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16. Abstract

This research report summarizes the results of a study directed at developing estimates of current and design year traffic that might divert from I-35 between Austin and San Antonio to an alternate route in the corridor. The general location of the alternate route was defined by the Texas State Department of Highways and Public Transportation. The results of an origin-destination survey conducted to identify current travel patterns in the study corridor, and the use of this survey data to estimate the diversion potentials of the alternate route are summarized. A companion report (Vol.II) presents additional summaries and describes the data analysis phases of the study in greater detail. The results of the study indicates that, if the proposed alternate route were in-place today, approximately 7300 vehicles per day would divert to the new facility at its maximum load-point. This estimate of diverted traffic represents approximately 20% of the current ADT on I-35 between Austin and San Antonio. The corresponding design year (year 2006) projections indicate that approximately 11,000 (low estimate) to 18,000 (high estimate) vehicles per day would divert to the alternate route.

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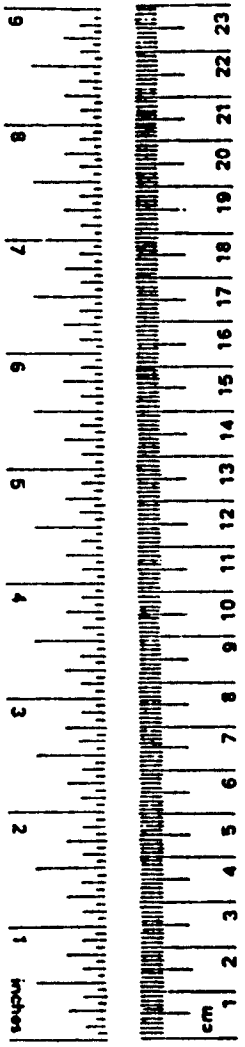
METRIC CONVERSION FACTORS

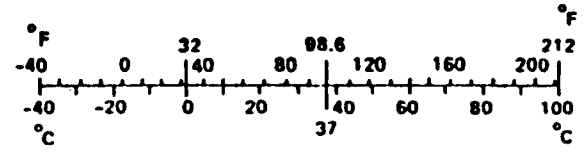
Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
	AREA			
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
	MASS (weight)			
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
	VOLUME			
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
	TEMPERATURE (exact)			
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
	LENGTH			
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
	AREA			
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
	MASS (weight)			
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
	VOLUME			
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
	TEMPERATURE (exact)			
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price $2.25, SD Catalog No. C13.10:286.

AUSTIN/SAN ANTONIO ORIGIN-DESTINATION STUDY
VOLUME I: SUMMARY REPORT

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Research Report 1186-2 (I)
Origin-Destination Study Concepts: Austin/San Antonio
Research Study No. 2-10-87-1186

Sponsored by

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Texas Transportation Institute
The Texas A&M University System
College Station, Texas 77843

April 1988

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ABSTRACT

This research report summarizes the results of a study directed at developing estimates of current and design year traffic that might divert from existing highways in the I-35 corridor between Austin and San Antonio to an alternate route in the corridor. The general location of the alternate route was defined by the Texas State Department of Highways and Public Transportation. The results of an origin-destination survey conducted to identify current travel patterns in the study corridor, and the use of this survey data to estimate the diversion potentials of the alternate route are summarized. A companion report (Vol. II) presents additional summaries and describes the data analysis phases of the study in greater detail. The results of the study suggest that, if the Austin to San Antonio portion of the alternate route was in-place today, diverted traffic volumes at the facility's maximum load-point would be on the order of 7,500 vehicles per day (vpd). The corresponding year 2006 projections suggest diverted traffic volumes that range from a low of approximately 11,000 vpd to a high of 19,000 vpd. For the alternate route configuration which incorporates the proposed SH 130 (Mo-Kan), the analyses suggest that, if the Georgetown to San Antonio portion of the alternate route was in-place today, diverted traffic volumes at the facility's maximum load-point would be on the order of 9,300 vpd. The corresponding year 2006 projections suggest diverted traffic volumes that range from a low of 13,500 vpd to a high of 23,500 vpd.

Key Words: Intercity Route/Corridor Study, Origin-Destination Surveys, Traffic Diversion, Truck Traffic.

IMPLEMENTATION STATEMENT

The goal of Research Study 2-10-87-1186 is to assist the Texas State Department of Highways and Public Transportation (SDHPT) in estimating current and design year traffic that might divert from existing highways in the I-35 corridor between Austin and San Antonio to an alternate route in the corridor. The general location of the alternate route analyzed was defined by SDHPT. The results of this research should be useful to transportation planners in conducting a feasibility study for an alternate route between Austin and San Antonio. Additionally, the research procedures developed should be useful in similar studies which may be conducted in the future.

DISCLAIMER

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

SUMMARY OF KEY FINDINGS

- The Austin, San Antonio, and San Marcos/New Braunfels areas account for roughly equal shares of the daytime origins and destinations (O-Ds) of all vehicle types traveling in the corridor. Collectively, these three areas account for over 75% of the daytime origins and destinations of all vehicle types.

- The daytime commercial vehicle travel patterns, when compared with those of passenger vehicles, show a much lower percentage of O-Ds in the San Marcos/New Braunfels areas, and a much higher percentage of O-Ds to the North of Austin. These travel patterns indicate that much of the commercial vehicle travel in the corridor can be characterized as "through-traffic".

- The analyses of nighttime truck travel patterns on I-35 show that origins and destinations north of Austin each account for over 40% of all origins and destinations. Origins and destinations in San Antonio account for the next highest share, representing roughly 25%-30% of the estimated origins and destinations. Truck trip origins and destinations in the New Braunfels/San Marcos and Seguin areas account for only 4%-5% of all origins and destinations. These general patterns indicate that nighttime truck travel in the I-35 corridor between Austin and San Antonio is predominantly through-traffic. Similar patterns were observed in the daytime commercial vehicle trip interchanges.

- The analysis suggest that, if the Austin to San Antonio portion of the alternate route was in-place today, diverted traffic volumes at the facility's maximum load-point would be on the order of 7,500 vehicles per day (vpd). The corresponding year 2006 projections suggest diverted traffic volumes that range from a low of approximately 11,000 vpd to a high of 19,000 vpd.

- For the alternate route configuration which incorporates the proposed SH 130 (Mo-Kan), the analyses suggest that, if the

Georgetown to San Antonio portion of the alternate route was in-place today, diverted traffic volumes at the facility's maximum load-point would be on the order of 9,300 vpd. The corresponding year 2006 projections suggest diverted traffic volumes that range from a low of 13,500 vpd to a high of 23,500 vpd.

- The analyses also indicate that for the alternate route configuration with SH 130, the maximum load-point would be farther north than for the configuration without SH 130. Specifically, the maximum load-point would shift from the segment between SH 80 and I-10 to the segment between SH 71 and SH 21. This shift can be attributed to the fact that, with SH 130, travel times between the San Marcos/New Braunfels areas and areas to the north/northeast of Austin could be reduced by eliminating the need to travel on I-35 through Austin by accessing the alternate route from I-35 via SH 21.

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1. INTRODUCTION

1.1 BACKGROUND

As a result of current and projected growth in the I-35 corridor between Austin and San Antonio (Figure 1), the Texas State Department of Highways and Public Transportation (SDHPT) is undertaking an analysis of alternative corridor improvements. Included in this analysis is a feasibility study for an alternate highway route between Austin and San Antonio. The possibility of an alternate route to the east of I-35, for example, has received considerable attention in recent months. However, other alternatives have not been eliminated from consideration at this time. The general locations of these proposed facilities are shown in Figure 1.

This research report is intended to assist the SDHPT in assessing the need for an alternate route in the Austin-San Antonio corridor. This report summarizes the results of an origin-destination (O-D) survey conducted to identify travel patterns in the corridor. The report also presents a summary of the results of using this survey data to develop estimates of current and design year traffic that might divert from existing highways in the I-35 corridor to an alternate route in the corridor. A companion report (Vol. II) presents additional data summaries and describes the data analysis phases of the study in detail.

1.2 OBJECTIVES

The overall goal of this research effort is to assist the SDHPT in assessing the need for an alternate route between Austin and San Antonio. Specific study objectives were:

1) Conduct a review of O-D survey methods and assess their potential applicability to the Austin-San Antonio corridor in terms of manpower needs, cost, time frame, and statistical reliability.

2) Review available data for the corridor as developed in previous SDHPT and Texas Transportation Institute (TTI) studies.

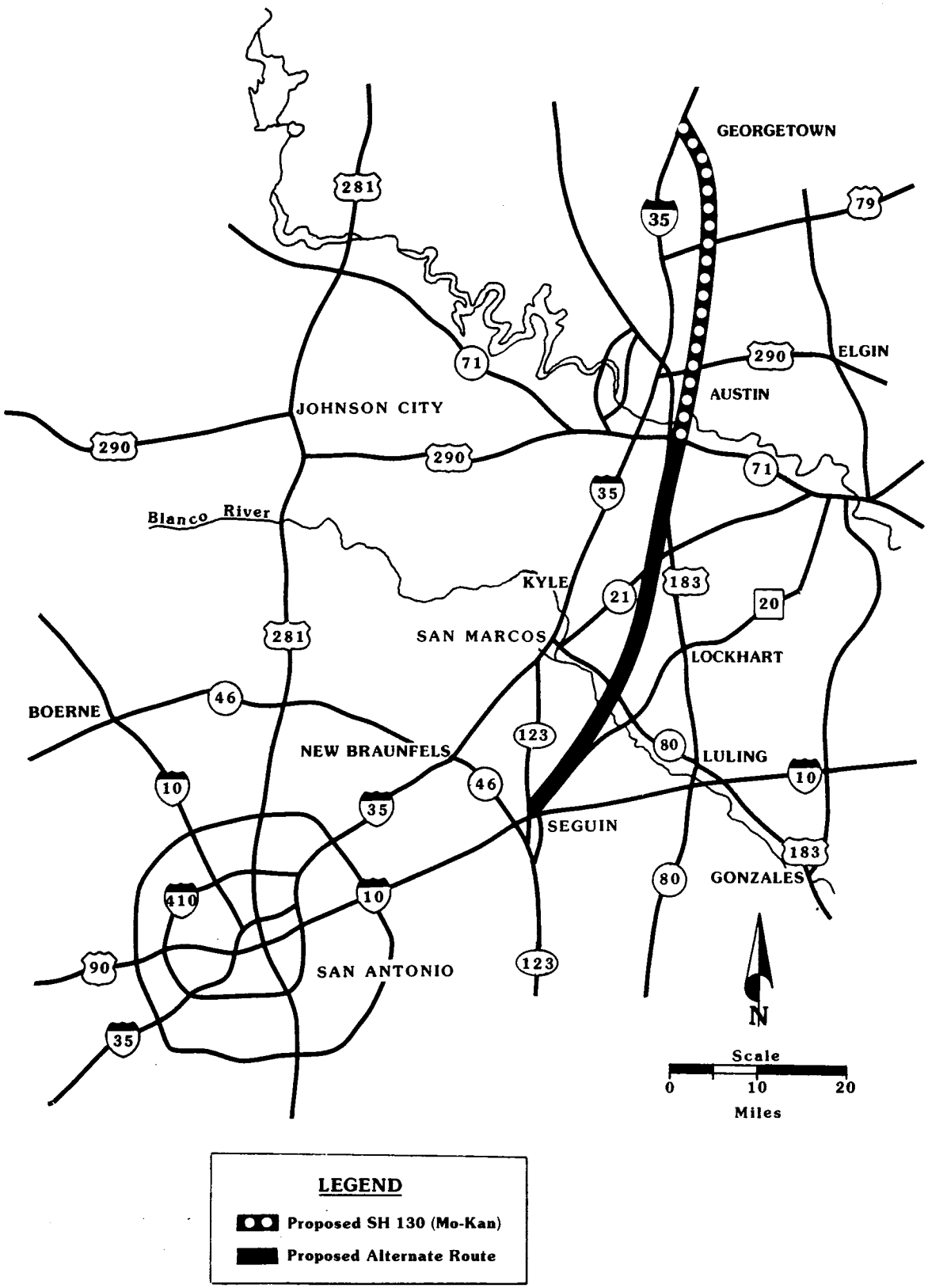

Figure 1. Austin/San Antonio Study Corridor

2) Review available data for the corridor as developed in previous SDHPT and Texas Transportation Institute (TTI) studies.

3) Based on the review of current practice, develop a detailed study plan for the O-D survey to address the following elements:

   a) Identification of an origin-destination survey method, or methods (depending upon the number of roadways to be surveyed, more than one method may be appropriate);

   b) Identification of the number and location of survey sites;

   c) Estimation of sample size requirements for various levels of statistical reliability;

   d) Manpower requirements;

   e) Recommended survey schedule;

   f) A proposed survey instrument; and

   g) Estimated study costs.

4) Conduct the O-D survey.

5) Based on the results of the survey, develop estimates of current and design year traffic which might divert from existing highways in the I-35 corridor to a proposed alternate route in the corridor.

1.3 SCOPE

As indicated earlier, the SDHPT is considering a number of alternative improvements for the Austin-San Antonio corridor. This study, however, is limited to assessing potential traffic volumes which may divert from existing highways in the I-35 corridor to an alternate route located to the east of

I-35 (see Figure 1). The diversion potentials of the alternate route were examined for configurations with and without the proposed SH 130 (Mo-Kan). The general alignments of these proposed 4-lane divided highways were provided by the SDHPT. The analyses use data on current travel patterns in the corridor (i.e., O-D data) to estimate how the route selection process associated with these patterns might change as a result of an alternate route in the corridor. *As a result, the effects of the induced and latent travel demand components of current and future traffic were not explicitly addressed in the analyses.*

2. ORIGIN-DESTINATION SURVEY

2.1 GENERAL

Current and statistically reliable information concerning interurban origin-destination (O-D) travel patterns in the Austin/San Antonio study area was needed to conduct the analysis of alternative corridor improvements. This section of the research report presents the results of an O-D survey that was conducted in the study corridor to identify current travel patterns. The discussion of survey results is preceded by a brief summary of the survey methodology. An in-depth discussion of the study design and the alternative survey methods considered can be found in Volume II of the Research Report.

2.2 STUDY DESIGN

Based on a review of O-D survey methods and TTI's past experiences in conducting O-D surveys, the roadside-distribution postcard survey method was chosen for implementation in the study corridor. This method involves the distribution of postcard questionnaires at selected locations on the travel routes being studied. A sample of the postcard questionnaire used in this study is shown in Figure 2.

To ensure a representative sample of travel patterns in the study corridor, the following survey station locations were identified (Figure 3).

1. I-35 @ FM 1103 (New Braunfels Station);

2. I-35 about 1.0 mile S. of FM 150 (Kyle Station);

3. SH 123 @ FM 758 (Seguin Station);

4. US 183 N. of Lockhart (Lockhart Station);

5. US 281 @ Cibolo Creek (San Antonio Station); and

6. I-35 @ SH 195 (Georgetown Station).

AUSTIN/SAN ANTONIO ORIGIN-DESTINATION STUDY

Dear Motorist:

Your help is needed in a special study being conducted on roadways in the Austin and San Antonio areas to determine which improvements, if any, are the most feasible and most economical to implement.

The study has the objective of providing the traveling public with a safer and more efficient transportation system. However, in order to develop a better transportation system, it is first necessary to gain information on existing travel patterns. The results of this study will have direct application to any improvements considered on roadways near Austin and San Antonio.

Your cooperation and timely return of the completed questionnaire will be appreciated. Information provided by you will be kept confidential. Only a summary of the results will be available for review.

The following questions concern the trip being made at the time you received this questionnaire. If you have received more than one questionnaire, **please complete and return each questionnaire.** Please accept our apology for any inconvenience our survey may have caused you.

Survey Station:
Southbound US 281 Near San Antonio № 99059

1. Type of vehicle?
   Passenger Car ☐ Pickup ☐ Van ☐ Other Truck ☐
2. Purpose of trip today?
   Work ☐ School ☐ Shopping ☐ Recreation ☐ Other ☐
3. Where were you coming from when you received this questionnaire?
   _____
   Street Address (or nearest intersection) City Zip Code
4. Where were you going when you received this questionnaire?
   _____
   Street Address (or nearest intersection) City Zip Code
5. How many people in vehicle (including driver)? _____
6. How many days per week do you make this trip?
   1 ☐ 2 ☐ more than 2 ☐ Other (please specify) _____
7. Any additional information on your trip that you think might be helpful to us would be appreciated. _____
   _____

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11867

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-BACK-

Figure 2. Sample Postcard Questionnaire

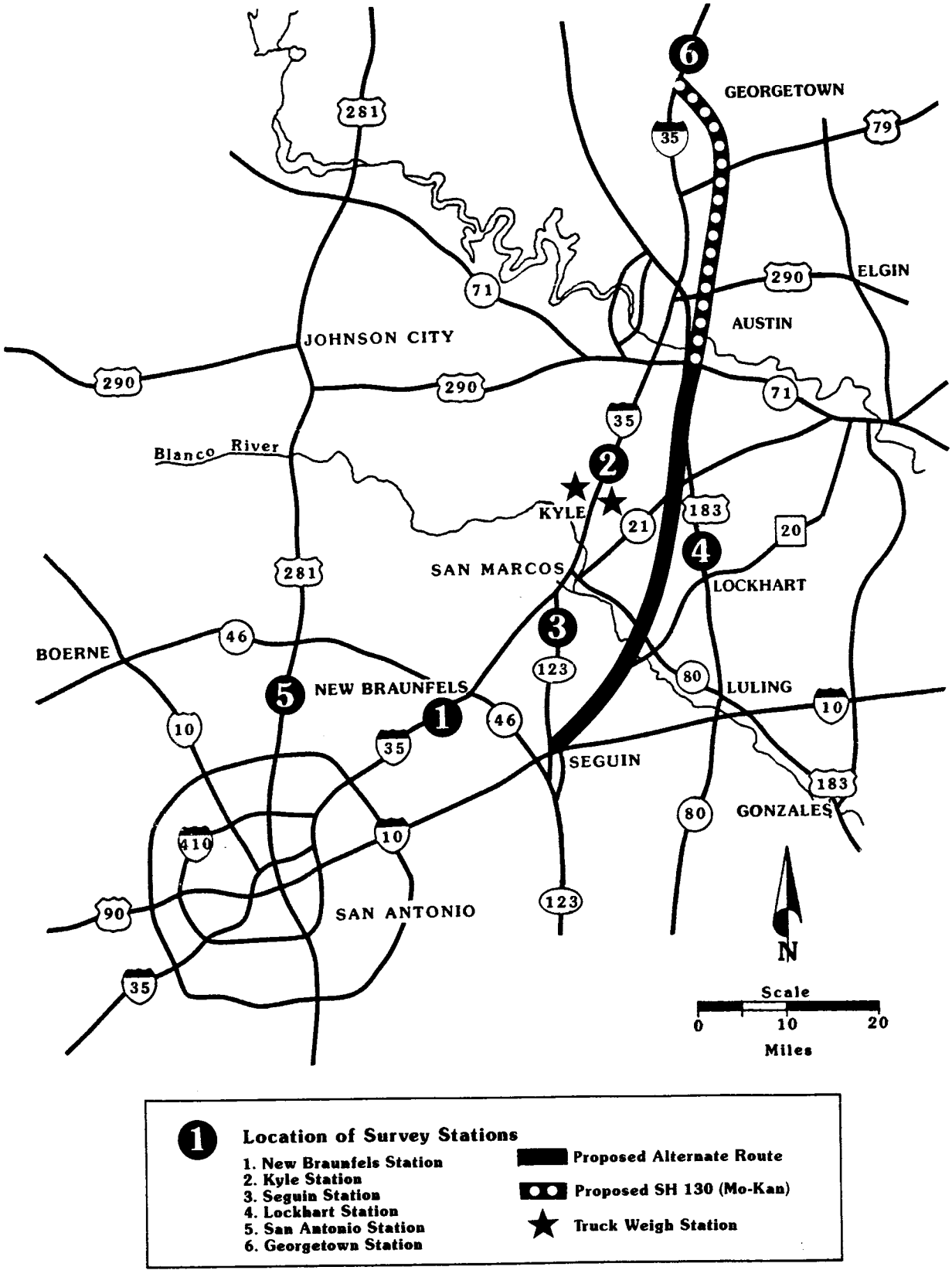


Figure 3. General Locations of Survey Stations

The study design specified that the postcard survey should be restricted to daylight hours and should be conducted during the summer months (June-August) on the "typical" weekdays of Monday-Thursday.

The method used in the study design to estimate sample sizes is based on specifying a minimum O-D trip interchange volume (expressed as a proportion of ADT) to be estimated from the survey with the desired level of accuracy. The recommended sample sizes (numbers of postcards to be distributed) were typically in excess of 60% of the traffic expected to pass through the survey stations.

The study design (1) also presents details concerning the following additional elements of the study.

- Methods of selecting vehicles to be surveyed;
- Procedures for expanding the survey results;
- Procedures for developing independent accuracy checks;
- Pre-survey traffic counts;
- Traffic control plans and survey station set-ups; and
- Pre-survey training procedures.

In addition to the general daytime O-D survey for the corridor, the study design also outlines procedures for conducting a roadside interview of nighttime truck traffic at the two truck check-stations in the corridor (Figure 3). A sample interview form is shown in Figure 4.

2.3 FIELD OPERATIONS

The daytime O-D survey was conducted the week of July 13, 1987 as summarized below.

Day 1 (7/14): New Braunfels and Lockhart Stations
Day 2 (7/15): Kyle and San Antonio Stations
Day 3 (7/16): Seguin and Georgetown Stations

The daytime survey stations were in operation from 6:30 a.m. to 8:30 p.m. In addition to distributing postcards, the survey crews also conducted manual counts of traffic volumes, vehicle classifications, and vehicle occupancies. At the Kyle Station, a nighttime vehicle classification study was conducted. Survey crews also recorded samples of vehicle license plate numbers at each of the survey stations. At the Kyle Station, postcard survey form numbers were recorded along with the license plate numbers of a sample of the vehicles surveyed.

AUSTIN/SAN ANTONIO ORIGIN-DESTINATION SURVEY
COMMERCIAL VEHICLE SURVEY FORM

:00 - :30	8	9	10	11	12	01	02	03	04	05
:30 - :59	8	9	10	11	12	01	02	03	04	05

1. Origin:_____
   Stop in Austin? No ☐ Yes, where:_____
2. Destination: _____
   Stop in San Antonio? No ☐ Yes, where:_____
3. Any intermediate stops? No ☐ Yes, where:_____
4. Trip frequency 1 2 3 4 5 6 7 day/week/month Other:_____

5. Occupants: _____
6. Vehicle Classification: Single Unit ☐ Single Unit With Trailer ☐
   Tractor Only ☐ Tractor With Trailer ☐ Tractor With Double Trailer ☐
   Placarded ☐ Tanker ☐

Location: Southbound I-35 Carrier Name:_____

Figure 4. Sample Truck Traffic Interview Form

As discussed in the Study Design (1), the volume counts provide the basis for expanding the survey results to represent the entire vehicle population for the corridor. The license plate data were collected to check the "representativeness" of the sample data.

The roadside interviews of nighttime truck traffic were conducted on July 13-14, 1987 (6:30 p.m. - 3:00 a.m.) and August 12, 1987 (7:30 p.m. - 10:30 p.m.). This schedule was due to the need to coordinate survey activities with the Department of Public Safety's schedule of truck station operations.

2.4 DATA PROCESSING AND ANALYSIS

To facilitate data analysis, the survey results and the volume/classification and license plate data were coded for computer processing. The data files were checked for coding errors and erroneous questionnaire responses, such as incorrectly reporting origin or destination zip codes, or reporting invalid/non-existent zip codes. Additionally, vehicle registration information obtained from the license data was used to assess the representativeness of the sample data. Specifically, the Kyle Station (the high-volume station) was used as a "control" to perform the following accuracy checks on the survey data. The large sample size, and the results of the accuracy checks, indicate that a representative, reliable sample of travel patterns in the corridor was obtained. These accuracy checks are described in more detail in Volume II of the Research Report.

1) Zip Code Reporting Errors. A zip code atlas and street address information provided by the respondents were used to compare the actual and reported zip codes of origins and destinations for 10% of the responses received from the Kyle Station. Approximately 5% of the responses examined were found to have errors in the zip codes reported for the origins or destinations. However, the errors were predominantly in the last two digits of the zip code. Since the zip code data were aggregated into large zones in the final data tabulations, these reporting errors have little effect on the overall accuracy of the results.

2) Geographic Distribution of Responses. A comparison of the geographic areas (zip codes) of vehicle registrations for respondents and

non-respondents was performed to identify any bias in the survey results due to the over- or under-representation of one or more geographic areas in the responses. This evaluation was performed using data from the Kyle Station, where it was possible to identify respondents and non-respondents from the subset of vehicles whose license plate numbers had been matched with survey postcard numbers. The analyses revealed no significant geographic bias in the survey results.

3) Travel Patterns of Non-Respondents. In an effort to assess whether the travel patterns of the survey respondents represent the travel patterns of all travelers in the corridor, a follow-up survey of non-respondents was conducted. Approximately 100 non-respondents, as identified from the subset of vehicles at the Kyle Station, were interviewed in a telephone survey. While the sample size was too small to draw any definite conclusions, the analyses indicated that there were no substantial differences in the travel patterns of respondents and non-respondents.

Following these accuracy checks, the origin and destination data were tabulated at three levels of detail; by zip code, by traffic analysis zone and by major origins/destinations. Figure 5 shows the traffic analysis zones used in this study. Table 1 shows the traffic analysis zones that were aggregated to form the larger, major O-D zones. The individual zip codes included in the traffic analysis zones are listed in Volume II of the research report.

The results in this summary report are for the traffic analysis zones (Figure 5) and the major O-D pairs. The individual zip code data have been retained for any additional analyses or studies that might require this type of data.

Table 1. Traffic and Major O-D Zone Equivalencies

Major O-D Zone	Corresponding Traffic Zones[a]
San Antonio	S1 - S5
Austin	2,3,5,A1-A5
New Braunfels/San Marcos	4,6,1
Seguin/Lockhart	7,9,11
S. of San Antonio	8,10
N. of Austin	12

[a]See Figure 5.

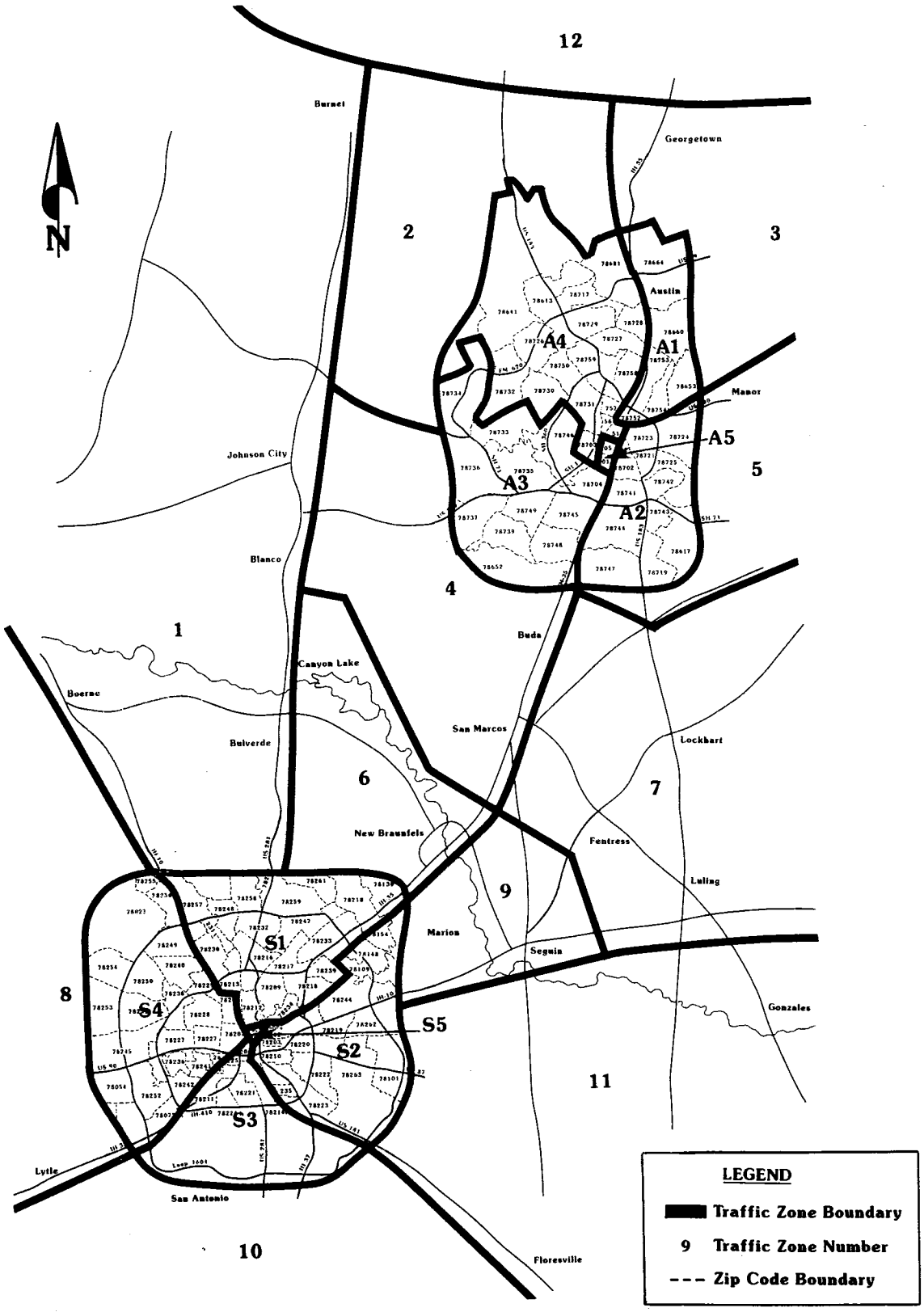


Figure 5. Austin/San Antonio Traffic Analysis Zones

2.5 RESULTS

2.5.1 Overview

Table 2 presents a summary of the daytime O-D sample by survey station. As shown in Table 2, nearly 83,000 survey forms were distributed during the three-day survey period. Over 28,000 (34%) of the postcard questionnaires were returned. This response rate represents over one-fourth of the total traffic observed during the survey period. That is, over one-in-four (29%) of the vehicles observed responded to the survey. The aggregate summary in Table 2 shows that roughly 90% of the vehicles observed were passenger vehicles. Trucks and other commercial vehicles accounted for the remaining 10%.

Tables 3-7 present additional aggregate summaries of the daytime survey responses. As shown in Table 3, vehicles in the passenger auto, pickup, and van classifications accounted for over 90% of the survey responses, a rate comparable to that observed in the population sampled (Table 2). Work trips accounted for nearly 56% of the trips reported; followed by "other" (19%) and recreational (14%) trips (Table 4).

The most commonly reported trip frequency was "more than 2 times per week", accounting for nearly 41% of the responses (Table 5). Interestingly, over one-third (36%) of the respondents reported their trip frequency as "less than once per week" (Table 5). The majority of the responses (61%) were for single-occupant vehicles (Table 6).

Although only about 10% of the respondents provided "Comments", nearly one-half of the comments received referred to the speed limit; e.g., confusion concerning the 65 MPH speed limit and the need for improved signing (Table 7).

Table 8 summarizes the nighttime truck traffic sample. As shown in Table 8, over 20% of the northbound truck traffic was interviewed. Due to the shorter interview period for the southbound traffic, only 6% of these

Table 2. Summary of Austin/San Antonio O-D Sample

SURVEY STATION	TRAFFIC VOLUME (7:00 a.m. - 8:00 p.m.)						SURVEY DISTRIBUTION		SURVEY RESPONSE		
	Passenger Vehicles	Commercial Vehicles				Total Vehicles	Number Distributed	% Traffic Surveyed	Number	Return Rate	% Tot. Veh Responding
		Single Unit	Combination	Tractor Only	Buses						
1. New Braunfels (I-35)											
NB	12322	612	1130	40	25	14129	12009	85%	4152	35%	29%
SB	12335	704	1116	20	18	14193	12484	88	4560	36	32
Total	24657	1316	2246	60	43	28322	24493	86	8712	36	31
2. Kyle (I-35)											
NB	12498	396	939	19	19	13871	12461	90	4128	33	30
SB	12931	566	1025	8	23	14553	12583	86	4119	33	28
Total	25429	962	1964	27	42	28424	25044	88	8247	33	29
3. Seguin (SH 123)											
NB	1933	108	81	3	2	2127	1914	90	698	36	33
SB	2098	116	97	4	1	2316	1919	83	638	33	28
Total	4031	224	178	7	3	4443	3833	86	1336	35	30
4. Lockhart (US 183)											
NB	2014	303	74	5	5	2401	2178	91	778	36	32
SB	2559	99	89	3	3	2753	1898	70	822	43	30
Total	4573	402	163	8	8	5154	4076	79	1600	39	31
5. San Antonio (US 281)											
NB	4485	207	59	1	3	4755	3858	81	1617	42	34
SB	4252	165	71	1	2	4491	3335	74	1481	44	33
Total	8737	372	130	2	5	9246	7193	78	3098	43	34
6. Georgetown (I-35)											
NB	8198	500	956	18	13	9685	9000	93	2510	28	26
SB	8608	430	899	13	19	9969	9000	90	2561	28	26
Total	16806	930	1855	31	32	19654	18000	92	5071	28	26
TOTAL	84,233	4,206	6,536	135	133	95,243	82,639	87	28,064	34	29

Table 3. Summary of Survey Responses by Vehicle Type, All Stations

Vehicle Type	Number	Percent
Passenger Auto	19163	68.3%
Pickup	5190	18.5
Van	1895	6.8
Truck	1777	6.3
Not Reported	39	0.1
Total	28,064	100.0%

Table 4. Summary of Survey Responses by Trip Purpose, All Stations

Trip Purpose	Number	Percent
Work	15668	55.8%
Recreation	3937	14.0
Shopping	1546	5.5
School	1508	5.4
Other	5262	18.8
Not Reported	143	0.5
Total	28,064	100.0%

Table 5. Summary of Survey Responses by Trip Frequency, All Stations

Trip Frequency	Number	Percent
More Than 2/Week	11531	41.1%
2/Week	2114	7.5
1/Week	3529	12.6
Less Than 1/Week	10092	36.0
Not Reported	798	2.8
Total	28,064	100.0%

Table 6. Summary of Survey Responses by Vehicle Occupancy, All Stations

Vehicle Occupancy	Number	Percent
1	17053	60.8%
2	6902	24.6
3	2128	7.6
4	1151	4.1
5 or more	797	2.8
Not Reported	33	0.1
Total	28,064	100.0%

Table 7. Summary of Survey Comments, All Stations

Comment Category	Number	Percent
Speed Limit	1443	49.4%
Need for Added Capacity	614	21.0
Traffic Congestion	217	7.4
Safety	183	6.3
Negative to Survey	155	5.3
Mass Transit	116	4.0
Positive to Survey	110	3.8
Truck Traffic	81	2.8
Total	2,919	100.0%

vehicles were sampled. However, since the roadside interview method was used in the survey, respondents could be questioned in detail to obtain precise O-D information. As a result, the overall accuracy of the sample data should be comparable to the daytime survey results.

Table 8. Summary of Nighttime I-35 Truck O-D Sample

	Traffic Volume[a]		No. Interviewed[b]	
Truck Type	NB	SB	NB	SB
Combination	939 (69%)	1025 (64%)	234 (25%)[d]	78 (8%)
Single Unit	396 (29%)	566 (35%)	10 (3%)	10 (2%)
Tractor Only	19 (2%)	8 (1%)	2 (11%)	1 (13%)
Dual Trailer	-[c]	-	31 (-)	11 (-)
Total	1354 (100%)	1599 (100%)	277 (21%)	100 (6%)

[a]Kyle Station (8:00 p.m. - 7:00 a.m. July 14 - 15, 1987).

[b]NB interviews conducted July 13-14, 6:30 p.m.-3:00 a.m.; SB interviews conducted August 12, 7:30 p.m.-10:30 p.m.

[c]Counted as "combination" in nighttime vehicle classification study.

[d](XX%) denotes percent of nighttime traffic interviewed.

2.5.2 Traffic Characteristics

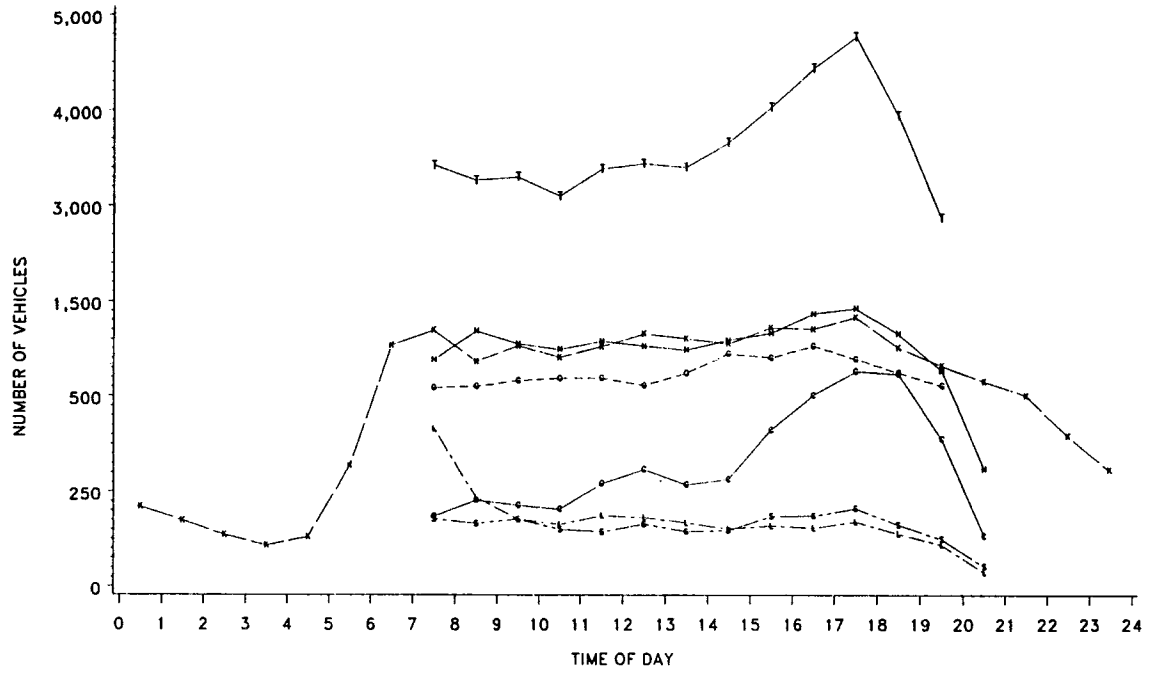
Figure 6 shows plots of observed hourly traffic volumes for each of the survey stations within the corridor. Figure 7 shows plots of observed hourly traffic volumes by vehicle type (passenger and commercial) for the Kyle station (the only station for which 24-hour data are available). Detailed hourly listings of traffic volumes by survey station and vehicle type are given in Appendix A.

The daytime volume plots (Figure 6) show some interesting relationships in the hourly variations in traffic volumes. Traffic volumes at the interstate survey stations were fairly evenly distributed throughout the daylight hours of the survey. Traffic volumes at the US 281 and US 183 sites, on the other hand, exhibit definite peaks in the AM and PM periods. The proximity of these two sites to urban areas (San Antonio and Lockhart, respectively) is probably a contributing factor in the observed peaking.

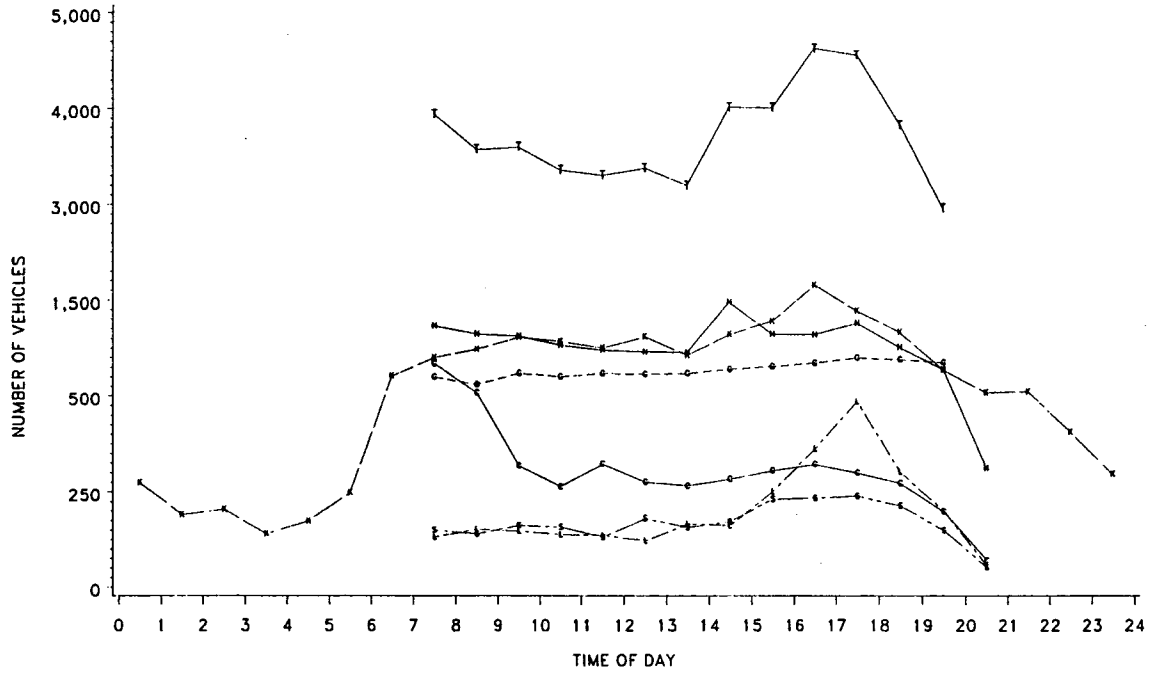
The vehicle classification plots (Figure 7) indicate that the hourly commercial vehicle volumes at the Kyle Station were nearly constant throughout the 24-hour study period. As shown in Figure 7, commercial vehicle volumes were typically on the order of 100 to 125 vehicles per hour (vph) per direction.

2.5.3 Daytime Travel Patterns

Tables 9-11 summarize the estimated 1987 vehicle trip interchanges for the major O-D zones in the corridor. The estimated interchange volumes are given for all vehicles (Table 9), passenger vehicles (Table 10), and commercial vehicles (Table 11). Also shown in the Tables are the cell percentages and the standard errors of the estimates. Details concerning procedures used to expand the sample to represent the entire vehicle population, and other statistical considerations, are presented in Volume II of the research report. With regards to the overall accuracy of Table 9, the 95% confidence interval (1.96 x standard error) is within $\pm$ 1% of the estimate of total vehicle trips (95,243 trips).



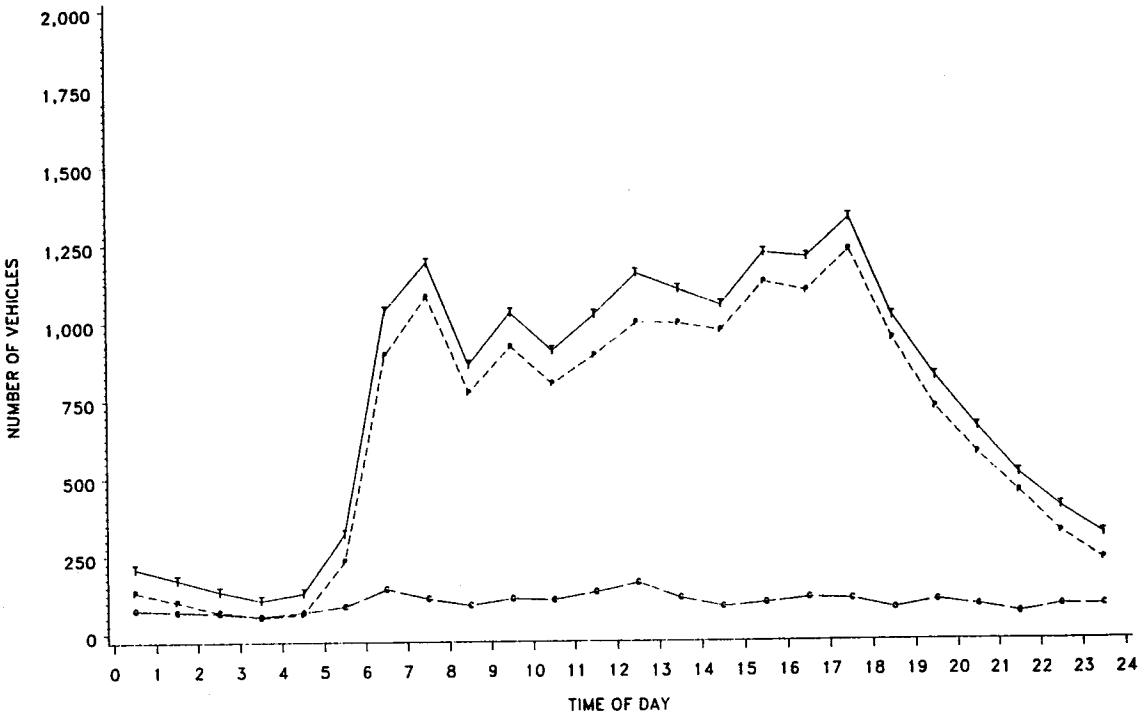
a) Northbound



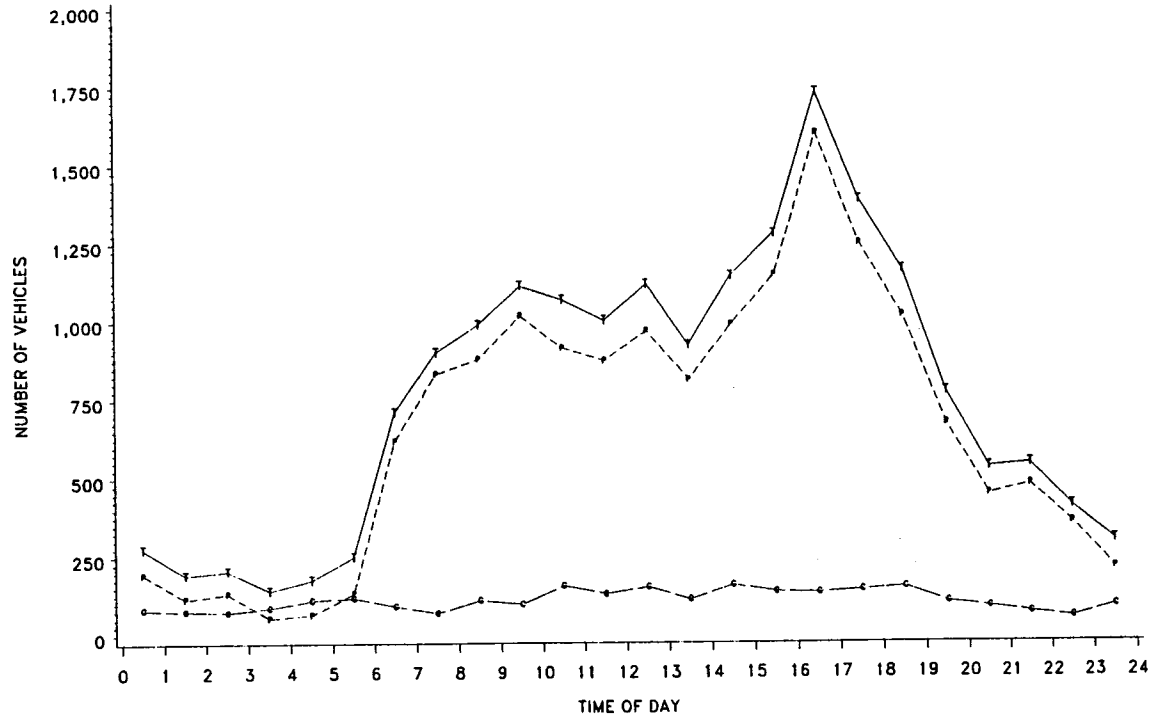
b) Southbound

LEGEND : T = TOTAL CORRIDOR VOLUME
C = US 281 @ CIBOLO CREEK
L = US 183 @ LOCKHART
S = SH 123 @ FM 758
N = IH 35 @ FM 1103
K = IH 35 @ KYLE
G = IH 35 @ GEORGETOWN

Figure 6. Observed Hourly Traffic Volumes, All Stations



a) Northbound



b) Southbound

Figure 7. Observed 24-Hour Traffic Volumes by Vehicle Type, Kyle Station

As shown in Table 9, the Austin, San Antonio, and San Marcos/New Braunfels areas account for over 75% of the origins and destinations in the corridor. The relatively high percentage of O-Ds observed for the San Marcos area (23%) is particularly significant in terms of the need for an alternate route in the corridor. Since nearly one-quarter of the trips in the corridor have origins and destinations on or north of I-35 between Austin and San Antonio, it seems unlikely that a substantial percentage of these trips would find an alternate route east of I-35 particularly attractive.

Tables 10 and 11 show the 1987 survey period vehicle trip interchanges for passenger and commercial vehicles, respectively. The passenger vehicle trip interchanges (Table 10) are virtually identical to those of all vehicle types. The commercial vehicle travel patterns (Table 11), when compared with those of passenger vehicles, show a much lower percentage of O-Ds in the San Marcos/New Braunfels areas, and a much higher percentage of O-Ds to the north of Austin. These travel patterns indicate that much of the commercial vehicle travel in the corridor can be characterized as "through-traffic".

The diagonals of the trip tables represent round-trips in the corridor. Since the survey questionnaire (see Figure 2) requested information concerning origins and destinations on a directional basis (i.e., one-way trip information), the information in the diagonals of the trip tables probably stems from "reporting errors". However, the diagonal elements account for only about 6% of the total vehicle trips (Table 9) and the resulting error is not considered to be substantial. Any bias resulting from the non-zero values in the diagonals would be in the form of slightly over-estimating "long" trips. This possible over-estimation of long trips could slightly increase the attractiveness of an alternate route in the corridor.

Additional summaries of the 1987 trip tables are presented in Appendix B. These summaries present origin-destinations in terms of vehicle-trips by vehicle type for the traffic zones shown in Figure 5.

Table 9. Estimated 1987 Vehicle Trips by Major O-D Zones (7:00 a.m. - 8:00 p.m.): All Vehicles

	DESTINATIONS						
ORIGINS	M1	M2	M3	M4	M5	M6	TOTAL
M1	586 44.9 0.6	8686 152.6 9.1	10768 138.6 11.3	698 48.9 0.7	76 16.4 0.1	3483 107.7 3.7	24297 242.4 25.5
M2	8867 153.6 9.3	2304 90.0 2.4	5611 120.6 5.9	3774 82.8 4.0	767 51.3 0.8	5554 105.9 5.8	26877 258.7 28.2
M3	11448 136.9 12.0	5630 117.9 5.9	2356 88.6 2.5	1362 60.3 1.4	266 30.4 0.3	760 53.0 0.8	21822 218.8 22.9
M4	671 46.0 0.7	3625 80.3 3.8	1426 58.3 1.5	567 43.3 0.6	51 13.4 0.1	939 57.8 1.0	7278 131.8 7.6
M5	81 16.9 0.1	678 48.8 0.7	229 28.9 0.2	25 9.6 0.0	27 10.1 0.0	963 59.5 1.0	2002 85.1 2.1
M6	3881 115.1 4.1	5885 108.7 6.2	956 60.6 1.0	1082 63.6 1.1	974 60.2 1.0	189 27.6 0.2	12967 192.8 13.6
TOTAL	25533 245.0 26.8	26808 256.8 28.1	21346 222.5 22.4	7509 137.5 7.9	2161 87.9 2.3	11887 182.4 12.5	95243 485.1 100.0

Table 10. Estimated 1987 Vehicle Trips by Major O-D Zones (7:00 a.m. - 8:00 p.m.): Passenger Vehicles

	DESTINATIONS						
ORIGINS	M1	M2	M3	M4	M5	M6	TOTAL
M1	518 41.4 0.6	7655 139.4 9.1	9847 127.0 11.7	618 44.8 0.7	62 14.3 0.1	2833 94.1 3.4	21533 219.9 25.6
M2	7793 140.0 9.3	2053 81.9 2.4	5072 111.3 6.0	3456 76.9 4.1	663 46.3 0.8	4832 94.1 5.7	23869 235.8 28.3
M3	10438 125.8 12.4	5159 109.8 6.1	2147 82.5 2.5	1256 56.6 1.5	239 28.3 0.3	631 46.7 0.7	19870 202.2 23.6
M4	614 42.7 0.7	3147 74.2 3.7	1297 54.6 1.5	508 40.6 0.6	43 12.1 0.1	770 50.7 0.9	6379 121.2 7.6
M5	69 15.2 0.1	584 44.2 0.7	187 25.4 0.2	24 9.1 0.0	25 9.6 0.0	760 51.3 0.9	1649 75.1 2.0
M6	3158 101.5 3.7	5181 98.0 6.2	819 54.5 1.0	869 55.7 1.0	753 51.6 0.9	155 24.3 0.2	10935 170.9 13.0
TOTAL	22591 222.4 26.8	23778 235.1 28.2	19369 204.8 23.0	6731 126.3 8.0	1785 77.8 2.1	9980 160.3 11.8	84233 440.8 100.0

MAJOR (M) INTERCHANGE ZONES :
- M1 = SAN ANTONIO
- M2 = AUSTIN
- M3 = NEW BRAUNFELS/SAN MARCOS
- M4 = SEGUIN/LOCKHART
- M5 = SOUTH OF SAN ANTONIO
- M6 = NORTH OF AUSTIN

LEGEND : XXX - VOLUMES
XX.X - STANDARD ERROR
XX.X - CELL PERCENT

NOTE : 95 % CONFIDENCE INTERVAL FOR TRIP INTERCHANGE VOLUMES = VOLUME +/- 1.96 * STANDARD ERROR

Table 11. Estimated 1987 Vehicle Trips by Major O-D Zones (7:00 a.m. - 8:00 p.m.): Commercial Vehicles

	DESTINATIONS						
ORIGINS	M1	M2	M3	M4	M5	M6	TOTAL
M1	84 23.3 0.8	1056 72.1 9.6	828 60.6 7.5	83 23.5 0.8	21 12.0 0.2	826 70.3 7.5	2897 122.7 26.3
M2	1067 72.3 9.7	178 35.8 1.6	448 48.7 4.1	312 36.2 2.8	114 27.7 1.0	562 54.5 5.1	2682 118.0 24.4
M3	841 57.7 7.6	404 46.2 3.7	164 31.5 1.5	89 21.2 0.8	26 11.5 0.2	162 34.1 1.5	1686 90.5 15.3
M4	23 11.6 0.2	456 40.7 4.1	115 20.8 1.0	57 17.5 0.5	12 8.3 0.1	232 41.2 2.1	895 65.5 8.1
M5	15 10.5 0.1	105 25.0 1.0	42 15.0 0.4	0 0.0 0.0	0 0.0 0.0	281 43.0 2.6	443 53.0 4.0
M6	981 74.2 8.9	620 51.2 5.6	153 32.1 1.4	294 42.9 2.7	319 45.2 2.9	42 17.0 0.4	2408 115.4 21.9
TOTAL	3011 121.8 27.3	2818 116.2 25.6	1750 93.4 15.9	836 66.8 7.6	491 56.2 4.5	2104 113.6 19.1	11010 240.0 100.0

MAJOR (M) INTERCHANGE ZONES :
M1 = SAN ANTONIO
M2 = AUSTIN
M3 = NEW BRAUNFELS/SAN MARCOS
M4 = SEGUIN/LOCKHART
M5 = SOUTH OF SAN ANTONIO
M6 = NORTH OF AUSTIN

LEGEND : XXX - VOLUMES
XX.X - STANDARD ERROR
XX.X - CELL PERCENT

NOTE : 95 % CONFIDENCE INTERVAL FOR TRIP INTERCHANGE VOLUMES = VOLUME +/- 1.96 * STANDARD ERROR

2.5.4 Nighttime Truck Travel Patterns

Table 12 summarizes the estimated 1987 trip interchanges for the nighttime truck traffic in the corridor. As shown in Table 12, origins and destinations north of Austin each account for over 40% of all origins and destinations. Origins and destinations in San Antonio account for the next highest share of the origins and destinations, representing roughly 25%-30% of the estimated origins and destinations, respectively.

Trip origins and destinations in the New Braunfels/San Marcos and Seguin areas account for only 4%-5% of all destinations and origins, respectively. The general patterns shown in Table 12 indicate that nighttime truck travel in the I-35 corridor between Austin and San Antonio is predominantly through-traffic.

Table 12. Estimated 1987 Major Trip Interchanges for IH 35 Nighttime Truck Survey (8:00 p.m. - 7:00 a.m.)

	DESTINATIONS						
ORIGINS	T1	T2	T3	T4	T5	T6	TOTAL
T1	- -	63 3.9	- -	- -	3 0.2	372 23.3	437 27.4
T2	120 7.5	- -	17 1.1	- -	20 1.2	10 0.7	167 10.5
T3	- -	5 0.3	- -	- -	- -	47 3.0	52 3.3
T4	- -	8 0.5	- -	- -	- -	18 1.1	26 1.6
T5	- -	13 0.8	- -	- -	- -	199 12.5	212 13.3
T6	393 24.6	- -	26 1.6	26 1.6	248 15.5	8 0.5	700 43.9
TOTAL	513 32.1	89 5.6	43 2.7	26 1.6	270 16.9	655 41.0	1595 -

TRUCK (T) INTERCHANGE ZONES :
- T1 = SAN ANTONIO
- T2 = AUSTIN
- T3 = NEW BRAUNFELS & SAN MARCOS
- T4 = SEGUIN
- T5 = SOUTH OF SAN ANTONIO
- T6 = NORTH OF AUSTIN

LEGEND :
- XXX - VOLUME
- XX.X - CELL PERCENT

3. ALTERNATE ROUTE ANALYSIS

3.1 GENERAL

This section of the report summarizes the results of analyses performed to estimate current and design year (year 2006) traffic that might divert from existing highways in the I-35 corridor to the proposed 4-lane divided highway in the corridor. The diversion analyses were performed for alternate route configurations with and without the proposed SH 130 (Mo-Kan). The traffic diversion and traffic forecasting procedures, as well as the results of the analyses, are presented in summary format. The details of the analyses are presented in Volume II of the research report.

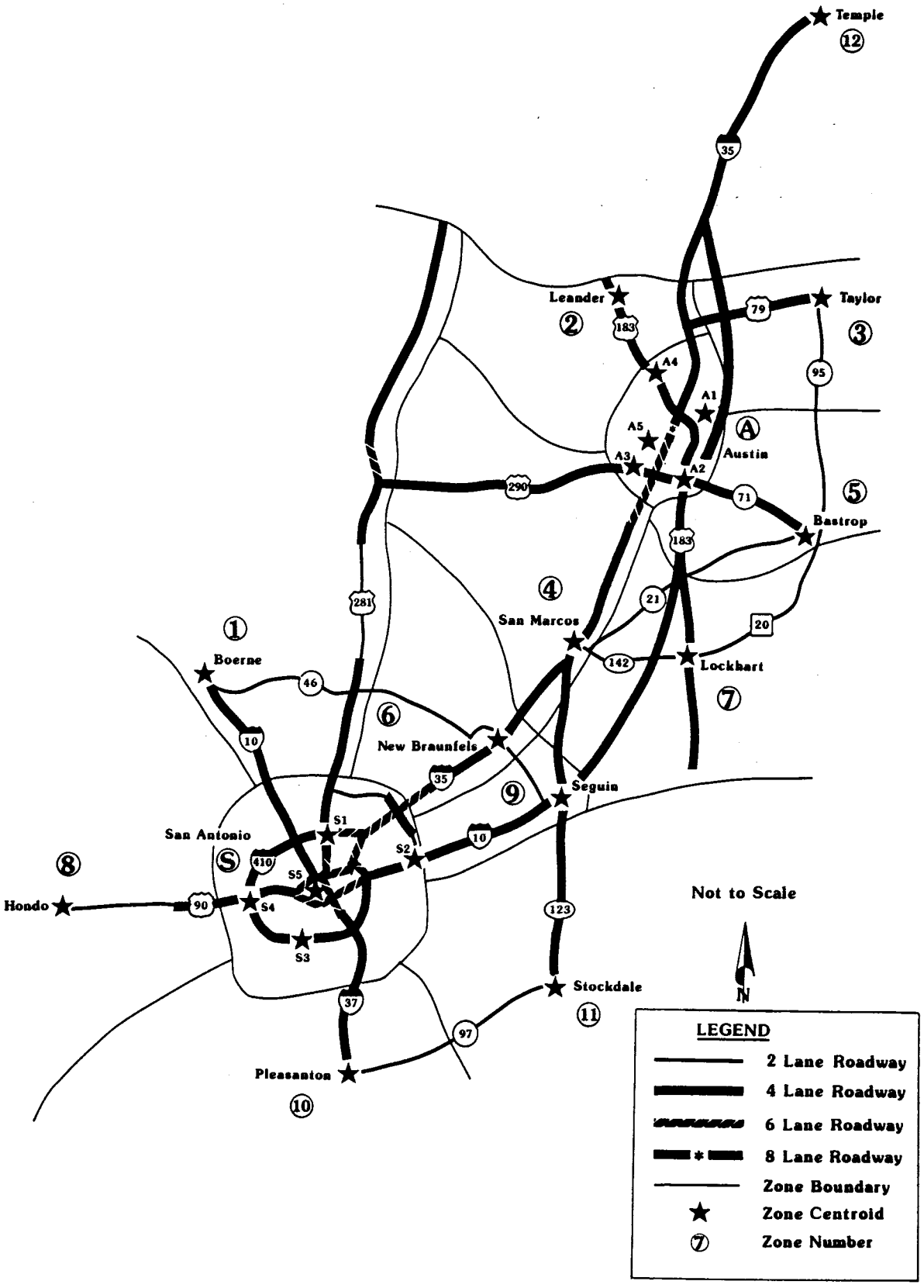
3.2 STUDY METHOD

3.2.1 Traffic Diversion

The procedures used to estimate traffic diversion to the proposed alternate route (see Figure 1) are based on zone-to-zone travel times for basic highway networks with and without the proposed alternate route. The traffic zones used in the analyses are shown in Figure 5. The base year vehicle trip table used in the analyses is presented in Appendix B. Appendix C lists the key assumptions used in the analyses and presents a description of the highway network used in the diversion analyses. Volume II of the research report presents an in-depth description of the diversion methodology and its application.

The base year (1987) zone-to-zone travel paths of the origin-destination data were determined using a simplified highway network (Figure 8) for the study area and the travel time between traffic zones. The travel time between zones was determined based upon the average travel speed on the travel paths between the zones. The travel path between zones was selected as the path with the minimum travel time.

After travel times were determined for the existing network, the alternate route was inserted into the network. Once the alternate route was



Note: See Table C-1 (Appendix C) for network description

Figure 8. "Simplified" Highway Network Used in Traffic Diversion Analysis

installed in the base year network, all traffic between zones was diverted to the alternate route. The travel time between zones was then determined with the alternate route in the network. The travel time between zones using the alternate route was then compared to that without the alternate route. If there was a reduction in travel time, the traffic with a shorter travel time was diverted to the appropriate segment(s) of the alternate route. The sums of zone-to-zone travel on the individual segments of the alternate route were then determined to obtain the total number of vehicles on the alternate route. This procedure was followed for alternate route configurations with and without the proposed SH 130 (Mo-Kan).

The diversion methodology was validated by comparing observed survey period traffic volumes with those estimated from the methodology using the 1987 vehicle trip table and the simplified highway network. The diversion methodology over-estimated traffic volumes on I-35 and US 183 by about 10% for each facility. Given the scaled-down highway network used, this over-estimation is as expected. Since the methodology over-estimated volumes on I-35 and US 183 by nearly identical percentages, the procedure was considered to be sufficiently accurate for use in the analyses.

Forecasts of corridor traffic, as provided by SDHPT, were used to project the base year alternate route traffic assignments to the year 2006. These traffic data, and justification for their use, are summarized in the following section of the report.

3.2.2 Traffic Forecasts

Table 13 summarizes historical and projected traffic volumes in the vicinity of the six O-D survey stations. The projected volumes are given in terms of low, medium, and high growth rates, as developed by SDHPT from regression analyses of the historical data. The historical data indicate that, with the exception of US 281, traffic on all types of roadways in the corridor has grown at a compound annual rate of 4%-6%. If the high-growth years of 1985-86 are removed from consideration, the U.S. 281 growth rate of 8% per year becomes more consistent with the other roadways in the corridor, with a compound annual growth rate of 5.2% for the period 1977-84.

Table 13. Historical and Projected Traffic Volumes, Austin/San Antonio Study Corridor

Year	Average Annual Daily Traffic (AADT)						Totals		
	Station 1 (IH-35)	Station 2 (IH-35)	Station 3 (SH-123)	Station 4 (US-183)	Station 5 (US-281)	Station 6 (IH-35)	IH	Non-IH	All Stations
1977	24,500	22,700	5,100	4,700	5,700	17,100	64,300	15,500	79,800
1978	25,600	24,800	5,500	4,900	6,500	17,700	68,100	16,900	85,000
1979	25,800	24,100	5,400	4,900	5,900	18,300	68,200	16,200	84,400
1980	24,000	23,000	5,900	4,400	5,300	17,600	64,600	15,600	80,200
1981	24,000	20,000	5,200	4,100	5,400	17,500	61,500	14,700	76,200
1982	25,000	27,000	5,400	4,600	6,000	19,000	71,000	16,000	87,000
1983	28,000	33,000	5,500	5,000	6,700	21,000	82,000	17,200	99,200
1984	36,000	34,000	5,100	5,600	8,100	24,000	94,000	18,800	112,800
1985	37,000	37,000	7,300	6,500	11,600	27,000	101,000	25,400	126,400
1986	34,000	38,000	7,200	6,800	11,400	28,000	100,000	25,400	125,400
Annual Growth (1977-1986)	3.7%	5.9%	4.0%	4.2%	8.0%	5.6%	5.0%	5.6%	5.2%
1991									
Low	40,600 (3.6%)[a]	44,900 (3.4%)	7,300 (0.3%)	7,100 (0.9%)	12,700 (2.2%)	31,700 (2.5%)	117,200 (3.2%)	27,100 (1.3%)	144,300 (2.9%)
Medium	41,600 (4.1)	46,200 (4.0)	7,500 (0.8)	7,200 (1.2)	13,200 (3.0)	32,400 (3.0)	120,200 (3.8)	27,900 (1.9)	148,100 (3.4)
High	42,500 (4.6)	47,400 (4.5)	7,600 (1.1)	7,400 (1.7)	13,600 (3.6)	33,200 (3.5)	123,100 (4.2)	28,600 (2.4)	151,700 (3.9)
1996									
Low	42,800 (2.3)	48,300 (2.4)	7,400 (0.3)	7,300 (0.7)	13,700 (1.9)	34,000 (2.0)	125,100 (2.3)	28,400 (1.1)	153,500 (2.9)
Medium	48,500 (3.6)	55,500 (3.9)	8,400 (1.6)	8,300 (2.0)	16,300 (3.6)	38,600 (3.3)	142,600 (3.6)	33,000 (2.7)	175,600 (3.4)
High	54,300 (4.8)	62,800 (5.2)	9,300 (2.6)	9,300 (3.2)	18,900 (5.2)	43,200 (4.4)	160,300 (4.8)	37,500 (4.0)	197,800 (4.7)
2001									
Low	44,900 (1.9)	51,600 (2.1)	7,600 (0.4)	7,600 (0.7)	14,600 (1.7)	36,300 (1.8)	132,800 (1.9)	29,800 (1.1)	162,600 (1.8)
Medium	55,500 (3.3)	64,900 (3.6)	9,300 (1.7)	9,400 (2.2)	19,400 (3.6)	44,800 (3.2)	165,200 (3.4)	38,100 (2.7)	203,300 (3.3)
High	66,000 (4.5)	78,200 (4.9)	10,900 (2.8)	11,200 (3.4)	24,200 (5.2)	53,200 (4.4)	197,400 (4.6)	46,300 (4.1)	243,700 (4.5)
2006									
Low	47,000 (1.6)	55,000 (1.9)	7,700 (0.3)	7,900 (0.8)	15,500 (1.6)	38,700 (1.6)	140,700 (1.7)	31,100 (1.0)	171,800 (1.6)
Medium	62,400 (3.1)	74,300 (3.4)	10,200 (1.8)	10,500 (2.2)	22,500 (3.5)	50,900 (3.0)	187,600 (3.2)	43,200 (2.7)	230,800 (3.1)
High	77,800 (4.2)	93,600 (4.6)	12,600 (2.8)	13,100 (3.3)	29,600 (4.9)	63,200 (4.2)	234,600 (4.4)	55,300 (4.0)	289,900 (4.3)

Source: Transportation Planning Division SDHPT (October 1987)

[a](X.X%) Denotes compound annual growth rate since 1986.

The projected year 2006 growth rates are also fairly consistent by roadway type. The interstate growth rates, for example, range from a low of about 2% per year to a high of 4%-5% per year. With the exception of U.S. 281, the projections for the non-interstate roadways range from a low of about 1%, to a high of about 3% per year.

The I-35 traffic data in Table 13 were compared with corridor population projections (Table 14) to investigate the relationships between I-35 traffic and corridor population. Regression analyses showed that, for every 1% increase in projected corridor population, traffic (ADT) on I-35 has been projected to increase by 3%-4%. This relationship is statistically significant for the medium and high ranges of projections shown in Tables 13 and 14. The relationship was not statistically significant for the low range of estimates. Similar analyses of historical traffic and population data (see Appendix D) showed this projected relationship to be consistent with observed trends. The results of these analyses, then, indicate that the projections of I-35 traffic (Table 13) are consistent with (and account for) projected population growth in the corridor.

Based on these considerations, compound annual growth rates of 2% (low), 3% (medium), and 5% (high) would appear to be reasonable values for projecting design year traffic volumes on the proposed alternate route. While it is recognized that this approach is somewhat simplistic, the lack of detailed and consistent sociodemographic data at the urban-area level prevented the direct development of more refined (e.g., gravity model) types of analyses.

3.2.3 Level-of-Service Analyses

In order to provide a general point of reference for assessing the reasonableness of the diversion potential of the proposed alternate route, peak-hour levels-of-service analyses were performed for the major roadways in the study corridor. The analyses take into account current and projected traffic volumes and improvements that have been proposed in the corridor. Table 15 summarizes the results of the analyses. The analyses indicate that, if I-35 is upgraded to a 6-lane facility, the level-of-service provided by

Table 14. Historical and Projected County Populations, Austin/San Antonio Study Corridor

County	Population by Year and Source							
	1980	1990				2000		
	Census	Texas Department of Water Resources[a]	Texas Department of Health[a]	National Planning Association[a]	Capital Area Planning Commission[b]	Texas Department of Water Resources	Texas Department of Health	National Planning Association
Williamson	76,500	130,900 (5.5%)[e]	152,600 (7.2%)	109,800 (3.7%)	169,000 (8.3%)	201,600 (5.0%)	310,600 (7.3%)	147,200 (3.3%)
Travis	419,800[c]	583,700 (3.4)	576,600 (3.2)	512,400 (2.0)	640,200 (4.3)	760,900 (3.0)	819,700 (3.4)	614,400 (1.9)
Bastrop	24,700	35,000 (3.6)	36,400 (4.0)	29,800 (1.9)	44,400 (6.0)	47,000 (3.3)	59,100 (4.5)	35,400 (1.8)
Hays	40,600	61,100 (4.2)	48,700 (1.8)	49,600 (2.0)	82,400 (7.3)	90,900 (4.1)	65,200 (2.4)	59,400 (1.9)
Caldwell	23,600	27,900 (1.7)	28,900 (2.1)	25,600 (0.8)	30,600 (2.6)	30,300 (1.3)	38,200 (2.4)	28,300 (0.9)
Comal	36,400	51,900 (3.6)	55,900 (4.4)	46,500 (2.5)	-	66,800 (3.1)	85,200 (4.3)	56,500 (2.2)
Guadalupe	46,700	61,200 (2.7)	66,900 (3.7)	58,200 (2.2)	-	71,100 (2.1)	97,100 (3.7)	69,600 (2.0)
Bexar	988,800[d]	1,222,200 (2.1)	1,226,200 (2.2)	1,138,500 (1.4)	-	1,484,200 (2.1)	1,570,300 (2.3)	1,288,100 (1.3)
Total	1,657,100	2,173,900 (2.8)	2,192,200 (2.8)	1,970,400 (1.8)	-	2,752,800 (2.6)	3,045,400 (3.1)	2,298,900 (1.7)

[a] Source: Ref. (2).
[b] Source: Ref. (3).
[c] Austin population = 345,500
[d] San Antonio population = 785,000
[e] (X.X%) denotes compound annual growth rate since 1980.

Table 15. Current and Projected Levels-of-Service, Austin/San Antonio Study Corridor

Roadway	Cross-Section		Directional Peak-Hour Volume[b] (VPH)				Peak-Hour Speed (MPH)				Peak-Hour Level-of-Service						
				2006[c]				2006				2006					
												w/6 Lanes			w/4 Lanes		
	1986	2006[a]	1986	Low	Medium	High	1986	Low	Medium	High	1986	Low	Medium	High	Low	Medium	High
I-35 (New Braunfels)	4 Lanes Divided	6 Lanes Divided	1190	1650	2180	2720	56	56	54	52	A	A	B	B	B	C	D
I-35 (Kyle)	4 Lanes Divided	6 Lanes Divided	1330	1925	2600	3275	55	55	53	50	B	B	B	C	C	D	E
SH 123 (Seguin)	4 Lanes Undivided	4 Lanes Undivided	250	270	360	440	59	59	59	58	A	--	--	--	A	A	A
US 183 (Lockhart)	4 Lanes Undivided	4 Lanes Undivided	240	280	370	460	59	59	59	58	A	--	--	--	A	A	A
US 281 (San Antonio)	4 Lanes Divided	4 Lanes Divided	400	540	790	1035	59	58	57	56	A	--	--	--	A	A	A
I-35 (Georgetown)	4 Lanes Divided	6 Lanes Divided	980	1360	1780	2210	56	57	56	54	A	A	A	B	B	B	C

[a]Source: SDHPT Project Development Plans.
[b]Assumes directional peak-hour = 3.5% of AADT.
[c]Source: Table 13.

the interstate 20-years from now will not be substantially lower than current levels-of-service.

Also shown in Table 15 is the projected year 2006 level-of-service with the 1986 (4 lane) cross section. The analyses indicate substantial reductions in levels-of-service (typically "C" or worse) for those segments of I-35 between Austin and San Antonio if the current cross section is maintained.

3.3 RESULTS

3.3.1 Summary

Table 16 summarizes the estimates of 1987 and year 2006 24-hour diverted traffic volumes for the proposed alternate route. The estimates of 24-hour diverted traffic were developed by assuming that traffic during the survey period (7:00 a.m. - 8:00 p.m.) constitutes 70% of the daily traffic (Table 17). The estimates are presented for alternate route configurations with and without the proposed Mo-Kan by-pass.

The analyses suggest that, if the Austin to San Antonio portion of the alternate route was in-place today, diverted traffic volumes at the facility's maximum load-point would be on the order of 7,500 vehicles per day (vpd). The corresponding year 2006 projections suggest diverted traffic volumes that range from a low of approximately 11,000 vpd to a high of 19,000 vpd (Figure 9).

For the alternate route configuration which incorporates the proposed SH 130 (Mo-Kan), the analyses suggest that, if the Georgetown to San Antonio portion of the alternate route was in-place today, diverted traffic volumes at the facility's maximum load-point would be on the order of 9,300 vpd. The corresponding year 2006 projections suggest diverted traffic volumes that range from a low of 13,500 vpd to a high of 23,500 vpd.

The analyses also indicate that for the alternate route configuration with SH 130, the maximum load-point would be farther north than for the configuration without SH 130. Specifically, the maximum load-point would shift from the segment between SH 80 and I-10 to the segment between SH 71 and SH 21. This shift can be attributed to the fact that, with SH 130, travel times between the San Marcos/New Braunfels areas and areas to the north/northeast of Austin could be reduced by eliminating the need to travel on I-35 through Austin by accessing the alternate route from I-35 via SH 21.

Table 16. Estimated 1987 and Year 2006 Alternate Route Diverted Traffic

Segment[a]	24-Hour Diverted Traffic[b]			
		2006[c]		
	1987	Low	Medium	High
SH 130 (Mo-Kan)				
1. I-35 to US 79	5,800[d]/-[e]	8,400[d]/-[e]	10,200/-	14,700/-
2. US 79 to SH 71	7,400/-	10,800/-	13,000/-	18,700/-
Austin/San Antonio				
1. SH 71 to SH 21	9,300/6,400	13,500/9,300	16,300/11,200	23,500/16,200
2. SH 21 to SH 80	8,700/6,600	12,700/9,600	15,300/11,600	22,000/16,700
3. SH 80 to I-10	8,900/7,500	13,000/10,900	15,600/13,200	22,500/19,000
4. I-10 to Loop 1604	7,500/6,700	10,900/9,800	13,200/11,700	19,000/16,900

[a]See Figure 9.

[b]24-hour volumes estimated from survey period volumes (7:00 am - 8:00 pm) by assuming survey period volume = 70% of ADT (see Table 17).

[c]Assumes following compound annual growth rates: Low = 2%; Medium = 3%; High = 5%.

[d]24-hour volume with Mo-Kan by-pass.

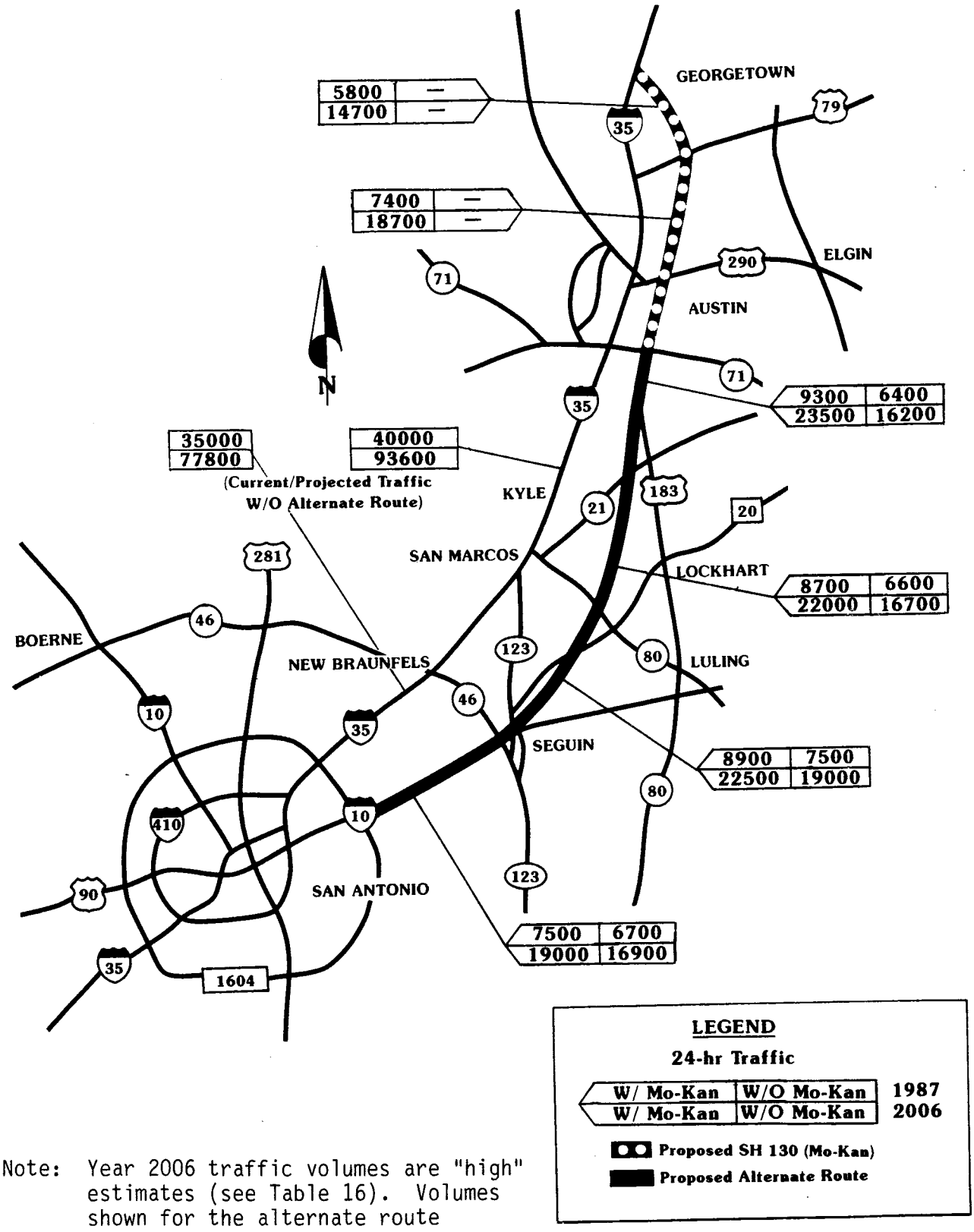
[e]24-hour volume without Mo-Kan by-pass.

3.3.2 Discussion

There are several factors that should be taken into account when assessing the reasonableness of the estimates of alternate route traffic shown in Table 16. The results of the analyses suggest that the estimates of traffic diverted to the alternate route may be somewhat liberal. In fact,

Table 17. Survey Period Traffic Volumes as Percent of 24-Hour Volumes

Survey Station and Direction	24-Hour Traffic Volume	Survey Period Traffic Volume (7:00 a.m.-8:00 p.m.)	Percent Daily Traffic in Survey Period
1. New Braunfels (I-35)			
NB	19,456	14,129	73%
SB	19,653	14,193	72
Total	39,109	28,322	72
2. Kyle (I-35)			
NB	21,044	13,871	66
SB	20,899	14,553	70
Total	41,943	28,424	68
3. Seguin (SH 123)			
NB	3,072	2,127	69
SB	3,239	2,316	72
Total	6,311	4,443	70
4. Lockhart (US 183)			
NB	3,530	2,401	68
SB	3,857	2,753	71
Total	7,387	5,154	70
5. San Antonio (US 281)			
NB	5,954	4,755	80
SB	5,980	4,491	75
Total	11,934	9,246	77
6. Georgetown (I-35)			
NB	13,987	9,685	69
SB	13,724	9,969	73
Total	27,711	19,654	71
Total All Stations	134,395	95,243	71



Note: Year 2006 traffic volumes are "high" estimates (see Table 16). Volumes shown for the alternate route represent "diverted" traffic only.

Figure 9. Estimated 1987 and Year 2006 Traffic Volumes

considering the results of the level-of-service analyses and the procedure used to forecast future traffic, the estimates of diverted traffic may have indirectly accounted for some of the effects of the induced and latent demand components of current and future traffic.

The level-of-service analyses (Table 15) indicate that, if proposed I-35 improvements are implemented, the level-of-service on the interstate will not be reduced substantially over the next 20 years. This would suggest that congestion on I-35 will not become a more significant factor in the route selection process. Specifically, the level-of-service analyses suggest that, if I-35 is up-graded to a 6-lane facility, traffic congestion on the interstate in the year 2006 may not be much greater than it is today. As a result, it does not seem likely that travelers would decide not to travel, or to seek a less-congested alternate route, because of congestion on I-35. This suggests that latent (unserved) demand is not likely to make a significant contribution to future traffic demands in the corridor.

The procedure used to forecast future traffic inherently takes into account the development and growth projected for the corridor. That is, the traffic growth rates used in this study were found to take into account, in a simplistic, corridor-level context, growth that has been projected for the corridor. As a result, the estimates of alternate route traffic may include some traffic generated from growth and development that might occur along the alternate route. While quantification of the magnitude of this "induced" demand is beyond the scope of this study, it does seem reasonable to conclude that the demand estimates developed for the alternate route account for more than diverted demand.

It should also be noted that the trip tables used to estimate traffic on the proposed alternate route were developed from samples of "peak season" travel (i.e., summer travel). Traffic volumes during other times of the year are likely to be lower than those presented in this report.

A final point that should be kept in mind is that the diversion methodology assumes that drivers who would realize any time savings by using the proposed alternate route would divert to the alternate route. Traffic

diversion studies which have been conducted in urban areas suggest that there may exist some minimum (threshold) travel time savings below which drivers are indifferent when choosing among the alternative routes available to them. This is, drivers may need to perceive that they would save at least a specified, minimum amount of time (or percent of their total travel time) before they would consider switching (diverting) to another route. Probabilistic traffic assignment procedures, for example, attempt to account for this by allowing for more than one "minimum" path in the highway network. The point is that some drivers may not perceive the travel time savings offered by the proposed alternate route to be sufficient to justify diverting to the alternate route.

REFERENCES

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3. Baulch, C. Growth Trends Report No. 4. Capital Area Planning Commission, Austin (April 1987).

APPENDIX A

OBSERVED HOURLY TRAFFIC VOLUMES BY VEHICLE TYPE

TABLE A-1. OBSERVED HOURLY TRAFFIC VOLUMES

FACILITY : IH 35
LOCATION : SOUTH OF NEW BRAUNFELS
DIRECTION : NORTHBOUND
DATE : JULY 14, 1987

TIME OF DAY	PASSENGER VEHICLES	PASSENGER PERSONS	COMMERCIAL VEHICLES: SINGLE UNIT VEHICLES	SINGLE UNIT PERSONS	COMBINATIONS VEHICLES	COMBINATIONS PERSONS	TRACTOR ONLY VEHICLES	TRACTOR ONLY PERSONS	BUSES VEHICLES	BUSES PERSONS	TOTAL VEHICLES	TOTAL PERSONS
7:00 - 8:00	735	995	50	83	94	94	-	-	-	-	879	1172
	83.62	84.90	5.69	7.08	10.69	8.02	-	-	-	-		
	5.20	4.54	0.35	0.38	0.67	0.43	-	-	-	-		
8:00 - 9:00	1029	1312	83	113	66	67	2	2	2	2	1182	1496
	87.06	87.70	7.02	7.55	5.58	4.48	0.17	0.13	0.17	0.13		
	7.28	5.99	0.59	0.52	0.47	0.31	0.01	0.01	0.01	0.01		
9:00 - 10:00	900	1322	40	47	101	108	4	4	2	50	1047	1531
	85.96	86.35	3.82	3.07	9.65	7.05	0.38	0.26	0.19	3.27		
	6.37	6.03	0.28	0.21	0.71	0.49	0.03	0.02	0.01	0.23		
10:00 - 11:00	823	1383	35	40	125	125	4	5	3	110	990	1663
	83.13	83.16	3.54	2.41	12.63	7.52	0.40	0.30	0.30	6.61		
	5.82	6.31	0.25	0.18	0.88	0.57	0.03	0.02	0.02	0.50		
11:00 - 12:00	869	1615	84	103	114	114	5	5	2	11	1074	1848
	80.91	87.39	7.82	5.57	10.61	6.17	0.47	0.27	0.19	0.60		
	6.15	7.37	0.59	0.47	0.81	0.52	0.04	0.02	0.01	0.05		
12:00 - 13:00	883	1455	44	50	92	94	3	3	-	-	1022	1602
	86.40	90.82	4.31	3.12	9.00	5.87	0.29	0.19	-	-		
	6.25	6.64	0.31	0.23	0.65	0.43	0.02	0.01	-	-		
13:00 - 14:00	875	1536	22	26	81	83	3	3	1	10	982	1658
	89.10	92.64	2.24	1.57	8.25	5.01	0.31	0.18	0.10	0.60		
	6.19	7.01	0.16	0.12	0.57	0.38	0.02	0.01	0.01	0.05		
14:00 - 15:00	940	1620	31	34	108	114	4	4	3	31	1086	1803
	86.56	89.85	2.85	1.89	9.94	6.32	0.37	0.22	0.28	1.72		
	6.65	7.39	0.22	0.16	0.76	0.52	0.03	0.02	0.02	0.14		
15:00 - 16:00	1000	1668	50	59	97	102	6	7	7	44	1160	1880
	86.21	88.72	4.31	3.14	8.36	5.43	0.52	0.37	0.60	2.34		
	7.08	7.61	0.35	0.27	0.69	0.47	0.04	0.03	0.05	0.20		
16:00 - 17:00	1222	1914	73	98	67	68	-	-	1	10	1363	2090
	89.66	91.58	5.36	4.69	4.92	3.25	-	-	0.07	0.48		
	8.65	8.73	0.52	0.45	0.47	0.31	-	-	0.01	0.05		
17:00 - 18:00	1298	1879	69	83	53	59	4	4	1	10	1425	2035
	91.09	92.33	4.84	4.08	3.72	2.90	0.28	0.20	0.07	0.49		
	9.19	8.57	0.49	0.38	0.38	0.27	0.03	0.02	0.01	0.05		
18:00 - 19:00	1062	1743	19	28	68	73	4	4	1	10	1154	1858
	92.03	93.81	1.65	1.51	5.89	3.93	0.35	0.22	0.09	0.54		
	7.52	7.95	0.13	0.13	0.48	0.33	0.03	0.02	0.01	0.05		
19:00 - 20:00	686	1154	12	20	64	73	1	1	2	30	765	1278
	89.67	90.30	1.57	1.56	8.37	5.71	0.13	0.08	0.26	2.35		
	4.86	5.27	0.08	0.09	0.45	0.33	0.01	0.00	0.01	0.14		
TOTAL	12322	19596	612	784	1130	1174	40	42	25	318	14129	21914
	87.21	89.42	4.33	3.58	8.00	5.36	0.28	0.19	0.18	1.45		

NOTE : PASSENGER VEHICLES INCLUDE AUTOS, PICKUPS, VANS AND MOTORCYCLES
BUSES INCLUDE BOTH SCHOOL AND INTERCITY BUSES
SINGLE UNITS INCLUDE COMMERCIAL PICKUPS, PANELS AND SINGLE UNITS

LEGEND : XXX = VOLUME
XX.XX = ROW PERCENT
XX.XX = COLUMN PERCENT

TABLE A-2. OBSERVED HOURLY TRAFFIC VOLUMES

FACILITY : IH 35
LOCATION : SOUTH OF NEW BRAUNFELS
DIRECTION : SOUTHBOUND
DATE : JULY 14, 1987

TIME OF DAY	PASSENGER VEHICLES	PASSENGER VEHICLES	COMMERCIAL VEHICLES								TOTAL	
			SINGLE UNIT		COMBINATIONS		TRACTOR ONLY		BUSES			
	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS
7:00 - 8:00	1101	1371	26	26	95	95	2	2	3	3	1227	1497
	89.73	91.58	2.12	1.74	7.74	6.35	0.16	0.13	0.24	0.20		
	7.76	6.25	0.18	0.12	0.67	0.43	0.01	0.01	0.02	0.01		
8:00 - 9:00	982	1310	81	97	79	80	2	3	-	-	1144	1490
	85.84	87.92	7.08	6.51	6.91	5.37	0.17	0.20	-	-		
	6.92	5.97	0.57	0.44	0.56	0.36	0.01	0.01	-	-		
9:00 - 10:00	901	1349	95	107	121	122	3	3	2	50	1122	1631
	80.30	82.71	8.47	6.56	10.78	7.48	0.27	0.18	0.18	3.07		
	6.35	6.15	0.67	0.49	0.85	0.56	0.02	0.01	0.01	0.23		
10:00 - 11:00	859	1368	62	69	101	103	4	4	3	31	1029	1575
	83.48	86.86	6.03	4.38	9.82	6.54	0.39	0.25	0.29	1.97		
	6.05	6.24	0.44	0.31	0.71	0.47	0.03	0.02	0.02	0.14		
11:00 - 12:00	854	1400	52	64	70	70	2	2	-	-	978	1536
	87.32	91.15	5.32	4.17	7.16	4.56	0.20	0.13	-	-		
	6.02	6.38	0.37	0.29	0.49	0.32	0.01	0.01	-	-		
12:00 - 13:00	849	1419	30	35	79	83	-	-	-	-	958	1537
	88.62	92.32	3.13	2.28	8.25	5.40	-	-	-	-		
	5.98	6.47	0.21	0.16	0.56	0.38	-	-	-	-		
13:00 - 14:00	826	1411	44	46	84	88	-	-	-	-	954	1545
	86.58	91.33	4.61	2.98	8.81	5.70	-	-	-	-		
	5.82	6.43	0.31	0.21	0.59	0.40	-	-	-	-		
14:00 - 15:00	1312	2265	40	44	120	120	-	-	4	100	1476	2529
	88.89	89.56	2.71	1.74	8.13	4.74	-	-	0.27	3.95		
	9.24	10.33	0.28	0.20	0.85	0.55	-	-	0.03	0.46		
15:00 - 16:00	973	1544	72	85	89	89	4	4	-	-	1138	1722
	85.50	89.66	6.33	4.94	7.82	5.17	0.35	0.23	-	-		
	6.86	7.04	0.51	0.39	0.63	0.41	0.03	0.02	-	-		
16:00 - 17:00	1030	1616	36	41	71	73	-	-	-	-	1137	1730
	90.59	93.41	3.17	2.37	6.24	4.22	-	-	-	-		
	7.26	7.37	0.25	0.19	0.50	0.33	-	-	-	-		
17:00 - 18:00	1116	1783	58	67	76	76	1	1	2	70	1253	1997
	89.07	89.28	4.63	3.36	6.07	3.81	0.08	0.05	0.16	3.51		
	7.86	8.13	0.41	0.31	0.54	0.35	0.01	0.00	0.01	0.32		
18:00 - 19:00	860	1523	66	93	76	76	1	1	2	60	1005	1753
	85.57	86.88	6.57	5.31	7.56	4.34	0.10	0.06	0.20	3.42		
	6.06	6.94	0.47	0.42	0.54	0.35	0.01	0.00	0.01	0.27		
19:00 - 20:00	672	1227	42	64	55	58	1	1	2	40	772	1390
	87.05	88.27	5.44	4.60	7.12	4.17	0.13	0.07	0.26	2.88		
	4.73	5.59	0.30	0.29	0.39	0.26	0.01	0.00	0.01	0.18		
TOTAL	12335	19586	704	838	1116	1133	20	21	18	354	14193	21932
	86.91	89.30	4.96	3.82	7.86	5.17	0.14	0.10	0.13	1.61		

NOTE : PASSENGER VEHICLES INCLUDE AUTOS, PICKUPS, VANS AND MOTORCYCLES
BUSES INCLUDE BOTH SCHOOL AND INTERCITY BUSES
SINGLE UNITS INCLUDE COMMERCIAL PICKUPS, PANELS AND SINGLE UNITS

LEGEND : XXX = VOLUME
XX.XX = ROW PERCENT
XX.XX = COLUMN PERCENT

TABLE A-3. OBSERVED HOURLY TRAFFIC VOLUMES

FACILITY : IH 35
LOCATION : SOUTH OF KYLE
DIRECTION : NORTHBOUND
DATE : JULY 15, 1987

TIME OF DAY	PASSENGER VEHICLES	PASSENGER PERSONS	COMMERCIAL VEHICLES: SINGLE UNIT VEHICLES	SINGLE UNIT PERSONS	COMBINATIONS VEHICLES	COMBINATIONS PERSONS	TRACTOR ONLY VEHICLES	TRACTOR ONLY PERSONS	BUSES VEHICLES	BUSES PERSONS	TOTAL VEHICLES	TOTAL PERSONS
7:00 - 8:00	1080	1412	54	58	54	54	1	1	1	1	1190	1526
	90.76	92.53	4.54	3.80	4.54	3.54	0.08	0.07	0.08	0.07		
	7.28	6.24	0.36	0.26	0.36	0.24	0.01	0.00	0.01	0.00		
8:00 - 9:00	772	1125	30	30	53	53	3	3	3	3	861	1214
	89.66	92.67	3.48	2.47	6.16	4.37	0.35	0.25	0.35	0.25		
	5.21	4.97	0.20	0.13	0.36	0.23	0.02	0.01	0.02	0.01		
9:00 - 10:00	918	1365	36	37	72	72	-	-	1	40	1027	1514
	89.39	90.16	3.51	2.44	7.01	4.76	-	-	0.10	2.64		
	6.19	6.03	0.24	0.16	0.49	0.32	-	-	0.01	0.18		
10:00 - 11:00	799	1063	40	51	63	64	-	-	2	11	904	1189
	88.38	89.40	4.42	4.29	6.97	5.38	-	-	0.22	0.93		
	5.39	4.69	0.27	0.23	0.42	0.28	-	-	0.01	0.05		
11:00 - 12:00	889	1325	38	43	90	95	1	2	1	10	1019	1475
	87.24	89.83	3.73	2.92	8.83	6.44	0.10	0.14	0.10	0.68		
	5.99	5.85	0.26	0.19	0.61	0.42	0.01	0.01	0.01	0.04		
12:00 - 13:00	993	1511	61	72	96	96	1	1	1	10	1152	1690
	86.20	89.41	5.30	4.26	8.33	5.68	0.09	0.06	0.09	0.59		
	6.70	6.67	0.41	0.32	0.65	0.42	0.01	0.00	0.01	0.04		
13:00 - 14:00	990	1525	35	35	72	72	1	1	2	80	1100	1713
	90.00	89.03	3.18	2.04	6.55	4.20	0.09	0.06	0.18	4.67		
	6.68	6.73	0.24	0.15	0.49	0.32	0.01	0.00	0.01	0.35		
14:00 - 15:00	967	1583	16	18	65	67	-	-	1	40	1049	1708
	92.18	92.68	1.53	1.05	6.20	3.92	-	-	0.10	2.34		
	6.52	6.99	0.11	0.08	0.44	0.30	-	-	0.01	0.18		
15:00 - 16:00	1121	1728	15	18	77	80	-	-	2	80	1215	1906
	92.26	90.66	1.23	0.94	6.34	4.20	-	-	0.16	4.20		
	7.56	7.63	0.10	0.08	0.52	0.35	-	-	0.01	0.35		
16:00 - 17:00	1092	1842	19	19	87	87	2	2	1	20	1201	1970
	90.92	93.50	1.58	0.96	7.24	4.42	0.17	0.10	0.08	1.02		
	7.36	8.13	0.13	0.08	0.59	0.38	0.01	0.01	0.01	0.09		
17:00 - 18:00	1223	2017	22	22	78	80	3	5	1	10	1327	2134
	92.16	94.52	1.66	1.03	5.88	3.75	0.23	0.23	0.08	0.47		
	8.25	8.91	0.15	0.10	0.53	0.35	0.02	0.02	0.01	0.04		
18:00 - 19:00	937	1622	12	12	58	58	1	1	2	70	1010	1763
	92.77	92.00	1.19	0.68	5.74	3.29	0.10	0.06	0.20	3.97		
	6.32	7.16	0.08	0.05	0.39	0.26	0.01	0.00	0.01	0.31		
19:00 - 20:00	717	1141	18	32	74	80	6	6	1	20	816	1279
	87.87	89.21	2.21	2.50	9.07	6.25	0.74	0.47	0.12	1.56		
	4.83	5.04	0.12	0.14	0.50	0.35	0.04	0.03	0.01	0.09		
SUBTOTAL	12498	19259	396	447	939	958	19	22	19	395	13871	21081
	90.10	91.36	2.85	2.12	6.77	4.54	0.14	0.10	0.14	1.87		

TABLE A-3. OBSERVED HOURLY TRAFFIC VOLUMES (CONT.)

FACILITY : IH 35
LOCATION : SOUTH OF KYLE
DIRECTION : NORTHBOUND
DATE : JULY 15, 1987

TIME OF DAY	PASSENGER VEHICLES		COMMERCIAL VEHICLES								TOTAL	
			SINGLE UNIT		COMBINATIONS		TRACTOR ONLY		BUSES			
	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS
20:00 - 21:00	302		14		29		-		5		350	
	86.29		4.00		8.29		-		1.43			
	2.04		0.09		0.20		-		0.03			
21:00 - 22:00	447		11		47		-		-		505	
	88.51		2.18		9.31		-		-			
	19.58		0.48		2.06		-		-			
22:00 - 23:00	315		12		68		2		-		397	
	79.35		3.02		17.13		0.50		-			
	13.80		0.53		2.98		0.09		-			
23:00 - 24:00	228		11		69		-		1		309	
	73.79		3.56		22.33		-		0.32			
	9.99		0.48		3.02		-		0.04			
0:00 - 1:00	133		9		66		-		1		209	
	63.64		4.31		31.58		-		0.48			
	5.83		0.39		2.89		-		0.04			
1:00 - 2:00	103		4		62		3		1		173	
	59.54		2.31		35.84		1.73		0.58			
	4.51		0.18		2.72		0.13		0.04			
2:00 - 3:00	69		5		56		5		-		135	
	51.11		3.70		41.48		3.70		-			
	3.02		0.22		2.45		0.22		-			
3:00 - 4:00	53		10		43		-		1		107	
	49.53		9.35		40.19		-		0.93			
	2.32		0.44		1.88		-		0.04			
4:00 - 5:00	62		5		59		4		-		130	
	47.69		3.85		45.38		3.08		-			
	2.72		0.22		2.58		0.18		-			
5:00 - 6:00	231		19		64		3		1		318	
	72.64		5.97		20.13		0.94		0.31			
	10.12		0.83		2.80		0.13		0.04			
6:00 - 7:00	526		31		49		2		1		609	
	86.37		5.09		8.05		0.33		0.16			
	3.55		0.21		0.33		0.01		0.01			
TOTAL	14967		38		1551		38		30		17113	
	87.46		3.08		9.06		0.22		0.18			

NOTE : PASSENGER VEHICLES INCLUDE AUTOS, PICKUPS, VANS AND MOTORCYCLES
BUSES INCLUDE BOTH SCHOOL AND INTERCITY BUSES
SINGLE UNITS INCLUDE COMMERCIAL PICKUPS, PANELS AND SINGLE UNITS
VEHICLE OCCUPANCY NOT RECORDED FROM 8 P.M. TO 7 A.M.

LEGEND : XXX = VOLUME
XX.XX = ROW PERCENT
XX.XX = COLUMN PERCENT

TABLE A-4. OBSERVED HOURLY TRAFFIC VOLUMES

FACILITY : IH 35
LOCATION : SOUTH OF KYLE
DIRECTION : SOUTHBOUND
DATE : JULY 15, 1987

TIME OF DAY	PASSENGER VEHICLES	PASSENGER VEHICLES PERSONS	COMMERCIAL VEHICLES: SINGLE UNIT VEHICLES	SINGLE UNIT PERSONS	COMBINATIONS VEHICLES	COMBINATIONS PERSONS	TRACTOR ONLY VEHICLES	TRACTOR ONLY PERSONS	BUSES VEHICLES	BUSES PERSONS	TOTAL VEHICLES	TOTAL PERSONS
7:00 - 8:00	831	1109	18	22	50	52	-	-	-	-	899	1183
	92.44	93.74	2.00	1.86	5.56	4.40	-	-	-	-		
	5.44	4.71	0.12	0.09	0.33	0.22	-	-	-	-		
8:00 - 9:00	878	1201	26	43	82	85	-	-	1	1	987	1330
	88.96	90.30	2.63	3.23	8.31	6.39	-	-	0.10	0.08		
	5.74	5.10	0.17	0.18	0.54	0.36	-	-	0.01	0.00		
9:00 - 10:00	1015	1480	15	18	75	83	2	2	4	120	1111	1703
	91.36	86.91	1.35	1.06	6.75	4.87	0.18	0.12	0.36	7.05		
	6.64	6.28	0.10	0.08	0.49	0.35	0.01	0.01	0.03	0.51		
10:00 - 11:00	913	1600	61	77	92	95	1	1	-	-	1067	1773
	85.57	90.24	5.72	4.34	8.62	5.36	0.09	0.06	-	-		
	5.97	6.79	0.40	0.33	0.60	0.40	0.01	0.00	-	-		
11:00 - 12:00	872	1505	53	65	75	75	-	-	-	-	1000	1645
	87.20	91.49	5.30	3.95	7.50	4.56	-	-	-	-		
	5.71	6.39	0.35	0.28	0.49	0.32	-	-	-	-		
12:00 - 13:00	966	1469	46	46	98	100	-	-	5	72	1115	1687
	86.64	87.08	4.13	2.73	8.79	5.93	-	-	0.45	4.27		
	6.32	6.23	0.30	0.20	0.64	0.42	-	-	0.03	0.31		
13:00 - 14:00	810	1347	21	23	83	85	2	3	4	61	920	1519
	88.04	88.68	2.28	1.51	9.02	5.60	0.22	0.20	0.43	4.02		
	5.30	5.72	0.14	0.10	0.54	0.36	0.01	0.01	0.03	0.26		
14:00 - 15:00	985	1611	46	58	107	109	1	1	1	40	1140	1819
	86.40	88.57	4.04	3.19	9.39	5.99	0.09	0.05	0.09	2.20		
	6.44	6.84	0.30	0.25	0.70	0.46	0.01	0.00	0.01	0.17		
15:00 - 16:00	1142	1848	55	62	79	81	-	-	-	-	1276	1991
	89.50	92.82	4.31	3.11	6.19	4.07	-	-	-	-		
	7.47	7.84	0.36	0.26	0.52	0.34	-	-	-	-		
16:00 - 17:00	1595	2650	58	78	69	69	1	2	3	22	1726	2821
	92.41	93.94	3.36	2.76	4.00	2.45	0.06	0.07	0.17	0.78		
	10.44	11.25	0.38	0.33	0.45	0.29	0.01	0.01	0.02	0.09		
17:00 - 18:00	1244	1905	79	109	59	59	-	-	1	1	1383	2074
	89.95	91.85	5.71	5.26	4.27	2.84	-	-	0.07	0.05		
	8.14	8.08	0.52	0.46	0.39	0.25	-	-	0.01	0.00		
18:00 - 19:00	1012	1590	65	81	81	81	1	1	1	20	1160	1773
	87.24	89.68	5.60	4.57	6.98	4.57	0.09	0.06	0.09	1.13		
	6.62	6.75	0.43	0.34	0.53	0.34	0.01	0.00	0.01	0.08		
19:00 - 20:00	668	1113	23	32	75	75	-	-	3	21	769	1241
	86.87	89.69	2.99	2.58	9.75	6.04	-	-	0.39	1.69		
	4.37	4.72	0.15	0.14	0.49	0.32	-	-	0.02	0.09		
SUBTOTAL	12931	20428	566	714	1025	1049	8	10	23	358	14553	22559
	88.85	90.55	3.89	3.17	7.04	4.65	0.05	0.04	0.16	1.59		

TABLE A-4. OBSERVED HOURLY TRAFFIC VOLUMES (CONT.)

FACILITY : IH 35
LOCATION : SOUTH OF KYLE
DIRECTION : SOUTHBOUND
DATE : JULY 15, 1987

TIME OF DAY	PASSENGER VEHICLES		COMMERCIAL VEHICLES								TOTAL	
			SINGLE UNIT		COMBINATIONS		TRACTOR ONLY		BUSES			
	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS
20:00 - 21:00	203		7		33		1		-		244	
	83.20		2.87		13.52		0.41		-			
	1.33		0.05		0.22		0.01		-			
21:00 - 22:00	474		14		50		2		-		540	
	87.78		2.59		9.26		0.37		-			
	19.17		0.57		2.02		0.08		-			
22:00 - 23:00	354		13		37		1		-		405	
	87.41		3.21		9.14		0.25		-			
	14.32		0.53		1.50		0.04		-			
23:00 - 24:00	208		13		70		4		1		296	
	70.27		4.39		23.65		1.35		0.34			
	8.41		0.53		2.83		0.16		0.04			
0:00 - 1:00	193		8		67		2		4		274	
	70.44		2.92		24.45		0.73		1.46			
	7.81		0.32		2.71		0.08		0.16			
1:00 - 2:00	115		5		68		1		1		190	
	60.53		2.63		35.79		0.53		0.53			
	4.65		0.20		2.75		0.04		0.04			
2:00 - 3:00	132		5		66		-		1		204	
	64.71		2.45		32.35		-		0.49			
	5.34		0.20		2.67		-		0.04			
3:00 - 4:00	53		3		83		-		1		140	
	37.86		2.14		59.29		-		0.71			
	2.14		0.12		3.36		-		0.04			
4:00 - 5:00	64		17		92		1		-		174	
	36.78		9.77		52.87		0.57		-			
	2.59		0.69		3.72		0.04		-			
5:00 - 6:00	132		16		101		-		-		249	
	53.01		6.43		40.56		-		-			
	5.34		0.65		4.09		-		-			
6:00 - 7:00	454		6		26		-		1		487	
	93.22		1.23		5.34		-		0.21			
	2.97		0.04		0.17		-		0.01			
TOTAL	15313		20		1718		20		32		17756	
	86.24		3.79		9.68		0.11		0.18			

NOTE : PASSENGER VEHICLES INCLUDE AUTOS, PICKUPS, VANS AND MOTORCYCLES
BUSES INCLUDE BOTH SCHOOL AND INTERCITY BUSES
SINGLE UNITS INCLUDE COMMERCIAL PICKUPS, PANELS AND SINGLE UNITS
VEHICLE OCCUPANCY NOT RECORDED FROM 8 P.M. TO 7 A.M.

LEGEND : XXX = VOLUME
XX.XX = ROW PERCENT
XX.XX = COLUMN PERCENT

TABLE A-5. OBSERVED HOURLY TRAFFIC VOLUMES

FACILITY : SH 123
LOCATION : BETWEEN SAN MARCOS AND SEGUIN
DIRECTION : NORTHBOUND
DATE : JULY 16, 1987

TIME OF DAY	PASSENGER VEHICLES		COMMERCIAL VEHICLES								TOTAL	
			SINGLE UNIT		COMBINATIONS		TRACTOR ONLY		BUSES			
	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS	VEHICLES	PERSONS
7:00 - 8:00	157	223	8	13	11	15	1	1	-	-	177	252
	88.70	88.49	4.52	5.16	6.21	5.95	0.56	0.40	-	-		
	7.38	6.46	0.38	0.38	0.52	0.43	0.05	0.03	-	-		
8:00 - 9:00	141	178	18	20	6	6	-	-	-	-	165	204
	85.45	87.25	10.91	9.80	3.64	2.94	-	-	-	-		
	6.63	5.15	0.85	0.58	0.28	0.17	-	-	-	-		
9:00 - 10:00	152	203	13	13	11	11	1	1	-	-	177	228
	85.88	89.04	7.34	5.70	6.21	4.82	0.56	0.44	-	-		
	7.15	5.88	0.61	0.38	0.52	0.32	0.05	0.03	-	-		
10:00 - 11:00	130	203	13	13	7	7	-	-	-	-	150	223
	86.67	91.03	8.67	5.83	4.67	3.14	-	-	-	-		
	6.11	5.88	0.61	0.38	0.33	0.20	-	-	-	-		
11:00 - 12:00	129	208	7	9	7	7	-	-	-	-	143	224
	90.21	92.86	4.90	4.02	4.90	3.13	-	-	-	-		
	6.06	6.02	0.33	0.26	0.33	0.20	-	-	-	-		
12:00 - 13:00	150	275	6	6	7	7	-	-	1	20	164	308
	91.46	89.29	3.66	1.95	4.27	2.27	-	-	0.61	6.49		
	7.05	7.96	0.28	0.17	0.33	0.20	-	-	0.05	0.58		
13:00 - 14:00	131	242	8	9	5	5	-	-	-	-	144	256
	90.97	94.53	5.56	3.52	3.47	1.95	-	-	-	-		
	6.16	7.01	0.38	0.26	0.24	0.14	-	-	-	-		
14:00 - 15:00	136	236	4	4	7	7	-	-	-	-	147	247
	92.52	95.55	2.72	1.62	4.76	2.83	-	-	-	-		
	6.39	6.83	0.19	0.12	0.33	0.20	-	-	-	-		
15:00 - 16:00	172	309	7	8	5	5	-	-	-	-	184	322
	93.48	95.96	3.80	2.48	2.72	1.55	-	-	-	-		
	8.09	8.95	0.33	0.23	0.24	0.14	-	-	-	-		
16:00 - 17:00	174	293	8	9	2	3	1	2	-	-	185	307
	94.05	95.44	4.32	2.93	1.08	0.98	0.54	0.65	-	-		
	8.18	8.48	0.38	0.26	0.09	0.09	0.05	0.06	-	-		
17:00 - 18:00	191	314	8	13	6	7	-	-	-	-	205	334
	93.17	94.01	3.90	3.89	2.93	2.10	-	-	-	-		
	8.98	9.09	0.38	0.38	0.28	0.20	-	-	-	-		
18:00 - 19:00	153	280	6	8	2	2	-	-	1	20	162	310
	94.44	90.32	3.70	2.58	1.23	0.65	-	-	0.62	6.45		
	7.19	8.11	0.28	0.23	0.09	0.06	-	-	0.05	0.58		
19:00 - 20:00	117	231	2	2	5	6	-	-	-	-	124	239
	94.35	96.65	1.61	0.84	4.03	2.51	-	-	-	-		
	5.50	6.69	0.09	0.06	0.24	0.17	-	-	-	-		
TOTAL	1933	3195	108	127	81	88	3	4	2	40	2127	3454
	90.88	92.50	5.08	3.68	3.81	2.55	0.14	0.12	0.09	1.16		

NOTE : PASSENGER VEHICLES INCLUDE AUTOS, PICKUPS, VANS AND MOTORCYCLES
BUSES INCLUDE BOTH SCHOOL AND INTERCITY BUSES
SINGLE UNITS INCLUDE COMMERCIAL PICKUPS, PANELS AND SINGLE UNITS

LEGEND : XXX = VOLUME
XX.XX = ROW PERCENT
XX.XX = COLUMN PERCENT

TABLE A-6. OBSERVED HOURLY TRAFFIC VOLUMES

FACILITY : SH 123
LOCATION : BETWEEN SAN MARCOS AND SEGUIN
DIRECTION : SOUTHBOUND
DATE : JULY 16, 1987

TIME OF DAY	PASSENGER VEHICLES	PASSENGER VEHICLES PERSONS	COMMERCIAL VEHICLES: SINGLE UNIT VEHICLES	SINGLE UNIT PERSONS	COMBINATIONS VEHICLES	COMBINATIONS PERSONS	TRACTOR ONLY VEHICLES	TRACTOR ONLY PERSONS	BUSES VEHICLES	BUSES PERSONS	TOTAL VEHICLES	TOTAL PERSONS
7:00 - 8:00	128	169	16	21	5	5	1	1	-	-	150	196
	85.33	86.22	10.67	10.71	3.33	2.55	0.67	0.51	-	-		
	5.53	4.37	0.69	0.54	0.22	0.13	0.04	0.03	-	-		
8:00 - 9:00	124	186	12	13	4	4	-	-	-	-	140	203
	88.57	91.63	8.57	6.40	2.86	1.97	-	-	-	-		
	5.35	4.81	0.52	0.34	0.17	0.10	-	-	-	-		
9:00 - 10:00	148	258	8	12	6	7	-	-	-	-	162	277
	91.36	93.14	4.94	4.33	3.70	2.53	-	-	-	-		
	6.39	6.68	0.35	0.31	0.26	0.18	-	-	-	-		
10:00 - 11:00	140	270	7	8	11	14	-	-	-	-	158	292
	88.61	92.47	4.43	2.74	6.96	4.79	-	-	-	-		
	6.04	6.99	0.30	0.21	0.47	0.36	-	-	-	-		
11:00 - 12:00	110	204	14	18	7	8	-	-	-	-	131	230
	83.97	88.70	10.69	7.83	5.34	3.48	-	-	-	-		
	4.75	5.28	0.60	0.47	0.30	0.21	-	-	-	-		
12:00 - 13:00	155	260	16	20	9	9	-	-	-	-	180	289
	86.11	89.97	8.89	6.92	5.00	3.11	-	-	-	-		
	6.69	6.73	0.69	0.52	0.39	0.23	-	-	-	-		
13:00 - 14:00	148	263	2	2	6	6	1	2	-	-	157	273
	94.27	96.34	1.27	0.73	3.82	2.20	0.64	0.73	-	-		
	6.39	6.80	0.09	0.05	0.26	0.16	0.04	0.05	-	-		
14:00 - 15:00	158	255	2	2	12	13	-	-	-	-	172	270
	91.86	94.44	1.16	0.74	6.98	4.81	-	-	-	-		
	6.82	6.60	0.09	0.05	0.52	0.34	-	-	-	-		
15:00 - 16:00	215	355	13	17	3	3	-	-	-	-	231	375
	93.07	94.67	5.63	4.53	1.30	0.80	-	-	-	-		
	9.28	9.18	0.56	0.44	0.13	0.08	-	-	-	-		
16:00 - 17:00	214	355	8	14	11	12	1	1	-	-	234	382
	91.45	92.93	3.42	3.66	4.70	3.14	0.43	0.26	-	-		
	9.24	9.18	0.35	0.36	0.47	0.31	0.04	0.03	-	-		
17:00 - 18:00	217	356	11	16	11	11	-	-	-	-	239	383
	90.79	92.95	4.60	4.18	4.60	2.87	-	-	-	-		
	9.37	9.21	0.47	0.41	0.47	0.28	-	-	-	-		
18:00 - 19:00	199	376	3	3	10	10	1	1	-	-	213	390
	93.43	96.41	1.41	0.77	4.69	2.56	0.47	0.26	-	-		
	8.59	9.73	0.13	0.08	0.43	0.26	0.04	0.03	-	-		
19:00 - 20:00	142	259	4	4	2	2	-	-	1	40	149	305
	95.30	84.92	2.68	1.31	1.34	0.66	-	-	0.67	13.11		
	6.13	6.70	0.17	0.10	0.09	0.05	-	-	0.04	1.03		
TOTAL	2098	3566	116	150	97	104	4	5	1	40	2316	3865
	90.59	92.26	5.01	3.88	4.19	2.69	0.17	0.13	0.04	1.03		

NOTE : PASSENGER VEHICLES INCLUDE AUTOS, PICKUPS, VANS AND MOTORCYCLES
BUSES INCLUDE BOTH SCHOOL AND INTERCITY BUSES
SINGLE UNITS INCLUDE COMMERCIAL PICKUPS, PANELS AND SINGLE UNITS

LEGEND : XXX = VOLUME
XX.XX = ROW PERCENT
XX.XX = COLUMN PERCENT

TABLE A-7. OBSERVED HOURLY TRAFFIC VOLUMES

FACILITY : US 183
LOCATION : NORTH OF LOCKHART
DIRECTION : NORTHBOUND
DATE : JULY 14, 1987

TIME OF DAY	PASSENGER VEHICLES	PASSENGER PERSONS	COMMERCIAL VEHICLES: SINGLE UNIT VEHICLES	SINGLE UNIT PERSONS	COMBINATIONS VEHICLES	COMBINATIONS PERSONS	TRACTOR ONLY VEHICLES	TRACTOR ONLY PERSONS	BUSES VEHICLES	BUSES PERSONS	TOTAL VEHICLES	TOTAL PERSONS
7:00 - 8:00	259	362	148	195	6	6	1	1	-	-	414	564
	62.56	64.18	35.75	34.57	1.45	1.06	0.24	0.18	-	-		
	10.79	9.16	6.16	4.93	0.25	0.15	0.04	0.03	-	-		
8:00 - 9:00	188	283	43	63	3	3	-	-	-	-	234	349
	80.34	81.09	18.38	18.05	1.28	0.86	-	-	-	-		
	7.83	7.16	1.79	1.59	0.12	0.08	-	-	-	-		
9:00 - 10:00	161	275	8	10	7	7	-	-	-	-	176	292
	91.48	94.18	4.55	3.42	3.98	2.40	-	-	-	-		
	6.71	6.96	0.33	0.25	0.29	0.18	-	-	-	-		
10:00 - 11:00	150	251	8	8	2	2	2	4	1	10	163	275
	92.02	91.27	4.91	2.91	1.23	0.73	1.23	1.45	0.61	3.64		
	6.25	6.35	0.33	0.20	0.08	0.05	0.08	0.10	0.04	0.25		
11:00 - 12:00	164	281	11	15	8	8	1	1	2	31	186	336
	88.17	83.63	5.91	4.46	4.30	2.38	0.54	0.30	1.08	9.23		
	6.83	7.11	0.46	0.38	0.33	0.20	0.04	0.03	0.08	0.78		
12:00 - 13:00	164	273	3	5	13	14	-	-	1	10	181	302
	90.61	90.40	1.66	1.66	7.18	4.64	-	-	0.55	3.31		
	6.83	6.91	0.12	0.13	0.54	0.35	-	-	0.04	0.25		
13:00 - 14:00	152	265	8	11	7	9	-	-	-	-	167	285
	91.02	92.98	4.79	3.86	4.19	3.16	-	-	-	-		
	6.33	6.71	0.33	0.28	0.29	0.23	-	-	-	-		
14:00 - 15:00	132	236	14	18	5	5	-	-	-	-	151	259
	87.42	91.12	9.27	6.95	3.31	1.93	-	-	-	-		
	5.50	5.97	0.58	0.46	0.21	0.13	-	-	-	-		
15:00 - 16:00	127	217	25	30	7	7	-	-	-	-	159	254
	79.87	85.43	15.72	11.81	4.40	2.76	-	-	-	-		
	5.29	5.49	1.04	0.76	0.29	0.18	-	-	-	-		
16:00 - 17:00	135	248	13	22	5	5	-	-	-	-	153	275
	88.24	90.18	8.50	8.00	3.27	1.82	-	-	-	-		
	5.62	6.28	0.54	0.56	0.21	0.13	-	-	-	-		
17:00 - 18:00	151	295	13	24	6	6	-	-	-	-	170	325
	88.82	90.77	7.65	7.38	3.53	1.85	-	-	-	-		
	6.29	7.46	0.54	0.61	0.25	0.15	-	-	-	-		
18:00 - 19:00	128	230	6	6	3	3	1	1	-	-	138	240
	92.75	95.83	4.35	2.50	2.17	1.25	0.72	0.42	-	-		
	5.33	5.82	0.25	0.15	0.12	0.08	0.04	0.03	-	-		
19:00 - 20:00	103	179	3	5	2	2	-	-	1	10	109	196
	94.50	91.33	2.75	2.55	1.83	1.02	-	-	0.92	5.10		
	4.29	4.53	0.12	0.13	0.08	0.05	-	-	0.04	0.25		
TOTAL	2014	3395	303	412	74	77	5	7	5	61	2401	3952
	83.88	85.91	12.62	10.43	3.08	1.95	0.21	0.18	0.21	1.54		

NOTE : PASSENGER VEHICLES INCLUDE AUTOS, PICKUPS, VANS AND MOTORCYCLES
BUSES INCLUDE BOTH SCHOOL AND INTERCITY BUSES
SINGLE UNITS INCLUDE COMMERCIAL PICKUPS, PANELS AND SINGLE UNITS

LEGEND : XXX = VOLUME
XX.XX = ROW PERCENT
XX.XX = COLUMN PERCENT

TABLE A-8. OBSERVED HOURLY TRAFFIC VOLUMES

FACILITY : US 183
LOCATION : NORTH OF LOCKHART
DIRECTION : SOUTHBOUND
DATE : JULY 14, 1987

TIME OF DAY	PASSENGER VEHICLES	PASSENGER PERSONS	COMMERCIAL VEHICLES: SINGLE UNIT VEHICLES	SINGLE UNIT PERSONS	COMBINATIONS VEHICLES	COMBINATIONS PERSONS	TRACTOR ONLY VEHICLES	TRACTOR ONLY PERSONS	BUSES VEHICLES	BUSES PERSONS	TOTAL VEHICLES	TOTAL PERSONS
7:00 - 8:00	113	170	11	14	4	4	2	2	2	11	132	201
	85.61	84.58	8.33	6.97	3.03	1.99	1.52	1.00	1.52	5.47		
	4.10	3.94	0.40	0.32	0.15	0.09	0.07	0.05	0.07	0.26		
8:00 - 9:00	137	199	3	3	12	14	-	-	-	-	152	216
	90.13	92.13	1.97	1.39	7.89	6.48	-	-	-	-		
	4.98	4.62	0.11	0.07	0.44	0.32	-	-	-	-		
9:00 - 10:00	132	199	10	13	5	6	-	-	-	-	147	218
	89.80	91.28	6.80	5.96	3.40	2.75	-	-	-	-		
	4.79	4.62	0.36	0.30	0.18	0.14	-	-	-	-		
10:00 - 11:00	119	207	11	16	8	8	-	-	-	-	138	231
	86.23	89.61	7.97	6.93	5.80	3.46	-	-	-	-		
	4.32	4.80	0.40	0.37	0.29	0.19	-	-	-	-		
11:00 - 12:00	122	208	7	9	6	6	1	1	-	-	136	224
	89.71	92.86	5.15	4.02	4.41	2.68	0.74	0.45	-	-		
	4.43	4.82	0.25	0.21	0.22	0.14	0.04	0.02	-	-		
12:00 - 13:00	108	172	2	4	11	14	-	-	-	-	121	190
	89.26	90.53	1.65	2.11	9.09	7.37	-	-	-	-		
	3.92	3.99	0.07	0.09	0.40	0.32	-	-	-	-		
13:00 - 14:00	153	247	3	6	9	10	-	-	1	20	166	283
	92.17	87.28	1.81	2.12	5.42	3.53	-	-	0.60	7.07		
	5.56	5.73	0.11	0.14	0.33	0.23	-	-	0.04	0.46		
14:00 - 15:00	149	254	5	5	8	8	-	-	-	-	162	267
	91.98	95.13	3.09	1.87	4.94	3.00	-	-	-	-		
	5.41	5.89	0.18	0.12	0.29	0.19	-	-	-	-		
15:00 - 16:00	234	387	11	16	6	7	-	-	-	-	251	410
	93.23	94.39	4.38	3.90	2.39	1.71	-	-	-	-		
	8.50	8.97	0.40	0.37	0.22	0.16	-	-	-	-		
16:00 - 17:00	344	540	12	16	6	7	-	-	-	-	362	563
	95.03	95.91	3.31	2.84	1.66	1.24	-	-	-	-		
	12.50	12.52	0.44	0.37	0.22	0.16	-	-	-	-		
17:00 - 18:00	469	695	12	15	4	4	-	-	-	-	485	714
	96.70	97.34	2.47	2.10	0.82	0.56	-	-	-	-		
	17.04	16.12	0.44	0.35	0.15	0.09	-	-	-	-		
18:00 - 19:00	291	436	5	9	5	5	-	-	-	-	301	450
	96.68	96.89	1.66	2.00	1.66	1.11	-	-	-	-		
	10.57	10.11	0.18	0.21	0.18	0.12	-	-	-	-		
19:00 - 20:00	188	333	7	7	5	5	-	-	-	-	200	345
	94.00	96.52	3.50	2.03	2.50	1.45	-	-	-	-		
	6.83	7.72	0.25	0.16	0.18	0.12	-	-	-	-		
TOTAL	2559	4047	99	133	89	98	3	3	3	31	2753	4312
	92.95	93.85	3.60	3.08	3.23	2.27	0.11	0.07	0.11	0.72		

NOTE : PASSENGER VEHICLES INCLUDE AUTOS, PICKUPS, VANS AND MOTORCYCLES
BUSES INCLUDE BOTH SCHOOL AND INTERCITY BUSES
SINGLE UNITS INCLUDE COMMERCIAL PICKUPS, PANELS AND SINGLE UNITS

LEGEND : XXX = VOLUME
XX.XX = ROW PERCENT
XX.XX = COLUMN PERCENT

TABLE A-9. OBSERVED HOURLY TRAFFIC VOLUMES

FACILITY : US 281
LOCATION : NORTH OF SAN ANTONIO
DIRECTION : NORTHBOUND
DATE : JULY 15, 1987

TIME OF DAY	PASSENGER VEHICLES	PASSENGER PERSONS	COMMERCIAL VEHICLES: SINGLE UNIT VEHICLES	SINGLE UNIT PERSONS	COMBINATIONS VEHICLES	COMBINATIONS PERSONS	TRACTOR ONLY VEHICLES	TRACTOR ONLY PERSONS	BUSES VEHICLES	BUSES PERSONS	TOTAL VEHICLES	TOTAL PERSONS
7:00 - 8:00	163	230	15	25	4	4	-	-	2	70	184	329
	88.59	69.91	8.15	7.60	2.17	1.22	-	-	1.09	21.28		
	3.43	3.06	0.32	0.33	0.08	0.05	-	-	0.04	0.93		
8:00 - 9:00	204	302	17	19	6	6	-	-	-	-	227	327
	89.87	92.35	7.49	5.81	2.64	1.83	-	-	-	-		
	4.29	4.01	0.36	0.25	0.13	0.08	-	-	-	-		
9:00 - 10:00	191	290	18	19	4	4	-	-	-	-	213	313
	89.67	92.65	8.45	6.07	1.88	1.28	-	-	-	-		
	4.02	3.85	0.38	0.25	0.08	0.05	-	-	-	-		
10:00 - 11:00	181	306	16	22	6	7	-	-	-	-	203	335
	89.16	91.34	7.88	6.57	2.96	2.09	-	-	-	-		
	3.81	4.06	0.34	0.29	0.13	0.09	-	-	-	-		
11:00 - 12:00	252	458	14	20	4	4	1	1	-	-	271	483
	92.99	94.82	5.17	4.14	1.48	0.83	0.37	0.21	-	-		
	5.30	6.08	0.29	0.27	0.08	0.05	0.02	0.01	-	-		
12:00 - 13:00	291	496	11	17	6	6	-	-	-	-	308	519
	94.48	95.57	3.57	3.28	1.95	1.16	-	-	-	-		
	6.12	6.59	0.23	0.23	0.13	0.08	-	-	-	-		
13:00 - 14:00	254	444	7	8	7	9	-	-	-	-	268	461
	94.78	96.31	2.61	1.74	2.61	1.95	-	-	-	-		
	5.34	5.90	0.15	0.11	0.15	0.12	-	-	-	-		
14:00 - 15:00	266	451	7	10	8	9	-	-	1	30	282	500
	94.33	90.20	2.48	2.00	2.84	1.80	-	-	0.35	6.00		
	5.59	5.99	0.15	0.13	0.17	0.12	-	-	0.02	0.40		
15:00 - 16:00	380	638	28	34	3	3	-	-	-	-	411	675
	92.46	94.52	6.81	5.04	0.73	0.44	-	-	-	-		
	7.99	8.48	0.59	0.45	0.06	0.04	-	-	-	-		
16:00 - 17:00	489	741	15	20	4	4	-	-	-	-	508	765
	96.26	96.86	2.95	2.61	0.79	0.52	-	-	-	-		
	10.28	9.84	0.32	0.27	0.08	0.05	-	-	-	-		
17:00 - 18:00	718	1026	37	45	4	4	-	-	-	-	759	1075
	94.60	95.44	4.87	4.19	0.53	0.37	-	-	-	-		
	15.10	13.63	0.78	0.60	0.08	0.05	-	-	-	-		
18:00 - 19:00	725	1112	6	6	2	2	-	-	-	-	733	1120
	98.91	99.29	0.82	0.54	0.27	0.18	-	-	-	-		
	15.25	14.77	0.13	0.08	0.04	0.03	-	-	-	-		
19:00 - 20:00	371	603	16	22	1	1	-	-	-	-	388	626
	95.62	96.33	4.12	3.51	0.26	0.16	-	-	-	-		
	7.80	8.01	0.34	0.29	0.02	0.01	-	-	-	-		
TOTAL	4485	7097	207	267	59	63	1	1	3	100	4755	7528
	94.32	94.27	4.35	3.55	1.24	0.84	0.02	0.01	0.06	1.33		

NOTE : PASSENGER VEHICLES INCLUDE AUTOS, PICKUPS, VANS AND MOTORCYCLES
BUSES INCLUDE BOTH SCHOOL AND INTERCITY BUSES
SINGLE UNITS INCLUDE COMMERCIAL PICKUPS, PANELS AND SINGLE UNITS

LEGEND : XXX = VOLUME
XX.XX = ROW PERCENT
XX.XX = COLUMN PERCENT

TABLE A-10. OBSERVED HOURLY TRAFFIC VOLUMES

FACILITY : US 281
LOCATION : NORTH OF SAN ANTONIO
DIRECTION : SOUTHBOUND
DATE : JULY 15, 1987

TIME OF DAY	PASSENGER VEHICLES	PASSENGER PERSONS	COMMERCIAL VEHICLES: SINGLE UNIT VEHICLES	SINGLE UNIT PERSONS	COMBINATIONS VEHICLES	COMBINATIONS PERSONS	TRACTOR ONLY VEHICLES	TRACTOR ONLY PERSONS	BUSES VEHICLES	BUSES PERSONS	TOTAL VEHICLES	TOTAL PERSONS
7:00 - 8:00	812	992	22	22	2	2	-	-	-	-	836	1016
	97.13	97.64	2.63	2.17	0.24	0.20	-	-	-	-		
	18.08	14.47	0.49	0.32	0.04	0.03	-	-	-	-		
8:00 - 9:00	515	663	14	14	2	2	-	-	-	-	531	679
	96.99	97.64	2.64	2.06	0.38	0.29	-	-	-	-		
	11.47	9.67	0.31	0.20	0.04	0.03	-	-	-	-		
9:00 - 10:00	299	432	14	14	5	5	-	-	-	-	318	451
	94.03	95.79	4.40	3.10	1.57	1.11	-	-	-	-		
	6.66	6.30	0.31	0.20	0.11	0.07	-	-	-	-		
10:00 - 11:00	242	383	16	18	6	6	-	-	-	-	264	407
	91.67	94.10	6.06	4.42	2.27	1.47	-	-	-	-		
	5.39	5.59	0.36	0.26	0.13	0.09	-	-	-	-		
11:00 - 12:00	299	524	15	20	9	9	-	-	-	-	323	553
	92.57	94.76	4.64	3.62	2.79	1.63	-	-	-	-		
	6.66	7.64	0.33	0.29	0.20	0.13	-	-	-	-		
12:00 - 13:00	247	409	20	31	7	7	1	1	-	-	275	448
	89.82	91.29	7.27	6.92	2.55	1.56	0.36	0.22	-	-		
	5.50	5.96	0.45	0.45	0.16	0.10	0.02	0.01	-	-		
13:00 - 14:00	243	441	14	16	9	10	-	-	-	-	266	467
	91.35	94.43	5.26	3.43	3.38	2.14	-	-	-	-		
	5.41	6.43	0.31	0.23	0.20	0.15	-	-	-	-		
14:00 - 15:00	273	437	6	7	4	4	-	-	-	-	283	448
	96.47	97.54	2.12	1.56	1.41	0.89	-	-	-	-		
	6.08	6.37	0.13	0.10	0.09	0.06	-	-	-	-		
15:00 - 16:00	279	444	15	18	10	12	-	-	1	40	305	514
	91.48	86.38	4.92	3.50	3.28	2.33	-	-	0.33	7.78		
	6.21	6.48	0.33	0.26	0.22	0.18	-	-	0.02	0.58		
16:00 - 17:00	305	491	15	22	2	2	-	-	-	-	322	515
	94.72	95.34	4.66	4.27	0.62	0.39	-	-	-	-		
	6.79	7.16	0.33	0.32	0.04	0.03	-	-	-	-		
17:00 - 18:00	286	478	8	11	5	5	-	-	-	-	299	494
	95.65	96.76	2.68	2.23	1.67	1.01	-	-	-	-		
	6.37	6.97	0.18	0.16	0.11	0.07	-	-	-	-		
18:00 - 19:00	263	492	4	5	5	8	-	-	-	-	272	505
	96.69	97.43	1.47	0.99	1.84	1.58	-	-	-	-		
	5.86	7.18	0.09	0.07	0.11	0.12	-	-	-	-		
19:00 - 20:00	189	347	2	5	5	7	-	-	1	1	197	360
	95.94	96.39	1.02	1.39	2.54	1.94	-	-	0.51	0.28		
	4.21	5.06	0.04	0.07	0.11	0.10	-	-	0.02	0.01		
TOTAL	4252	6533	165	203	71	79	1	1	2	41	4491	6857
	94.68	95.27	3.67	2.96	1.58	1.15	0.02	0.01	0.04	0.60		

NOTE : PASSENGER VEHICLES INCLUDE AUTOS, PICKUPS, VANS AND MOTORCYCLES
BUSES INCLUDE BOTH SCHOOL AND INTERCITY BUSES
SINGLE UNITS INCLUDE COMMERCIAL PICKUPS, PANELS AND SINGLE UNITS

LEGEND : XXX = VOLUME
XX.XX = ROW PERCENT
XX.XX = COLUMN PERCENT

TABLE A-11. OBSERVED HOURLY TRAFFIC VOLUMES

FACILITY : IH 35
LOCATION : NORTH OF GEORGETOWN
DIRECTION : NORTHBOUND
DATE : JULY 16, 1987

TIME OF DAY	PASSENGER VEHICLES	PASSENGER VEHICLES PERSONS	COMMERCIAL VEHICLES: SINGLE UNIT VEHICLES	SINGLE UNIT PERSONS	COMBINATIONS VEHICLES	COMBINATIONS PERSONS	TRACTOR ONLY VEHICLES	TRACTOR ONLY PERSONS	BUSES VEHICLES	BUSES PERSONS	TOTAL VEHICLES	TOTAL PERSONS
7:00 - 8:00	486	720	47	64	54	55	-	-	1	1	588	840
	82.65	85.71	7.99	7.62	9.18	6.55	-	-	0.17	0.12		
	5.02	4.58	0.49	0.41	0.56	0.35	-	-	0.01	0.01		
8:00 - 9:00	500	806	49	66	51	54	1	1	-	-	601	927
	83.19	86.95	8.15	7.12	8.49	5.83	0.17	0.11	-	-		
	5.16	5.13	0.51	0.42	0.53	0.34	0.01	0.01	-	-		
9:00 - 10:00	543	948	48	59	69	69	1	1	-	-	661	1077
	82.15	88.02	7.26	5.48	10.44	6.41	0.15	0.09	-	-		
	5.61	6.03	0.50	0.38	0.71	0.44	0.01	0.01	-	-		
10:00 - 11:00	556	963	44	56	87	87	-	-	-	-	687	1106
	80.93	87.07	6.40	5.06	12.66	7.87	-	-	-	-		
	5.74	6.12	0.45	0.36	0.90	0.55	-	-	-	-		
11:00 - 12:00	571	976	28	31	88	88	1	1	-	-	688	1096
	82.99	89.05	4.07	2.83	12.79	8.03	0.15	0.09	-	-		
	5.90	6.21	0.29	0.20	0.91	0.56	0.01	0.01	-	-		
12:00 - 13:00	505	919	27	29	75	75	2	2	2	60	611	1085
	82.65	84.70	4.42	2.67	12.27	6.91	0.33	0.18	0.33	5.53		
	5.21	5.84	0.28	0.18	0.77	0.48	0.02	0.01	0.02	0.38		
13:00 - 14:00	632	1130	28	34	78	81	-	-	1	10	739	1255
	85.52	90.04	3.79	2.71	10.55	6.45	-	-	0.14	0.80		
	6.53	7.19	0.29	0.22	0.81	0.52	-	-	0.01	0.06		
14:00 - 15:00	811	1407	43	48	82	82	1	1	4	150	941	1688
	86.18	83.35	4.57	2.84	8.71	4.86	0.11	0.06	0.43	8.89		
	8.37	8.95	0.44	0.31	0.85	0.52	0.01	0.01	0.04	0.95		
15:00 - 16:00	772	1240	44	63	80	89	2	2	2	20	900	1414
	85.78	87.69	4.89	4.46	8.89	6.29	0.22	0.14	0.22	1.41		
	7.97	7.89	0.45	0.40	0.83	0.57	0.02	0.01	0.02	0.13		
16:00 - 17:00	894	1457	56	79	70	78	4	6	1	20	1025	1640
	87.22	88.84	5.46	4.82	6.83	4.76	0.39	0.37	0.10	1.22		
	9.23	9.26	0.58	0.50	0.72	0.50	0.04	0.04	0.01	0.13		
17:00 - 18:00	759	1190	42	57	85	88	1	1	-	-	887	1336
	85.57	89.07	4.74	4.27	9.58	6.59	0.11	0.07	-	-		
	7.84	7.57	0.43	0.36	0.88	0.56	0.01	0.01	-	-		
18:00 - 19:00	646	1121	26	32	75	81	-	-	-	-	747	1234
	86.48	90.84	3.48	2.59	10.04	6.56	-	-	-	-		
	6.67	7.13	0.27	0.20	0.77	0.52	-	-	-	-		
19:00 - 20:00	523	915	18	29	62	67	5	6	2	11	610	1028
	85.74	89.01	2.95	2.82	10.16	6.52	0.82	0.58	0.33	1.07		
	5.40	5.82	0.19	0.18	0.64	0.43	0.05	0.04	0.02	0.07		
TOTAL	8198	13792	500	647	956	994	18	21	13	272	9685	15726
	84.65	87.70	5.16	4.11	9.87	6.32	0.19	0.13	0.13	1.73		

NOTE : PASSENGER VEHICLES INCLUDE AUTOS, PICKUPS, VANS AND MOTORCYCLES
BUSES INCLUDE BOTH SCHOOL AND INTERCITY BUSES
SINGLE UNITS INCLUDE COMMERCIAL PICKUPS, PANELS AND SINGLE UNITS

LEGEND : XXX = VOLUME
XX.XX = ROW PERCENT
XX.XX = COLUMN PERCENT

TABLE A-12. OBSERVED HOURLY TRAFFIC VOLUMES

FACILITY : IH 35
LOCATION : NORTH OF GEORGETOWN
DIRECTION : SOUTHBOUND
DATE : JULY 16, 1987

TIME OF DAY	PASSENGER VEHICLES	PASSENGER PERSONS	COMMERCIAL VEHICLES: SINGLE UNIT VEHICLES	SINGLE UNIT PERSONS	COMBINATIONS VEHICLES	COMBINATIONS PERSONS	TRACTOR ONLY VEHICLES	TRACTOR ONLY PERSONS	BUSES VEHICLES	BUSES PERSONS	TOTAL VEHICLES	TOTAL PERSONS
7:00 - 8:00	600	848	14	20	80	83	1	1	-	-	695	952
	86.33	89.08	2.01	2.10	11.51	8.72	0.14	0.11	-	-		
	6.02	5.15	0.14	0.12	0.80	0.50	0.01	0.01	-	-		
8:00 - 9:00	534	872	22	26	62	65	-	-	1	10	619	973
	86.27	89.62	3.55	2.67	10.02	6.68	-	-	0.16	1.03		
	5.36	5.29	0.22	0.16	0.62	0.39	-	-	0.01	0.06		
9:00 - 10:00	578	1023	67	81	90	95	-	-	1	20	736	1219
	78.53	83.92	9.10	6.64	12.23	7.79	-	-	0.14	1.64		
	5.80	6.21	0.67	0.49	0.90	0.58	-	-	0.01	0.12		
10:00 - 11:00	589	1113	39	48	67	69	3	3	1	1	699	1234
	84.26	90.19	5.58	3.89	9.59	5.59	0.43	0.24	0.14	0.08		
	5.91	6.76	0.39	0.29	0.67	0.42	0.03	0.02	0.01	0.01		
11:00 - 12:00	620	1178	34	37	76	76	-	-	2	60	732	1351
	84.70	87.19	4.64	2.74	10.38	5.63	-	-	0.27	4.44		
	6.22	7.15	0.34	0.22	0.76	0.46	-	-	0.02	0.36		
12:00 - 13:00	593	1033	50	67	77	83	1	1	3	21	724	1205
	81.91	85.73	6.91	5.56	10.64	6.89	0.14	0.08	0.41	1.74		
	5.95	6.27	0.50	0.41	0.77	0.50	0.01	0.01	0.03	0.13		
13:00 - 14:00	616	1146	46	53	67	71	1	1	3	31	733	1302
	84.04	88.02	6.28	4.07	9.14	5.45	0.14	0.08	0.41	2.38		
	6.18	6.96	0.46	0.32	0.67	0.43	0.01	0.01	0.03	0.19		
14:00 - 15:00	656	1129	50	59	65	70	2	2	4	61	777	1321
	84.43	85.47	6.44	4.47	8.37	5.30	0.26	0.15	0.51	4.62		
	6.58	6.86	0.50	0.36	0.65	0.43	0.02	0.01	0.04	0.37		
15:00 - 16:00	709	1184	26	32	68	73	1	2	-	-	804	1291
	88.18	91.71	3.23	2.48	8.46	5.65	0.12	0.15	-	-		
	7.11	7.19	0.26	0.19	0.68	0.44	0.01	0.01	-	-		
16:00 - 17:00	729	1279	30	34	79	80	2	2	1	20	841	1415
	86.68	90.39	3.57	2.40	9.39	5.65	0.24	0.14	0.12	1.41		
	7.31	7.77	0.30	0.21	0.79	0.49	0.02	0.01	0.01	0.12		
17:00 - 18:00	817	1409	16	17	59	59	-	-	1	10	893	1495
	91.49	94.25	1.79	1.14	6.61	3.95	-	-	0.11	0.67		
	8.20	8.56	0.16	0.10	0.59	0.36	-	-	0.01	0.06		
18:00 - 19:00	802	1374	15	15	56	56	-	-	1	20	874	1465
	91.76	93.79	1.72	1.02	6.41	3.82	-	-	0.11	1.37		
	8.04	8.34	0.15	0.09	0.56	0.34	-	-	0.01	0.12		
19:00 - 20:00	765	1143	21	28	53	53	2	2	1	20	842	1246
	90.86	91.73	2.49	2.25	6.29	4.25	0.24	0.16	0.12	1.61		
	7.67	6.94	0.21	0.17	0.53	0.32	0.02	0.01	0.01	0.12		
TOTAL	8608	14731	430	517	899	933	13	14	19	274	9969	16469
	86.35	89.45	4.31	3.14	9.02	5.67	0.13	0.09	0.19	1.66		

NOTE : PASSENGER VEHICLES INCLUDE AUTOS, PICKUPS, VANS AND MOTORCYCLES
BUSES INCLUDE BOTH SCHOOL AND INTERCITY BUSES
SINGLE UNITS INCLUDE COMMERCIAL PICKUPS, PANELS AND SINGLE UNITS

LEGEND : XXX = VOLUME
XX.XX = ROW PERCENT
XX.XX = COLUMN PERCENT

DIRECTION : NORTHBOUND

TABLE A-13. OBSERVED HOURLY TRAFFIC VOLUMES : ALL STATIONS

TIME OF DAY	PASSENGER VEHICLES	PASSENGER PERSONS	COMMERCIAL VEHICLES: SINGLE UNIT VEHICLES	SINGLE UNIT PERSONS	COMBINATIONS VEHICLES	COMBINATIONS PERSONS	TRACTOR ONLY VEHICLES	TRACTOR ONLY PERSONS	BUSES VEHICLES	BUSES PERSONS	TOTAL VEHICLES	TOTAL PERSONS
7:00 - 8:00	2880	3942	322	438	223	228	3	3	4	72	3432	4683
	83.92	84.18	9.38	9.35	6.50	4.87	0.09	0.06	0.12	1.54		
	6.13	5.35	0.69	0.59	0.47	0.31	0.01	0.00	0.01	0.10		
8:00 - 9:00	2834	4006	240	311	185	189	6	6	5	5	3270	4517
	86.67	88.69	7.34	6.89	5.66	4.18	0.18	0.13	0.15	0.11		
	6.03	5.44	0.51	0.42	0.39	0.26	0.01	0.01	0.01	0.01		
9:00 - 10:00	2865	4403	163	185	264	271	6	6	3	90	3301	4955
	86.79	88.86	4.94	3.73	8.00	5.47	0.18	0.12	0.09	1.82		
	6.10	5.98	0.35	0.25	0.56	0.37	0.01	0.01	0.01	0.12		
10:00 - 11:00	2639	4169	156	190	290	292	6	9	6	131	3097	4791
	85.21	87.02	5.04	3.97	9.36	6.09	0.19	0.19	0.19	2.73		
	5.62	5.66	0.33	0.26	0.62	0.40	0.01	0.01	0.01	0.18		
11:00 - 12:00	2874	4863	182	221	311	316	9	10	5	52	3381	5462
	85.00	89.03	5.38	4.05	9.20	5.79	0.27	0.18	0.15	0.95		
	6.12	6.60	0.39	0.30	0.66	0.43	0.02	0.01	0.01	0.07		
12:00 - 13:00	2986	4929	152	179	289	292	6	6	5	100	3438	5506
	86.85	89.52	4.42	3.25	8.41	5.30	0.17	0.11	0.15	1.82		
	6.36	6.69	0.32	0.24	0.62	0.40	0.01	0.01	0.01	0.14		
13:00 - 14:00	3034	5142	108	123	250	259	4	4	4	100	3400	5628
	89.24	91.36	3.18	2.19	7.35	4.60	0.12	0.07	0.12	1.78		
	6.46	6.98	0.23	0.17	0.53	0.35	0.01	0.01	0.01	0.14		
14:00 - 15:00	3252	5533	115	132	275	284	5	5	9	251	3656	6205
	88.95	89.17	3.15	2.13	7.52	4.58	0.14	0.08	0.25	4.05		
	6.92	7.51	0.24	0.18	0.59	0.39	0.01	0.01	0.02	0.34		
15:00 - 16:00	3572	5800	169	212	269	286	8	9	11	144	4029	6451
	88.66	89.91	4.19	3.29	6.68	4.43	0.20	0.14	0.27	2.23		
	7.61	7.87	0.36	0.29	0.57	0.39	0.02	0.01	0.02	0.20		
16:00 - 17:00	4006	6495	184	247	235	245	7	10	3	50	4435	7047
	90.33	92.17	4.15	3.51	5.30	3.48	0.16	0.14	0.07	0.71		
	8.53	8.82	0.39	0.34	0.50	0.33	0.01	0.01	0.01	0.07		
17:00 - 18:00	4340	6721	191	244	232	244	8	10	2	20	4773	7239
	90.93	92.84	4.00	3.37	4.86	3.37	0.17	0.14	0.04	0.28		
	9.24	9.12	0.41	0.33	0.49	0.33	0.02	0.01	0.00	0.03		
18:00 - 19:00	3651	6108	75	92	208	219	6	6	4	100	3944	6525
	92.57	93.61	1.90	1.41	5.27	3.36	0.15	0.09	0.10	1.53		
	7.77	8.29	0.16	0.12	0.44	0.30	0.01	0.01	0.01	0.14		
19:00 - 20:00	2517	4223	69	110	208	229	12	13	6	71	2812	4646
	89.51	90.90	2.45	2.37	7.40	4.93	0.43	0.28	0.21	1.53		
	5.36	5.73	0.15	0.15	0.44	0.31	0.03	0.02	0.01	0.10		
TOTAL	41450	66334	2126	2684	3239	3354	86	97	67	1186	46968	73655
	88.25	90.06	4.53	3.64	6.90	4.55	0.18	0.13	0.14	1.61		

NOTE : PASSENGER VEHICLES INCLUDE AUTOS, PICKUPS, VANS AND MOTORCYCLES
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SINGLE UNITS INCLUDE COMMERCIAL PICKUPS, PANELS AND SINGLE UNITS

LEGEND : XXX = VOLUME
XX.XX = ROW PERCENT
XX.XX = COLUMN PERCENT

TABLE A-14. OBSERVED HOURLY TRAFFIC VOLUMES : ALL STATIONS

DIRECTION : SOUTHBOUND

TIME OF DAY	PASSENGER VEHICLES	VEHICLES PERSONS	COMMERCIAL VEHICLES: SINGLE UNIT VEHICLES	SINGLE UNIT PERSONS	COMBINATIONS VEHICLES	COMBINATIONS PERSONS	TRACTOR ONLY VEHICLES	TRACTOR ONLY PERSONS	BUSES VEHICLES	BUSES PERSONS	TOTAL VEHICLES	TOTAL PERSONS
7:00 - 8:00	3585	4659	107	125	236	241	6	6	5	14	3939	5045
	91.01	92.35	2.72	2.48	5.99	4.78	0.15	0.12	0.13	0.28		
	7.43	6.13	0.22	0.16	0.49	0.32	0.01	0.01	0.01	0.02		
8:00 - 9:00	3170	4431	158	196	241	250	2	3	2	11	3573	4891
	88.72	90.59	4.42	4.01	6.75	5.11	0.06	0.06	0.06	0.22		
	6.57	5.83	0.33	0.26	0.50	0.33	0.00	0.00	0.00	0.01		
9:00 - 10:00	3073	4741	209	245	302	318	5	5	7	190	3596	5499
	85.46	86.22	5.81	4.46	8.40	5.78	0.14	0.09	0.19	3.46		
	6.37	6.24	0.43	0.32	0.63	0.42	0.01	0.01	0.01	0.25		
10:00 - 11:00	2862	4941	196	236	285	295	8	8	4	32	3355	5512
	85.31	89.64	5.84	4.28	8.49	5.35	0.24	0.15	0.12	0.58		
	5.93	6.50	0.41	0.31	0.59	0.39	0.02	0.01	0.01	0.04		
11:00 - 12:00	2877	5019	175	213	243	244	3	3	2	60	3300	5539
	87.18	90.61	5.30	3.85	7.36	4.41	0.09	0.05	0.06	1.08		
	5.96	6.60	0.36	0.28	0.50	0.32	0.01	0.00	0.00	0.08		
12:00 - 13:00	2918	4762	164	203	281	296	2	2	8	93	3373	5356
	86.51	88.91	4.86	3.79	8.33	5.53	0.06	0.04	0.24	1.74		
	6.04	6.27	0.34	0.27	0.58	0.39	0.00	0.00	0.02	0.12		
13:00 - 14:00	2796	4855	130	146	258	270	4	6	8	112	3196	5389
	87.48	90.09	4.07	2.71	8.07	5.01	0.13	0.11	0.25	2.08		
	5.79	6.39	0.27	0.19	0.53	0.36	0.01	0.01	0.02	0.15		
14:00 - 15:00	3533	5951	149	175	316	324	3	3	9	201	4010	6654
	88.10	89.43	3.72	2.63	7.88	4.87	0.07	0.05	0.22	3.02		
	7.32	7.83	0.31	0.23	0.65	0.43	0.01	0.00	0.02	0.26		
15:00 - 16:00	3552	5762	192	230	255	265	5	6	1	40	4005	6303
	88.69	91.42	4.79	3.65	6.37	4.20	0.12	0.10	0.02	0.63		
	7.36	7.58	0.40	0.30	0.53	0.35	0.01	0.01	0.00	0.05		
16:00 - 17:00	4217	6931	159	205	238	243	4	5	4	42	4622	7426
	91.24	93.33	3.44	2.76	5.15	3.27	0.09	0.07	0.09	0.57		
	8.74	9.12	0.33	0.27	0.49	0.32	0.01	0.01	0.01	0.06		
17:00 - 18:00	4149	6626	184	235	214	214	1	1	4	81	4552	7157
	91.15	92.58	4.04	3.28	4.70	2.99	0.02	0.01	0.09	1.13		
	8.59	8.72	0.38	0.31	0.44	0.28	0.00	0.00	0.01	0.11		
18:00 - 19:00	3427	5791	158	206	233	236	3	3	4	100	3825	6336
	89.59	91.40	4.13	3.25	6.09	3.72	0.08	0.05	0.10	1.58		
	7.10	7.62	0.33	0.27	0.48	0.31	0.01	0.00	0.01	0.13		
19:00 - 20:00	2624	4422	99	140	195	200	3	3	8	122	2929	4887
	89.59	90.48	3.38	2.86	6.66	4.09	0.10	0.06	0.27	2.50		
	5.44	5.82	0.21	0.18	0.40	0.26	0.01	0.00	0.02	0.16		
TOTAL	42783	68891	2080	2555	3297	3396	49	54	66	1098	48275	75994
	88.62	90.65	4.31	3.36	6.83	4.47	0.10	0.07	0.14	1.44		

NOTE : PASSENGER VEHICLES INCLUDE AUTOS, PICKUPS, VANS AND MOTORCYCLES
BUSES INCLUDE BOTH SCHOOL AND INTERCITY BUSES
SINGLE UNITS INCLUDE COMMERCIAL PICKUPS, PANELS AND SINGLE UNITS

LEGEND : XXX = VOLUME
XX.XX = ROW PERCENT
XX.XX = COLUMN PERCENT

APPENDIX B

SUMMARY OF ORIGINS-DESTINATIONS BY TRAFFIC ZONE AND VEHICLE TYPE

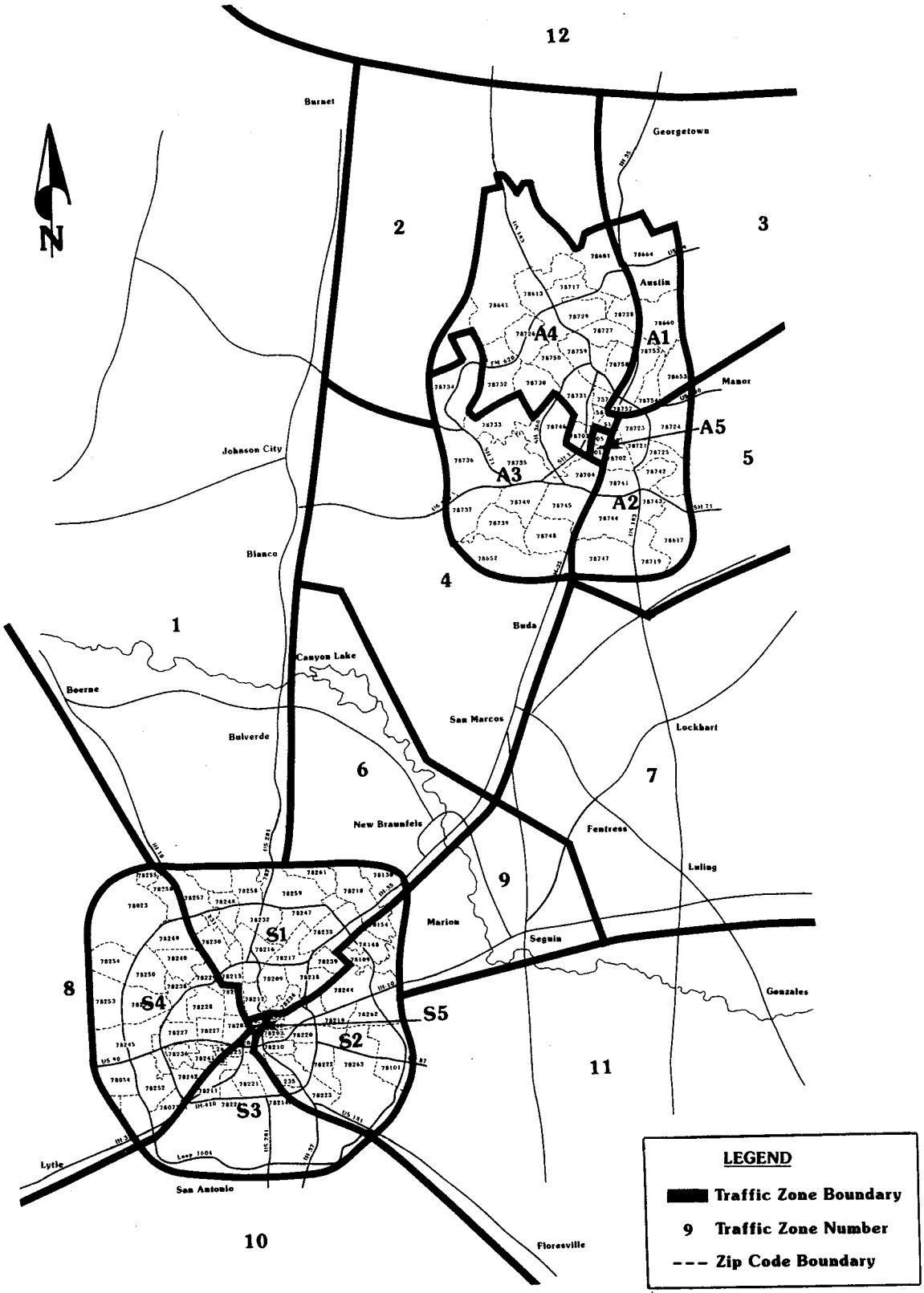

Figure B-1. Austin/San Antonio Traffic Zones

Table B-1. 1987 Vehicle Trips by Traffic Zone (7:00 a.m. - 8:00 p.m.): All Vehicles

ORIGINS	DESTINATIONS 1	2	3	4	5	6	7	8	9	10	11	12	S1	S2	S3	S4	S5	A1	A2	A3	A4	A5	TOTAL
1	144 0.2	3 0.0	24 0.0	27 0.0	0 0.0	43 0.0	25 0.0	7 0.0	13 0.0	26 0.0	30 0.0	214 0.2	1592 1.7	120 0.1	41 0.0	423 0.4	593 0.6	5 0.0	12 0.0	16 0.0	14 0.0	53 0.1	3425 3.6
2	5 0.0	7 0.0	32 0.0	20 0.0	0 0.0	17 0.0	15 0.0	0 0.0	7 0.0	6 0.0	14 0.0	113 0.1	34 0.0	18 0.0	0 0.0	13 0.0	29 0.0	0 0.0	0 0.0	0 0.0	0 0.0	4 0.0	334 0.4
3	12 0.0	16 0.0	768 0.8	117 0.1	0 0.0	40 0.0	40 0.0	16 0.0	35 0.0	43 0.0	51 0.1	1038 1.1	151 0.2	33 0.0	8 0.0	70 0.1	220 0.2	63 0.1	24 0.0	32 0.0	211 0.2	169 0.2	3157 3.3
4	23 0.0	11 0.0	112 0.1	1803 1.9	15 0.0	75 0.1	113 0.1	57 0.1	819 0.9	87 0.1	153 0.2	304 0.3	740 0.8	322 0.3	38 0.0	265 0.3	423 0.4	236 0.2	558 0.6	1167 1.2	618 0.6	1766 1.9	9705 10.2
5	7 0.0	0 0.0	5 0.0	22 0.0	0 0.0	4 0.0	21 0.0	8 0.0	18 0.0	4 0.0	4 0.0	28 0.0	94 0.1	19 0.0	4 0.0	33 0.0	81 0.1	0 0.0	4 0.0	0 0.0	0 0.0	11 0.0	367 0.4
6	41 0.0	19 0.0	43 0.0	112 0.1	20 0.0	91 0.1	31 0.0	42 0.0	124 0.1	50 0.1	57 0.1	242 0.3	3275 3.4	1063 1.1	128 0.1	746 0.8	1614 1.7	50 0.1	114 0.1	164 0.2	158 0.2	462 0.5	8646 9.1
7	10 0.0	9 0.0	51 0.1	104 0.1	28 0.0	18 0.0	160 0.2	10 0.0	28 0.0	17 0.0	14 0.0	101 0.1	56 0.1	15 0.0	4 0.0	19 0.0	83 0.1	77 0.1	379 0.4	366 0.4	304 0.3	690 0.7	2543 2.7
8	49 0.1	6 0.0	27 0.0	50 0.1	30 0.0	44 0.0	8 0.0	4 0.0	4 0.0	7 0.0	0 0.0	362 0.4	15 0.0	0 0.0	0 0.0	0 0.0	6 0.0	22 0.0	22 0.0	27 0.0	43 0.0	117 0.1	843 0.9
9	17 0.0	4 0.0	37 0.0	940 1.0	5 0.0	108 0.1	39 0.0	7 0.0	278 0.3	8 0.0	14 0.0	159 0.2	258 0.3	29 0.0	3 0.0	59 0.1	76 0.1	19 0.0	73 0.1	169 0.2	122 0.1	328 0.3	2752 2.9
10	13 0.0	5 0.0	38 0.0	37 0.0	3 0.0	37 0.0	4 0.0	9 0.0	6 0.0	7 0.0	4 0.0	601 0.6	20 0.0	0 0.0	8 0.0	12 0.0	22 0.0	8 0.0	53 0.1	40 0.0	71 0.1	168 0.2	1166 1.2
11	75 0.1	10 0.0	46 0.0	132 0.1	5 0.0	28 0.0	11 0.0	7 0.0	4 0.0	4 0.0	21 0.0	678 0.7	31 0.0	11 0.0	0 0.0	8 0.0	24 0.0	61 0.1	107 0.1	152 0.2	193 0.2	400 0.4	2008 2.1
12	282 0.3	78 0.1	1143 1.2	381 0.4	24 0.0	298 0.3	114 0.1	414 0.4	188 0.2	559 0.6	781 0.8	189 0.2	1134 1.2	349 0.4	71 0.1	638 0.7	1667 1.7	345 0.4	732 0.8	543 0.6	1182 1.2	1836 1.9	12948 13.6
S1	1447 1.5	60 0.1	171 0.2	768 0.8	98 0.1	3288 3.5	89 0.1	13 0.0	258 0.3	23 0.0	14 0.0	1208 1.3	158 0.2	29 0.0	4 0.0	41 0.0	43 0.0	257 0.3	0 0.0	612 0.6	702 0.7	1442 1.5	10725 11.3
S2	138 0.1	7 0.0	47 0.0	326 0.3	24 0.0	1127 1.2	17 0.0	4 0.0	44 0.0	0 0.0	13 0.0	363 0.4	24 0.0	23 0.0	0 0.0	12 0.0	35 0.0	75 0.1	943 1.0	163 0.2	99 0.1	331 0.3	3815 4.0
S3	61 0.1	6 0.0	10 0.0	68 0.1	3 0.0	134 0.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	105 0.1	7 0.0	4 0.0	0 0.0	11 0.0	4 0.0	14 0.0	0 0.0	48 0.1	29 0.0	85 0.1	589 0.6
S4	373 0.4	13 0.0	48 0.1	326 0.3	42 0.0	892 0.9	32 0.0	4 0.0	85 0.1	9 0.0	9 0.0	595 0.6	38 0.0	4 0.0	3 0.0	26 0.0	26 0.0	113 0.1	0 0.0	231 0.2	333 0.3	526 0.6	3728 3.9
S5	519 0.5	22 0.0	143 0.2	281 0.3	67 0.1	1030 1.1	82 0.1	17 0.0	40 0.0	11 0.0	20 0.0	1215 1.3	35 0.0	15 0.0	0 0.0	18 0.0	37 0.0	102 0.1	0 0.0	250 0.3	327 0.3	1264 1.3	5495 5.8
A1	11 0.0	0 0.0	59 0.1	183 0.2	0 0.0	88 0.1	124 0.1	36 0.0	68 0.1	36 0.0	84 0.1	418 0.4	218 0.2	61 0.1	8 0.0	85 0.1	148 0.2	0 0.0	0 0.0	0 0.0	7 0.0	8 0.0	1642 1.7
A2	14 0.0	0 0.0	34 0.0	652 0.7	4 0.0	135 0.1	555 0.6	59 0.1	96 0.1	29 0.0	121 0.1	610 0.6	330 0.3	100 0.1	47 0.0	189 0.2	195 0.2	0 0.0	99 0.1	0 0.0	15 0.0	17 0.0	3301 3.5
A3	32 0.0	3 0.0	33 0.0	1312 1.4	0 0.0	226 0.2	404 0.4	59 0.1	127 0.1	55 0.1	157 0.2	630 0.7	640 0.7	198 0.2	69 0.1	239 0.3	424 0.4	0 0.0	0 0.0	11 0.0	24 0.0	37 0.0	4680 4.9
A4	25 0.0	0 0.0	263 0.3	783 0.8	4 0.0	215 0.2	323 0.3	61 0.1	135 0.1	92 0.1	268 0.3	1227 1.3	749 0.8	180 0.2	44 0.0	287 0.3	539 0.6	0 0.0	0 0.0	5 0.0	52 0.1	25 0.0	5277 5.5
A5	45 0.0	13 0.0	175 0.2	1264 1.3	4 0.0	393 0.4	560 0.6	114 0.1	219 0.2	160 0.2	334 0.4	1489 1.6	1000 1.0	208 0.2	78 0.1	488 0.5	1506 1.6	5 0.0	0 0.0	4 0.0	34 0.0	38 0.0	8131 8.5
TOTALS	3343 3.5	292 0.3	3309 3.5	9708 10.2	376 0.4	8331 8.7	2767 2.9	948 1.0	2596 2.7	1233 1.3	2163 2.3	11889 12.5	10599 11.1	2801 2.9	558 0.6	3682 3.9	7795 8.2	1452 1.5	3120 3.3	4000 4.2	4538 4.8	9777 10.3	95277

LEGEND : XXXX - VEHICLE TRIPS
XX.X - CELL PERCENT

Table B-2. 1987 Vehicle Trips by Traffic Zone (7:00 a.m. - 8:00 p.m.): Passenger Vehicles

ORIGINS	DESTINATIONS 1	2	3	4	5	6	7	8	9	10	11	12	S1	S2	S3	S4	S5	A1	A2	A3	A4	A5	TOTAL
1	127 0.2	3 0.0	22 0.0	24 0.0	0 0.0	33 0.0	24 0.0	4 0.0	13 0.0	21 0.0	23 0.0	177 0.2	1499 1.8	115 0.1	33 0.0	409 0.5	570 0.7	5 0.0	11 0.0	11 0.0	14 0.0	47 0.1	3185 3.8
2	4 0.0	7 0.0	30 0.0	19 0.0	0 0.0	10 0.0	15 0.0	0 0.0	7 0.0	6 0.0	14 0.0	101 0.1	32 0.0	13 0.0	0 0.0	12 0.0	26 0.0	0 0.0	0 0.0	0 0.0	0 0.0	3 0.0	299 0.4
3	11 0.0	15 0.0	675 0.8	100 0.1	0 0.0	38 0.0	38 0.0	15 0.0	25 0.0	24 0.0	49 0.1	895 1.1	134 0.2	31 0.0	7 0.0	63 0.1	194 0.2	56 0.1	22 0.0	27 0.0	190 0.2	151 0.2	2760 3.3
4	21 0.0	11 0.0	103 0.1	1665 2.0	14 0.0	63 0.1	102 0.1	52 0.1	769 0.9	83 0.1	146 0.2	252 0.3	662 0.8	289 0.3	36 0.0	239 0.3	374 0.4	217 0.3	508 0.6	1086 1.3	584 0.7	1616 1.9	8892 10.6
5	4 0.0	0 0.0	5 0.0	18 0.0	0 0.0	3 0.0	13 0.0	3 0.0	18 0.0	3 0.0	4 0.0	23 0.0	88 0.1	17 0.0	3 0.0	28 0.0	65 0.1	0 0.0	3 0.0	0 0.0	0 0.0	9 0.0	307 0.4
6	32 0.0	15 0.0	30 0.0	100 0.1	8 0.0	82 0.1	24 0.0	36 0.0	116 0.1	45 0.1	44 0.1	204 0.2	2950 3.5	943 1.1	118 0.1	697 0.8	1441 1.7	48 0.1	105 0.1	155 0.2	143 0.2	407 0.5	7743 9.2
7	10 0.0	7 0.0	46 0.1	94 0.1	26 0.0	18 0.0	145 0.2	9 0.0	27 0.0	12 0.0	8 0.0	87 0.1	47 0.1	12 0.0	3 0.0	17 0.0	74 0.1	69 0.1	320 0.4	298 0.4	255 0.3	593 0.7	2177 2.6
8	27 0.0	6 0.0	22 0.0	47 0.1	25 0.0	38 0.0	7 0.0	4 0.0	4 0.0	7 0.0	0 0.0	286 0.3	11 0.0	0 0.0	0 0.0	0 0.0	6 0.0	21 0.0	22 0.0	22 0.0	32 0.0	107 0.1	694 0.8
9	9 0.0	4 0.0	31 0.0	862 1.0	5 0.0	101 0.1	37 0.0	7 0.0	253 0.3	7 0.0	11 0.0	122 0.1	240 0.3	27 0.0	2 0.0	56 0.1	69 0.1	17 0.0	64 0.1	156 0.2	114 0.1	301 0.4	2495 3.0
10	10 0.0	3 0.0	33 0.0	33 0.0	3 0.0	32 0.0	4 0.0	8 0.0	6 0.0	6 0.0	4 0.0	475 0.6	15 0.0	0 0.0	8 0.0	10 0.0	20 0.0	7 0.0	47 0.1	35 0.0	58 0.1	145 0.2	962 1.1
11	61 0.1	6 0.0	44 0.1	119 0.1	4 0.0	26 0.0	6 0.0	4 0.0	4 0.0	4 0.0	20 0.0	561 0.7	29 0.0	10 0.0	0 0.0	8 0.0	22 0.0	54 0.1	93 0.1	126 0.1	170 0.2	356 0.4	1727 2.0
12	239 0.3	69 0.1	1038 1.2	328 0.4	20 0.0	252 0.3	107 0.1	306 0.4	133 0.2	446 0.5	631 0.7	156 0.2	963 1.1	299 0.4	60 0.1	547 0.6	1283 1.5	310 0.4	639 0.8	483 0.6	1038 1.2	1589 1.9	10936 13.0
S1	1393 1.7	51 0.1	149 0.2	690 0.8	86 0.1	2962 3.5	84 0.1	7 0.0	235 0.3	21 0.0	13 0.0	1008 1.2	138 0.2	29 0.0	4 0.0	38 0.0	40 0.0	229 0.3	0 0.0	564 0.7	621 0.7	1278 1.5	9640 11.4
S2	126 0.1	7 0.0	38 0.0	284 0.3	23 0.0	1020 1.2	13 0.0	4 0.0	44 0.1	0 0.0	10 0.0	294 0.3	22 0.0	22 0.0	0 0.0	12 0.0	25 0.0	62 0.1	830 1.0	149 0.2	88 0.1	263 0.3	3336 4.0
S3	56 0.1	0 0.0	6 0.0	63 0.1	3 0.0	120 0.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	95 0.1	6 0.0	4 0.0	0 0.0	10 0.0	4 0.0	13 0.0	0 0.0	40 0.0	29 0.0	69 0.1	518 0.6
S4	356 0.4	13 0.0	44 0.1	295 0.4	38 0.0	835 1.0	29 0.0	4 0.0	77 0.1	9 0.0	9 0.0	494 0.6	35 0.0	4 0.0	3 0.0	25 0.0	22 0.0	99 0.1	0 0.0	196 0.2	301 0.4	472 0.6	3360 4.0
S5	488 0.6	18 0.0	130 0.2	241 0.3	60 0.1	922 1.1	62 0.1	10 0.0	31 0.0	11 0.0	19 0.0	942 1.1	30 0.0	15 0.0	0 0.0	17 0.0	26 0.0	89 0.1	0 0.0	212 0.3	289 0.3	1112 1.3	4724 5.6
A1	10 0.0	0 0.0	52 0.1	163 0.2	0 0.0	79 0.1	122 0.1	34 0.0	64 0.1	34 0.0	72 0.1	375 0.4	185 0.2	55 0.1	7 0.0	73 0.1	125 0.1	0 0.0	0 0.0	0 0.0	6 0.0	7 0.0	1463 1.7
A2	14 0.0	0 0.0	31 0.0	589 0.7	4 0.0	125 0.1	525 0.6	55 0.1	91 0.1	26 0.0	113 0.1	521 0.6	302 0.4	86 0.1	40 0.0	177 0.2	178 0.2	0 0.0	89 0.1	0 0.0	14 0.0	16 0.0	2996 3.6
A3	29 0.0	3 0.0	30 0.0	1202 1.4	0 0.0	212 0.3	358 0.4	48 0.1	120 0.1	52 0.1	137 0.2	551 0.7	568 0.7	174 0.2	58 0.1	222 0.3	366 0.4	0 0.0	0 0.0	10 0.0	21 0.0	30 0.0	4191 5.0
A4	22 0.0	0 0.0	236 0.3	707 0.8	3 0.0	185 0.2	306 0.4	48 0.1	123 0.1	83 0.1	242 0.3	1077 1.3	671 0.8	159 0.2	37 0.0	271 0.3	479 0.6	0 0.0	0 0.0	5 0.0	51 0.1	19 0.0	4724 5.6
A5	41 0.0	13 0.0	157 0.2	1130 1.3	4 0.0	359 0.4	515 0.6	92 0.1	196 0.2	144 0.2	294 0.3	1292 1.5	905 1.1	177 0.2	66 0.1	444 0.5	1238 1.5	4 0.0	0 0.0	4 0.0	32 0.0	32 0.0	7139 8.5
TOTALS	3090 3.7	251 0.3	2952 3.5	8773 10.4	326 0.4	7515 8.9	2536 3.0	750 0.9	2356 2.8	1044 1.2	1863 2.2	9988 11.9	9532 11.3	2481 2.9	485 0.6	3375 4.0	6647 7.9	1300 1.5	2753 3.3	3579 4.2	4050 4.8	8622 10.2	84268

LEGEND : XXXX - VEHICLE TRIPS
XX.X - CELL PERCENT

Table B-3. 1987 Vehicle Trips by Traffic Zone (7:00 a.m. - 8:00 p.m.): Commercial Vehicles

ORIGINS	DESTINATIONS 1	2	3	4	5	6	7	8	9	10	11	12	S1	S2	S3	S4	S5	A1	A2	A3	A4	A5	TOTAL
1	10 0.1	0 0.0	0 0.0	7 0.1	0 0.0	11 0.1	0 0.0	4 0.0	0 0.0	4 0.0	8 0.1	46 0.4	87 0.8	7 0.1	7 0.1	18 0.2	19 0.2	0 0.0	0 0.0	5 0.0	0 0.0	13 0.1	246 2.2
2	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	13 0.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	8 0.1	0 0.0	3 0.0	0 0.0	0 0.0	2 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	26 0.2
3	0 0.0	0 0.0	81 0.7	21 0.2	0 0.0	0 0.0	0 0.0	0 0.0	7 0.1	35 0.3	0 0.0	130 1.2	13 0.1	0 0.0	0 0.0	6 0.1	20 0.2	6 0.1	0 0.0	0 0.0	8 0.1	13 0.1	340 3.1
4	0 0.0	0 0.0	8 0.1	97 0.9	0 0.0	13 0.1	10 0.1	6 0.1	38 0.3	0 0.0	0 0.0	70 0.6	55 0.5	27 0.2	0 0.0	18 0.2	43 0.4	14 0.1	46 0.4	53 0.5	11 0.1	127 1.1	636 5.8
5	3 0.0	0 0.0	0 0.0	6 0.1	0 0.0	0 0.0	9 0.1	8 0.1	0 0.0	0 0.0	0 0.0	9 0.1	0 0.0	0 0.0	0 0.0	8 0.1	17 0.2	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	60 0.5
6	13 0.1	6 0.1	19 0.2	8 0.1	23 0.2	7 0.1	10 0.1	6 0.1	6 0.1	6 0.1	19 0.2	49 0.4	268 2.4	102 0.9	6 0.1	21 0.2	160 1.4	0 0.0	5 0.0	0 0.0	16 0.1	62 0.6	812 7.3
7	0 0.0	0 0.0	0 0.0	4 0.0	0 0.0	0 0.0	13 0.1	0 0.0	0 0.0	6 0.1	15 0.1	18 0.2	12 0.1	0 0.0	0 0.0	0 0.0	6 0.1	0 0.0	52 0.5	94 0.9	51 0.5	55 0.5	326 2.9
8	23 0.2	0 0.0	8 0.1	0 0.0	7 0.1	7 0.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	103 0.9	8 0.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	8 0.1	19 0.2	6 0.1	189 1.7
9	6 0.1	0 0.0	10 0.1	70 0.6	0 0.0	6 0.1	6 0.1	0 0.0	14 0.1	0 0.0	5 0.0	54 0.5	0 0.0	0 0.0	0 0.0	0 0.0	6 0.1	0 0.0	10 0.1	10 0.1	5 0.0	22 0.2	224 2.0
10	3 0.0	2 0.0	9 0.1	3 0.0	0 0.0	7 0.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	181 1.6	7 0.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	6 0.1	6 0.1	17 0.2	19 0.2	260 2.4
11	14 0.1	5 0.0	0 0.0	16 0.1	0 0.0	0 0.0	5 0.0	6 0.1	0 0.0	0 0.0	0 0.0	161 1.5	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	8 0.1	18 0.2	25 0.2	39 0.4	55 0.5	352 3.2
12	49 0.4	8 0.1	66 0.6	58 0.5	7 0.1	47 0.4	8 0.1	177 1.6	76 0.7	145 1.3	212 1.9	43 0.4	214 1.9	66 0.6	15 0.1	93 0.8	574 5.2	27 0.2	88 0.8	56 0.5	125 1.1	247 2.2	2401 21.7
S1	57 0.5	8 0.1	27 0.2	56 0.5	14 0.1	320 2.9	0 0.0	8 0.1	21 0.2	0 0.0	0 0.0	228 2.1	21 0.2	0 0.0	0 0.0	7 0.1	7 0.1	28 0.3	0 0.0	30 0.3	73 0.7	148 1.3	1053 9.5
S2	10 0.1	0 0.0	17 0.2	41 0.4	0 0.0	84 0.8	7 0.1	0 0.0	0 0.0	0 0.0	7 0.1	91 0.8	0 0.0	0 0.0	0 0.0	0 0.0	13 0.1	16 0.1	112 1.0	14 0.1	12 0.1	106 1.0	530 4.8
S3	5 0.0	8 0.1	7 0.1	0 0.0	0 0.0	14 0.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	8 0.1	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	14 0.1	0 0.0	21 0.2	77 0.7
S4	20 0.2	0 0.0	0 0.0	21 0.2	7 0.1	28 0.3	0 0.0	0 0.0	7 0.1	0 0.0	0 0.0	106 1.0	0 0.0	0 0.0	0 0.0	0 0.0	8 0.1	13 0.1	0 0.0	30 0.3	19 0.2	39 0.4	298 2.7
S5	32 0.3	4 0.0	20 0.2	38 0.3	5 0.0	106 1.0	30 0.3	13 0.1	13 0.1	0 0.0	0 0.0	398 3.6	7 0.1	0 0.0	0 0.0	0 0.0	22 0.2	21 0.2	0 0.0	49 0.4	46 0.4	160 1.4	964 8.7
A1	0 0.0	0 0.0	6 0.1	15 0.1	0 0.0	7 0.1	0 0.0	0 0.0	0 0.0	0 0.0	12 0.1	25 0.2	43 0.4	6 0.1	0 0.0	13 0.1	32 0.3	0 0.0	0 0.0	0 0.0	0 0.0	0 0.0	159 1.4
A2	0 0.0	0 0.0	0 0.0	56 0.5	0 0.0	6 0.1	25 0.2	0 0.0	4 0.0	0 0.0	5 0.0	73 0.7	17 0.2	17 0.2	6 0.1	0 0.0	12 0.1	0 0.0	14 0.1	0 0.0	0 0.0	0 0.0	235 2.1
A3	0 0.0	0 0.0	0 0.0	82 0.7	0 0.0	0 0.0	40 0.4	12 0.1	0 0.0	0 0.0	19 0.2	59 0.5	69 0.6	23 0.2	6 0.1	12 0.1	68 0.6	0 0.0	0 0.0	0 0.0	0 0.0	6 0.1	402 3.6
A4	0 0.0	0 0.0	16 0.1	64 0.6	0 0.0	17 0.2	13 0.1	22 0.2	12 0.1	6 0.1	32 0.3	98 0.9	73 0.7	18 0.2	6 0.1	0 0.0	53 0.5	0 0.0	0 0.0	0 0.0	0 0.0	8 0.1	438 4.0
A5	0 0.0	0 0.0	16 0.1	135 1.2	0 0.0	23 0.2	60 0.5	21 0.2	27 0.2	11 0.1	42 0.4	162 1.5	86 0.8	41 0.4	14 0.1	34 0.3	346 3.1	0 0.0	0 0.0	0 0.0	0 0.0	8 0.1	1026 9.3
TOTALS	245 2.2	41 0.4	310 2.8	798 7.2	63 0.6	716 6.5	242 2.2	283 2.6	225 2.0	213 1.9	376 3.4	2120 19.2	980 8.9	310 2.8	60 0.5	230 2.1	1408 12.7	133 1.2	351 3.2	394 3.6	441 4.0	1115 10.1	11054

LEGEND : XXXX - VEHICLE TRIPS
XX.X - CELL PERCENT

APPENDIX C

KEY ASSUMPTIONS USED IN TRAFFIC DIVERSION METHODOLOGY

ASSUMPTIONS USED IN TRAFFIC DIVERSION METHODOLOGY

1. With the exception of FM 20, which is near the proposed alternate route, only interstate, U.S., and state highways were included in the simplified corridor highway network.

2. Traffic volumes used in the level-of-service analyses are 24-hour AADT volumes obtained from SDHPT.

3. All traffic between any two zones was assumed to use the travel path with the shortest travel time as determined from the speed and distance on the individual segments of each highway.

4. Travel speed was determined using the 1985 Highway Capacity Manual procedure for multi-lane and two-lane highways. Speed calculations were based on the following assumptions:

   a. For the study periods, the hourly volume is 7% of the total AADT.
   b. The speed limit was assumed to represent the travel speed.
   c. Directional distribution = 50/50.
   d. All lanes are 12 feet wide.
   e. All highways have 8 foot wide shoulders.
   f. Trucks constitute 11% of the total traffic.
   g. Peak hour factor = 0.90.
   h. Level terrain is assumed.
   i. Drivers are familiar with the roadway.
   j. On two-lane highways, no-passing zones are assumed to be 40% of the total roadway length.

5. Traffic volumes were averaged over the length of the individual segments to obtain an average travel speed over that segment.

6. The proposed alternate route was assumed to be a 4-lane divided highway.

Table C-1. Description of Highway Network Used in Traffic Diversion Analyses

Highway and Segment No.	Location	Length (mi)
I-35		
1	San Antonio CBD to North Loop 410	12
2	North Loop 410 to Loop 1604	5
3	Loop 1604 to New Braunfels	16
4	New Braunfels to San Marcos	18
5	San Marcos to SH 71	25
6	SH 71 to Austin CBD	5
7	Austin CBD to US 183	5
8	US 183 to US 79	13
9	US 79 to SH 53	47
I-10		
1	Boerne to West Loop 410	23
2	West Loop 410 to San Antonio CBD	8
3	San Antonio CBD to East Loop 410	10
4	East Loop 410 to Loop 1604	6
5	Loop 1604 to Seguin	23
US 281		
1	San Antonio CBD to FM 537	3
2	FM 537 to Loop 410	6
3	Loop 410 to Loop 1604	6
4	Loop 1604 to SH 46	14
5	SH 46 to FM 311	6
6	FM 311 to FM 165	16
7	FM 165 to US 290	8
8	US 290 to Johnson City	5
9	Johnson City to SH 29	35
SH 46		
1	Boerne to US 281	21
2	US 281 to IH 35	24
3	IH 35 to IH 10	10
US 290		
1	US 281 to SH 71	33
2	SH 71 to IH 35	8
US 183		
1	IH 10 to FM 20	17
2	FM 20 to SH 21	10
3	SH 21 to SH 71	14
4	IH 35 to Jollyville	12
5	Jollyville to Leander	8
6	Leander to SH 29	5
7	SH 71 to IH 35	10

Table C-1 Continued

Highway and Segment	Location	Length (mi)
SH 21		
1	Bastrop to US 183	24
2	US 183 to San Marcos	18
SH 123		
1	San Marcos to Seguin	19
2	Seguin to Stockdale	26
Loop 1604		
1	US 281 to FM 2252	8
2	FM 2252 to IH 35	2
3	IH 35 to FM 78	3
4	FM 78 to IH 10	5
Loop 410		
1	US 90 to US 281 North	15
2	US 281 North to IH 35 North	5
3	IH 35 North to IH 10 East	6
4	IH 10 East to US 281 South	8
5	US 281 South to US 90	18
FM 20		
1	Bastrop to Lockhart	30
SH 97		
1	Pleasanton to Stockdale	37
SH 142		
1	Lockhart to IH 35	17
SH 71		
1	IH 35 to US 183	4
2	US 183 to Bastrop	24
US 90		
1	Hondo to Loop 410	29
2	Loop 410 to IH 10	9
IH 37		
1	SH 97 to Loop 410	24
2	Loop 410 to San Antonio CBD	6
SH 79		
1	Taylor to IH 35	18
SH 95		
1	Taylor to Bastrop	32

Table C-1 Continued

Highway and Segment	Location	Length (mi)
SH 130 (Mo-Kan)		
1	IH-35 to US 79	13
2	US 79 to SH 71	24
Austin/San Antonio		
1	SH 71 to SH 21	14
2	SH 21 to SH 80	18
3	SH 80 to I-10	19
4	I-10 to Loop 1604	22

APPENDIX D
HISTORICAL CORRIDOR POPULATION AND I-35 TRAFFIC DATA

Table D-1. Historical Corridor Population Data

County	Year								
	1960	1970	1971	1972	1973	1974	1975	1976	1977
Bastrop	16,900	17,300	18,100	18,800	19,300	19,700	19,600	19,900	20,200
Bexar	687,100	830,500	860,400	874,300	896,300	909,700	913,400	935,500	952,100
Caldwell	17,200	21,200	21,400	22,100	21,700	21,800	21,600	22,000	22,000
Comal	19,800	24,200	25,300	27,300	27,900	28,300	28,900	29,900	31,100
Guadalupe	19,900	33,600	34,400	35,400	37,400	38,400	38,700	39,500	39,800
Hays	29,000	27,600	28,900	30,700	33,200	34,500	34,100	34,600	34,300
Travis	212,100	295,500	307,900	318,400	339,400	350,100	360,800	375,400	380,200
Williamson	35,000	37,300	38,700	40,500	44,300	45,600	47,000	49,400	53,300
Total	1,037,000	1,287,200	1,335,100	1,367,500	1,419,500	1,448,100	1,464,100	1,506,200	1,533,000

County	Year							
	1978	1980	1981	1982	1983	1984	1985	1986
Bastrop	20,100	24,700	26,300	28,000	29,500	31,100	34,200	36,500
Bexar	965,700	988,800	1,024,300	1,045,500	1,074,500	1,092,100	1,134,900	1,170,000
Caldwell	22,300	23,600	24,500	24,800	25,800	26,400	27,400	29,200
Comal	31,900	36,400	37,900	39,500	41,500	43,200	46,200	49,300
Guadalupe	40,100	40,600	48,200	49,600	51,300	53,200	54,600	57,100
Hays	35,000	46,700	43,100	43,900	47,400	49,500	56,000	60,800
Travis	384,700	419,600	430,000	452,700	472,500	499,100	533,200	551,000
Williamson	58,200	76,500	81,200	86,800	90,800	96,800	106,300	114,600
Total	1,558,000	1,656,900	1,715,500	1,770,800	1,833,300	1,891,400	1,992,800	2,068,500

Source: U.S. Department of Commerce, Bureau of the Census.

Table D-2. Historical I-35 Traffic Volumes (AADT)

Year	New Braunfels Station (Station 1)	Kyle Station (Station 2)
1970	16,100	14,700
1971	18,600	16,400
1972	19,100	18,400
1973	21,700	20,500
1974	20,700	19,100
1975	21,600	20,600
1976	23,800	21,200
1977	24,500	22,700
1978	25,600	24,800
1979	25,800	24,100
1980	24,000	23,000
1981	24,000	20,000
1982	25,000	27,000
1983	28,000	33,000
1984	36,000	34,000
1985	37,000	37,000
1986	34,000	38,000