<td>3,011</td>
</tr>
</tbody>
</table>

Source: Parsons Brinckerhoff, 1997
### Table 3.9

**Survey Notes and Observations**

<table>
<thead>
<tr>
<th>Station</th>
<th>Location</th>
<th>Additional Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>US 77 North</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>FM 136</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>SH 189</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>FM 1069</td>
<td>Conflict with question &quot;Do you live in San Patricio or Nueces County?&quot; since part of Aransas Pass is in Aransas County but part of study area. Had to rephrase questioning.</td>
</tr>
<tr>
<td>5</td>
<td>SH 35</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Park Road 22</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>US 77 South</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Business US 77</td>
<td>Not much truck traffic on Business Route</td>
</tr>
<tr>
<td>11</td>
<td>FM 665</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>SH 44</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>County Road 352</td>
<td>CR 3524 located at beginning of station. Vehicles coming from neighborhood down CR 3524 were never actually in the study area. These were noted on surveys and not data entered. Vehicles DID NOT cross traffic counter. CR 3524 was located between counter and station.</td>
</tr>
<tr>
<td>14</td>
<td>FM 624</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>FM 70</td>
<td>Family dairy farm (Knolle Farm) located on both sides of FM 70. Workers and family make trips along FM 70 all day. Several repeat trips.</td>
</tr>
<tr>
<td>16</td>
<td>SH 359 North</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>FM 3024</td>
<td>Gravel/Caliche pit entrance located south (inbound) of station. Trucks were going from pit inbound from station towards Mathis. Extra counter was set up on caliche pit road. The raw non-directional count was 1018. The majority of the traffic was three and four axle trucks.</td>
</tr>
<tr>
<td>19</td>
<td>IH 37</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>SH 359 South</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>US 181</td>
<td></td>
</tr>
</tbody>
</table>

Source: Parsons Brinckerhoff, 1997
Appendix A

External Station Map
EXTERNAL SURVEY STATION LOCATIONS (18 Total)

1 - US 77 N.: One mile south of Welder Wildlife Preserve, San Patricio County
2 - FM 136: North of SH 188 and south of Aransas County line, San Patricio County
3 - SH 188: East of FM 136 and west of Aransas County line, San Patricio County
4 - FM 1069: South of Holder and north of Kirby (street names), Aransas County
5 - SH 35: New SH 35 north of Aransas County line and south of Adalfo (street), Aransas County
7 - Park Road 22: South of Sea Pines and north of Kleberg County line, Nueces County
8 - US 77 South: Between Kleberg County line and Carreta Creek, Nueces County
9 - Bus. US 77: North of Kleberg County line and south of industrial plant entrance, Nueces County
11 - FM 665: East of Jim Wells County line, Nueces County
12 - SH 44: East of Jim Wells County line, Nueces County
13 - CR 352: West of intersection of FM 1833 and FM 70 (Nueces County line), Jim Wells County
14 - FM 624: West of FM 70 and Nueces County line, Jim Wells County
15 - FM 70: Northeast of FM 3088 and west of Nueces County line, Jim Wells County
16 - SH 359 S.: Southwest of CR 361, Jim Wells County
18 - FM 3024: NW of McRae Pit entrance and SE of Live Oak County line, San Patricio County
19 - IH 37: At Exit 40 sign, southeast of Live Oak County line, San Patricio County
20 - SH 359 N.: South of Bee County line, San Patricio County
22 - US 181: South of Bee County line, San Patricio County
### External Travel Survey

**EXTERNAL TRAVEL SURVEY INTERVIEW FORM**

**Option 1**

**External Station #:**

**Survey Date:**

**External Station Name/Location:**

**Interviewer:**

For each vehicle you collect:

<table>
<thead>
<tr>
<th>Vehicle 1</th>
<th>Vehicle 2</th>
<th>Vehicle 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Number of people in vehicle**
- **Vehicle type (choose from options)**
- **Vehicle license number and state**

#### QUESTIONS:

1. **What year, make, and model is this vehicle?**
   - **Year**
   - **Make**
   - **Model**
   - **Gas**
   - **Diesel**
   - **Other**

2. **What is the mileage on your odometer?**

3. **Are you traveling through the two-county area on route to your final destination or did your trip begin in the area?**
   - **1) Through two-county area**
   - **2) Area origin**
   - **(If 1 go to 3A)**
   - **(If 2 go to 3B)**

4. **If yes STOP; If no go to 8)**

5. **What is your purpose for traveling to your next destination?**
   - **1) Home/Auto Repair**
   - **2) Social Recreation**
   - **3) Work**
   - **4) School**
   - **5) Other (specify)**

6. **How often do you travel into this area?**

---

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

10. **To how many places did you go today?**

11. **How many times did you get out of your car today for each of the following purposes?**

**Vehicle Type Options**

1) Passenger (car/truck/ van)
2) Bus
3) Commercial vehicle (over 1 ton)
4) Motorcycle
5) Other (specify in block)

**Trip Purpose Options**

1) Home/Auto Repair
2) Social Recreation
3) Work
4) School
5) Other (specify)

---

**PARSONS BRINCKERHOFF**
# External Travel Survey Interview Form

## Option 2

### External Station:

*External Station Name, Location:*  

### Interviewer:

*For each vehicle you collect:*  

<table>
<thead>
<tr>
<th>Vehicle</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of people in vehicle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle Type (choose from options)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle license number and state</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Questions:

1. **What year, make, and model is this vehicle?**
   - Year
   - Make
   - Model
   - Gas
   - Diesel
   - Other

2. **What is the mileage on your odometer?**
   - 1) Through two-county area
   - 2) Area origin
   - 3) Area origin
   - 4) Other

3. **Are you traveling through the two-county area on route to your final destination or did your trip begin in the area?**
   - Through two-county area
   - Area origin
   - Other

4. **What was your purpose for being at that location? (choose from options)**
   - Home
   - Work
   - School
   - Social Recreation
   - Eat out
   - Shop
   - Pick-up/Drop-off passenger
   - Change travel mode
   - Other

5. **What was your purpose for traveling to your next destination? (choose from options)**
   - Home
   - Work
   - School
   - Social Recreation
   - Eat out
   - Shop
   - Pick-up/Drop-off passenger
   - Change travel mode
   - Other

6. **Do you live in Nueces or San Patricio County?**
   - Yes
   - No
   - Other

7. **Do you stay in the two-county area overnight?**
   - Yes
   - No
   - Other

8. **How often do you travel into this area?**

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

9. **Where did your first trip begin? (place/address or nearest intersection only)**

10. **Where did your first trip begin? (place/address or nearest intersection only)**

11. **Where did you go next? (place/address or nearest intersection only)**

12. **Where did you go next? (place/address or nearest intersection only)**

13. **Where did you go next? (place/address or nearest intersection only)**

14. **Where did you go next? (place/address or nearest intersection only)**

15. **Where did you go next? (place/address or nearest intersection only)**

---

**Vehicle Type Options:**  
1. Passenger (car/truck/hum)  
2. Bus  
3. Taxis/Minivan  
4. School bus  
5. Commercial vehicle (over 1 ton)  
6. Motorcycle  
7. Other (specify in block)

**Trip Purpose Options:**  
1. Home/Return home  
2. To work  
3. Work-related  
4. School  
5. Social Recreation  
6. Eat out  
7. Pick-up/Drop-off passenger  
8. Change travel mode  
9. Other (specify)
EXTERNAL TRAVEL SURVEY
PRE-POSTCARD HAND-OUT INTERVIEW FORM
Option 1 & 2

External Station #: ____________________________

External Station Name/Location: ________________________________________

Interviewer: ____________________________

Survey Date: ____________________________

For each vehicle you collect:

<table>
<thead>
<tr>
<th>Vehicle 1</th>
<th>Vehicle 2</th>
<th>Vehicle 3</th>
<th>Vehicle 4</th>
<th>Vehicle 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postcard Sequence Number</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>a.m._</td>
<td>a.m._</td>
<td>a.m._</td>
<td>a.m._</td>
</tr>
<tr>
<td>Number of people in vehicle</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle type (choose from options)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle license number and state</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

QUESTIONS:

1. What year, make, and model is this vehicle?

   Gas, diesel, or other fuel?

   Year
   Make
   Model
   Gas ☐ Diesel ☐ Other ☐

   Year
   Make
   Model
   Gas ☐ Diesel ☐ Other ☐

   Year
   Make
   Model
   Gas ☐ Diesel ☐ Other ☐

   Year
   Make
   Model
   Gas ☐ Diesel ☐ Other ☐

   Year
   Make
   Model
   Gas ☐ Diesel ☐ Other ☐

Instructions:

If driver is traveling through the Nueces-San Patricio two-county area or lives in Nueces or San Patricio County, DO NOT hand-out postcard.

2. Are you traveling through the two-county area on route to your final destination or did your trip begin in the area?

   1) Through two-county area
   2) Area origin

3. If traveling through:

   What highway did you use to enter the two-county area?

   1) Through two-county area
   2) Area origin

4. Do you live in Nueces or San Patricio County?

   ☐ Yes ☐ No

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) Other (specify in block)

PARSONS BRINCKERHOFF

ext16c.doc
EXTERNAL TRAVEL SURVEY RETURN POSTCARD - Option 1
Station #: Station Name/Location ____________________________ Date: ___/___/___ Time: ___am/pm

1. Odometer mileage

2. Where was the last place you got into your vehicle? (place/address or nearest intersection/city)

3. What approximate time did you leave that location? ___am/pm 4. What was your purpose for being at that location? (see examples below)

5. What is your purpose for traveling to your next destination? (see examples below)

6. Did you stay in the two-county area overnight? □ Yes □ No

7. How many times did you get out of your car today for each of the following activities?
   Work □ Eat □ Shop □ Other □

Trip Purpose Options: 1) Home/Return home 2) Go to work 3) Work-related 4) School 5) Social/recreational
6) Eat out 7) Shop 8) Pick-up/Drop-off passenger 9) Change travel mode 10) Delivery 11) Other (specify in space)

To measure the amount of travel you made today in the Corpus Christi area, we need to know the number of places you have gone to today. For each of the following questions would you please provide us with place/address or nearest intersection/city:

8. Where did your first trip begin?

9. Where did you go next?

10. Where did you go next?

11. Where did you go next?

12. Where did you go next?

13. Where did you go next?

PARSONS
BRINCKERHOFF
Appendix C

Survey Forms
EXTERNAL TRAVEL SURVEY INTERVIEW FORM

External Station #: ____________________________ Survey Date: ____________________________
External Station Name/Location: ____________________________
Interviewer: ____________________________

For each vehicle you collect:

<table>
<thead>
<tr>
<th>Vehicle 1</th>
<th>Vehicle 2</th>
<th>Vehicle 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>a.m.</td>
<td>p.m.</td>
</tr>
<tr>
<td>Number of people in vehicle</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Vehicle type (choose from options): 1) Passenger (Car/Multi/Van) 2) Bus 3) Taxi/Pool Limousine 4) School bus 5) Commercial vehicle (over 1 ton) 6) Motorcycle 7) Recreational Vehicle 8) Other (specify in block)

QUESTIONS:

1. What year, make, and model is this vehicle?
   - Year
   - Make
   - Model

2. Gas, diesel, or other fuel?
   - Gas
   - Diesel
   - Other

3. What is the mileage on your odometer?

4. Where was the last place you got into your vehicle?
   (place/address or nearest intersection/city)

5. Is this place outside Nueces and San Patricio Counties?
   Yes
   No

6. If 3A is Yes: What highway or street was your vehicle on when it entered Nueces or San Patricio County?

7. Approximate time you leave that location:
   a.m. | p.m. | a.m. | p.m. | a.m. | p.m.

8. What was your purpose for being at that location?
   (choose from trip purpose options)


10. Do you live in Nueces or San Patricio County?
    Yes
    No

11. Did you stay in the two-county area overnight?
    Yes
    No

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

9. Where did your first trip today begin?
   (place/address or nearest intersection/city)

10. Where did you go first?
    (place/address or nearest intersection/city)

11. Where did you go next?
    (place/address or nearest intersection/city)

12. Where did you go next?
    (place/address or nearest intersection/city)

13. Where did you go next?
    (place/address or nearest intersection/city)

14. Where did you go next?
    (place/address or nearest intersection/city)

15. Where did you go next?
    (place/address or nearest intersection/city)

16. How many more places did you go in Nueces and San Patricio Counties today?
EXTERNAL COMMERCIAL VEHICLE TRAVEL SURVEY INTERVIEW FORM

External Station #: ____________________________  Survey Date: _____________
External Station Name/Location: ____________________________
Interviewer: ____________________________

For each vehicle you collect:

<table>
<thead>
<tr>
<th></th>
<th>Vehicle 1</th>
<th>Vehicle 2</th>
<th>Vehicle 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>a.m.</td>
<td>p.m.</td>
<td>a.m.</td>
</tr>
<tr>
<td>Number of people in vehicle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle classification (choose from options)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>What is the cargo? (choose from vehicle cargo codes)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Vehicle Classification Options:**

1. Single Unit 2-axle (6 wheels)
2. Single Unit 3-axle (10 wheels)
3. Single Unit 4-axle (14 wheels)
4. Semi (as Tractor-Trailer Combinations)
5. Other (specify) 99) Unknown

**QUESTIONS:**

1. What is the year and gross weight of this vehicle?

<table>
<thead>
<tr>
<th></th>
<th>Year</th>
<th>Year</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diesel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. What is the mileage on your odometer?

<table>
<thead>
<tr>
<th></th>
<th>a.m.</th>
<th>p.m.</th>
<th>a.m.</th>
<th>p.m.</th>
</tr>
</thead>
</table>

3. Where was the last place you got into your vehicle?

(please/address or nearest intersection/city)

4. What approximate time did you leave that location?

<table>
<thead>
<tr>
<th></th>
<th>a.m.</th>
<th>p.m.</th>
<th>a.m.</th>
<th>p.m.</th>
</tr>
</thead>
</table>

5. What was your purpose for being at that location? (choose from trip purpose options)

6. What was your purpose for traveling to your next destination? (choose from trip purpose options)

7. Did you use any of the following routes?

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
<th>(10)</th>
<th>(11)</th>
<th>(12)</th>
<th>(13)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Vehicle Cargo Codes:**

1. Farm Products
2. Forest Products
3. Marine Products
4. Minerals and Metals
5. Food, Health, and Beauty Products
6. Tobacco Products
7. Textiles
8. Wood Products
9. Printed Matter
10. Chemical Products
11. Refined Petroleum or Coal Products
12. Rubber, Plastic, and Styrofoam Products
13. Clay, Concrete, Glass, or Stone
14. Manufactured Goods / Equipment
15. Wastes
16. Miscellaneous Shipment
17. Hazardous Materials
18. Unclassified Cargo
19. Driver Refused to Answer
20. Unknown to Driver
21. Empty

Livestock, fertilizer, dirt, landscaping, etc.
Trees, sod, etc.
Fresh fish, seafood, etc.
Crude petroleum, natural gas, propane, metals, gypsum, ores, etc.
Assorted food products, cosmetics, etc.
Cigars, cigars, and chewing tobacco
Clothing, linens, etc.
Lumber, paper, cardboard, wood pulp, etc.
Newspapers, magazines, books, etc.
Soils, stones, household, or industrial chemicals, etc.
Gasoline, etc.
Finished products of rubber, plastic, or styrofoam
Finished products of clay, concrete, glass, or stone
Miscellaneous products, such as machinery, appliances, furniture, etc.
Waste products, including aerosol and recyclable materials
U.S. Mail, U.P.S., Federal Express, and other parcel cargo
Cargo not falling within one of the above categories
Driver refused to answer
Unknown to driver
Empty (including empty shipping containers)

PARSONS
BRINCKERHOFF
Appendix D

Traffic Control Plans
TRAFFIC CONTROL PLAN

Two-Lane Roadway
Typical Survey Station Layout

TRAFFIC CONTROL PLAN

Four-Lane Roadway
Typical Survey Station Layout

Traffic Survey Ahead
Right Lane Closed 1/2 Mile

Right Lane Closed 1,500 ft.

Lane Ends Ahead

Stop Ahead

Stop Thank You For Your Cooperation

SIGNS:
All Warning Signs are Orange with Black legend and Diamond Shaped STOP is 48" x 48"
and is Red with White Text "Thank You" is 24" x 48"
and is White and Horizontal

Legend:
- Temporary Warning Sign (48" x 48")
- Traffic Cone (28")
- Survey Personnel


CORPUS CHRISTI TRAVEL SURVEY
FOUR LANE TRAFFIC CONTROL PLAN
Appendix E

External Survey Procedure Manual
CORPUS CHRISTI TRAVEL SURVEY

FALL 1996

External Travel Survey

Procedure Manual
INTRODUCTION

The external travel survey measures the travel of persons exiting the Corpus Christi area. The traffic information gathered during this survey will provide the Corpus Christi Metropolitan Planning Organization (MPO) and the Texas Department of Transportation (TxDOT) a valuable tool with which to tackle the increasing problem of traffic congestion.

Four types of trips will be surveyed:

- External-Local
- External-Through
- Commuter
- Overnight Visitor

External-local trips have an origin inside the study area and a destination outside the area. For example, Ms Jones left home in Corpus Christi on her way to San Antonio. She passed through the area and was interviewed at our travel survey location on IH 37 North #19.

External-through trips are those which enter and leave the study area without stopping. For example, Mr. Baker is traveling from Kingsville to San Antonio. He is traveling through Corpus Christi during his trip. He entered the study at the external station #8 on US 77 South and is exiting on external station #19 on IH 37 North.

The external-local trips will be further stratified into "overnight" and "commuter" trips by questions asked on the interview forms. This will be discussed in depth at the training session the day before external data gathering begins.

STUDY AREA

The Corpus Christi study area consists of Nueces and San Patricio counties. A small portion of Aransas Pass is also included with two external stations (#4 and #5) in Aransas county. In addition to these sites, four stations are scheduled to be surveyed in Jim Wells County. These include #13, #14, #15, and #16.

INTERVIEW PROCEDURES

Overview

There are 18 external study area boundary locations to be surveyed in the Corpus Christi area. A list of locations is found in Appendix A.

As many as two external stations per travel day (Monday thru Thursday) will be surveyed. The survey hours are from approximately 7:00 a.m. to 7:00 p.m. or during the daylight hours. A minimum of one surveyor, a supervisor, a TxDOT flagman, and a representative of the sheriff's department will be at each site. There will be no restrooms at the survey site but arrangements will be made for relief trips. Water will also be provided and surveyors are encouraged to bring snacks and drinks (non-alcoholic) to the site. All trash should be placed in transport vehicles for disposal at a later time.
The supervisor will designate each person's task and location. Clipboard, adequate copies of interview forms (one for commercial vehicles and one for the passenger cars, panels, and pickups) and pencils will be provided for each interviewer.

The surveyors will ask the drivers questions about their external-local or through trips. The interview forms and discussion of specific definitions and survey questions are included in Appendix A. A sample vehicle classification form and area map are also found in Appendix A.

**Safety**

The external sites have been chosen with safety in mind. There will be traffic control devices setup by TxDOT personnel before each survey begins. Surveyors are required to wear a hardhat and vest to achieve a higher degree of visibility while at the external sites. These will be provided by the field supervisor at the beginning of each day. Please return these items to the supervisors at the end of each shift.

The approved traffic control plans and survey procedures lower the chances of safety problems, however, you as an interviewer must be alert and prepared for the unexpected. When preparing for the survey, check your surroundings and avenues of escape. Never put your back to oncoming traffic. A situation arises which jeopardizes you or someone else's safety, immediately let everyone know and get clear of the danger zone. Remember - SAFETY FIRST!

**Appearance and Attitude**

The appearance and attitude of each interviewer is very important. You are representing Parsons Brinckerhoff, TxDOT, and the Corpus Christi MPO. Each surveyor will be dressed appropriately for the survey. Prospective surveyees are also more likely to participate in a survey when the surveyor is nicely dressed. T-shirts, sweatshirts, sweatpants, tank tops, mirrored sunglasses, and shorts are not allowed. If the interviewer's appearance is not appropriate (as outlined above) he/she will be sent home for the day and possibly terminated.

**What should I bring?**

All the survey staff should bring a watch. Some personal items that might be needed during the survey include sunscreen, sunglasses (except mirror-type), something to drink, a snack, and lunch. Also, never leave your station without first being relieved by another surveyor.

**Special Situations**

A person may want to know more about the study. A good response is provided in the scenario below:

**Question:** "What is the purpose of this study?"

**Answer:** "This is a traffic information survey for the Corpus Christi Metropolitan Planning Organization and the Texas Department of Transportation. Decisions about highway improvements in this area will be based upon your survey answers. Through analysis of the survey responses, travel characteristics for the region will be known and these data will be utilized by city, county, and state highway planners."

Remember, NEVER leave your station without first being relieved by another surveyor.

*PARSONS BRINCKERHOFF*
Quality Control

The survey Task Leader will check on each performance. Surveys will be retrieved from each interviewer periodically and the forms will be checked for accuracy and completeness. Errors in an interviewer’s technique will be identified and corrected during the survey.

The interview forms also contain the interviewers’ initials so that questions arising during the coding process can be clarified.

Handwriting must be legible. If we cannot read the answers - we cannot use the answers.
Appendix

External Station Locations

Definitions

Interview Questions
Corpus Christi External Station Locations

<table>
<thead>
<tr>
<th>COUNTY</th>
<th>LANES</th>
<th>STA #</th>
<th>LOCATION</th>
<th>1994 AADT</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Patricio</td>
<td>4 divided</td>
<td>1</td>
<td>US 77 1 mi. S. of Welder Wildlife Preserve</td>
<td>8500</td>
</tr>
<tr>
<td>San Patricio</td>
<td>2 undivided</td>
<td>2</td>
<td>FM 136 N of SH 188 &amp; S. of Bee County Line</td>
<td>2900</td>
</tr>
<tr>
<td>San Patricio</td>
<td>2 undivided</td>
<td>3</td>
<td>SH 188 E. of FM 136 &amp; W. of Aransas Co. Line</td>
<td>1400</td>
</tr>
<tr>
<td>Aransas</td>
<td>2 undivided</td>
<td>4</td>
<td>FM 1069 S. of Holder &amp; N. of Kirby</td>
<td>2200</td>
</tr>
<tr>
<td>Aransas</td>
<td>2 undivided</td>
<td>5</td>
<td>New SH 35 N. of Aransas Co. L &amp; S. of Adalfo</td>
<td>9300</td>
</tr>
<tr>
<td>Nueces</td>
<td>4 divided</td>
<td>7</td>
<td>Park Rd22 S of Sea Pines near Right Lane ends sign</td>
<td>800</td>
</tr>
<tr>
<td>Nueces</td>
<td>4 divided</td>
<td>8</td>
<td>US 77 between Kleberg Co. L &amp; Carreta Creek</td>
<td>16500</td>
</tr>
<tr>
<td>Nueces</td>
<td>4 undivided</td>
<td>9</td>
<td>Bus. US 77 N of Kleberg Co. L &amp; S. of plant ent.</td>
<td>7300</td>
</tr>
<tr>
<td>Nueces</td>
<td>2 undivided</td>
<td>11</td>
<td>FM 665 East of the Jim Wells County Line</td>
<td>3000</td>
</tr>
<tr>
<td>Nueces</td>
<td>4 divided</td>
<td>12</td>
<td>SH 44 East of the Jim Wells County Line</td>
<td>6600</td>
</tr>
<tr>
<td>Jim Wells</td>
<td>2 undivided</td>
<td>13</td>
<td>CoRd extending from FM1833 of Nueces W of FM70</td>
<td>200</td>
</tr>
<tr>
<td>Jim Wells</td>
<td>2 undivided</td>
<td>14</td>
<td>FM 624 W of FM 70 West of Nueces County Line</td>
<td>4300</td>
</tr>
<tr>
<td>Jim Wells</td>
<td>2 undivided</td>
<td>15</td>
<td>FM 70 Northeast of FM 3088 which enters Nueces</td>
<td>500</td>
</tr>
<tr>
<td>Jim Wells</td>
<td>2 undivided</td>
<td>16</td>
<td>SH 359 Just SW of Co. Rd. 361 in Jim Wells County</td>
<td>2900</td>
</tr>
<tr>
<td>San Patricio</td>
<td>2 undivided</td>
<td>18</td>
<td>FM 3024 NW of McRae Pit and Live Oak Co. Line</td>
<td>800</td>
</tr>
<tr>
<td>San Patricio</td>
<td>4 divided</td>
<td>19</td>
<td>IH37 at EXIT 40 Sign SE of the Live Oak Co. Line</td>
<td>11200</td>
</tr>
<tr>
<td>San Patricio</td>
<td>2 undivided</td>
<td>20</td>
<td>SH 359 South of the Bee County Line</td>
<td>3700</td>
</tr>
<tr>
<td>San Patricio</td>
<td>2 undivided</td>
<td>22</td>
<td>US 181 South of the Bee County Line</td>
<td>2200</td>
</tr>
</tbody>
</table>
Definitions

Trip: travel by car/pickup truck/van /motorcycle/bicycle, commercial vehicle, etc., between two different locations.

Study Area: the study area for this travel survey includes the two county area of Nueces and San Patricio plus a small portion of Aransas county that includes the city of Aransas Pass.

Origin: the starting location of a trip.

Destination: the ending location of a trip.

External-through Trips: a trip made between two external stations located along the cordon line of the Corpus Christi area which includes Nueces, San Patricio, and a small portion of Aransas counties for the purpose of traveling from an origin located outside the region to a destination located outside the region. Incidental stops, such as restroom breaks, refueling, or eating are included as external local trips.

External-local Trips: a trip made between an origin within the Corpus Christi region and an external station located along the cordon line of the Corpus Christi region. This includes any trip made to or from the region for the purpose of conducting business or for personal reasons. In addition, trips which include an overnight stay in the Corpus Christi area regardless of trip purpose, are considered external-local trips.

Traffic Control devices: Cones and signs that will be set up by TxDOT.

ADT: Average Daily Traffic

Transportation mode: The type of transportation a person chose for his or her trip. There are eight options with the fifth (commercial vehicle over 1 ton) being stratified into five additional categories. Commercial vehicles over one ton with less than 6 wheels - use the white form. Commercial vehicles over one ton with 6 or more wheels - use the blue form.

(1) Passenger cars (car/pickup truck/van)
(2) Bus
(3) Taxi / Paid Limo
(4) School Bus
(5) Commercial vehicle (over 1 ton)
  BLUE FORM
   1. Single Unit 2-axle (6 wheels)
   2. Single Unit 3-axle (10 wheels)
   3. Single Unit 4-axle (14 wheels)
   4. Semi (all Tractor-Trailer Combinations)
   5. Other
(6) Motorcycle
(7) Recreational Vehicle
(8) Other (specify in block)

Passenger cars include sedans, coupes, and station wagons, including those pulling recreational or light duty trailers, small pickups, panel vans, 1/2 ton pickups, mini-vans, utility vehicles such as Ford Explorer, etc. Also included are large trucks, suburbs, full size vans, etc. Buses include single unit buses, both private and commercial. Motorcycles include
motorcycles with 2 or 3 wheels. Please see the vehicle classification chart for pictorial reference.

Examples of unconventional vehicles and their appropriate classifications are listed below:

- **Farm equipment**: Other - describe in box
- **Passenger vehicle pulling another vehicle**: Passenger car
- **Passenger truck pulling another vehicle**: Passenger car
- **Tow truck pulling another vehicle**: Count wheels - more than 6 use blue form
- **Flatbed truck carrying a house**: Blue form
- **Delivery truck i.e., florist, grocery**: Count the tires
- **Police car**: Passenger car
- **Emergency vehicle**: i.e., fire, EMS: Count the tires
- **Funeral vehicle**: Passenger car or Taxi/Limo
- **Armored truck**: Heavy-duty truck
- **Jeep (including military)**: Passenger car
- **R.V.**: Interviewers should classify large and small R.V.s in this category.
Interview questions

Sample interview survey forms are included with this procedure manual. Discussed below is the step by step procedure the interviewer should follow when conducting the survey.

You, the interviewer, are to fill in these first three questions BEFORE you begin the interview.

Observations

Q) Time?
A) Record to the nearest minute the time the vehicle stops at your station.

Q) Number of people in vehicle?
A) Record the total number of people including driver and all passengers (including babies and children).

Q) Vehicle type?
A) Choose the vehicle-type option from the list below the question that describes the vehicle you are surveying. Write the number of the option in the appropriate box.

Review the list of unconventional vehicles listed under transportation modes in the preceding Definition section.

Please be informed that there will be two interview forms, the commercial being (BLUE) in color. There will be a commercial type code for the vehicles which are trucks. The differences in the two forms are:

1. Vehicle code, the type of commercial vehicle is further stratified
2. Cargo being hauled. Cargo codes are listed on the commercial vehicle form.
3. Commercial form does not ask for Make or Model but asks for Gross Weight instead
4. Trip purposes are different for the commercial vehicles but are on the interview forms
5. Commercial vehicle interview form does not ask questions 7 through 16 of the regular form

6. Question (7) asks “Did you use any of the following routes? The blocks should be selected and marked.

Questions

Q1a) What year, make, and model is this vehicle?
A1a) Record the year the vehicle was made. Also record the make and model.
Q1b)  Gas or Diesel? Other?
A1b)  Record the type of fuel the vehicle uses.

Q2)  What is the mileage on your vehicle?
A2)  Record the mileage figure that the driver tells you.

Q3)  Where was the last place you got into your vehicle?
A3)  Record the place / address / or nearest intersection in the City (very important)

Q3a)  Is this place outside Nueces and San Patricio counties? (If unsure ask)
A3a)  If YES then go to question 3b then stop.
     If NO then go to question 4.

Q3b)  If yes which highway or street was your vehicle on when it entered Nueces or San Patricio county?
A3b)  Write the highway name and # in the space provided.

Q4)  What approximate time did you leave that location?
A4)  Record the time they began their trip.

Q5)  What was the purpose for being at that location?
A5)  Choose and record from the trip purpose options on the interview form.

Q6)  What is the purpose for traveling to your next destination?
A6)  Choose and record from the trip purpose options on the interview form.

Q7)  Do you live in the Nueces or San Patricio County?
A7)  If yes then stop. If no ask Question # 8

Q8)  Did you stay in the two county area overnight?
A8)  Answer yes or no.

The question should then be asked. "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?"

Q9)  Where did your first trip today begin?
A9)  Record the place / address / or nearest intersection / and the city.

Q10)  Where did you go first?
A10) Record the place / address / or nearest intersection / and the city.

**Q11) thru Q15) Where did you go next?**

A11 thru A15) Record the place / address / or nearest intersection / and the city

**Q16) How many more places did you go in Nueces and San Patricio Counties today?**

A16) Record only the number of additional trips.
<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>Illustration</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger Cars</td>
<td>![Passenger Cars]</td>
<td>1</td>
</tr>
<tr>
<td>Panel &amp; Pickup Trucks</td>
<td>![Panel &amp; Pickup Trucks]</td>
<td>2</td>
</tr>
<tr>
<td>Commercial Buses</td>
<td>![Commercial Buses]</td>
<td>3</td>
</tr>
<tr>
<td>Limo &amp; Taxi</td>
<td>![Limo &amp; Taxi]</td>
<td>4</td>
</tr>
<tr>
<td>School Bus</td>
<td>![School Bus]</td>
<td>5-1</td>
</tr>
<tr>
<td>Commercial Vehicle (Over 1 Ton)</td>
<td>![Commercial Vehicle]</td>
<td>5-2</td>
</tr>
<tr>
<td>Single Unit 2-Axle (6 Wheels)</td>
<td>![Single Unit 2-Axle]</td>
<td>5-3</td>
</tr>
<tr>
<td>Single Unit 3-Axle (10 Wheels)</td>
<td>![Single Unit 3-Axle]</td>
<td>5-4</td>
</tr>
<tr>
<td>Single Unit 4-Axle (14 Wheels)</td>
<td>![Single Unit 4-Axle]</td>
<td>5-5</td>
</tr>
<tr>
<td>Semi (All Tractor-Trailer Combinations)</td>
<td>![Semi]</td>
<td>6</td>
</tr>
<tr>
<td>Other Trucks</td>
<td>![Other Trucks]</td>
<td>7</td>
</tr>
<tr>
<td>Motorcycles</td>
<td>![Motorcycles]</td>
<td>8</td>
</tr>
<tr>
<td>Recreation Vehicle</td>
<td>![Recreation Vehicle]</td>
<td>9</td>
</tr>
<tr>
<td>Other Vehicles</td>
<td>![Other Vehicles]</td>
<td>10</td>
</tr>
</tbody>
</table>
Appendix F

Station Summary