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**TELEPHONE SURVEY OF DALLAS NORTH CENTRAL  
EXPRESSWAY USERS**

by  
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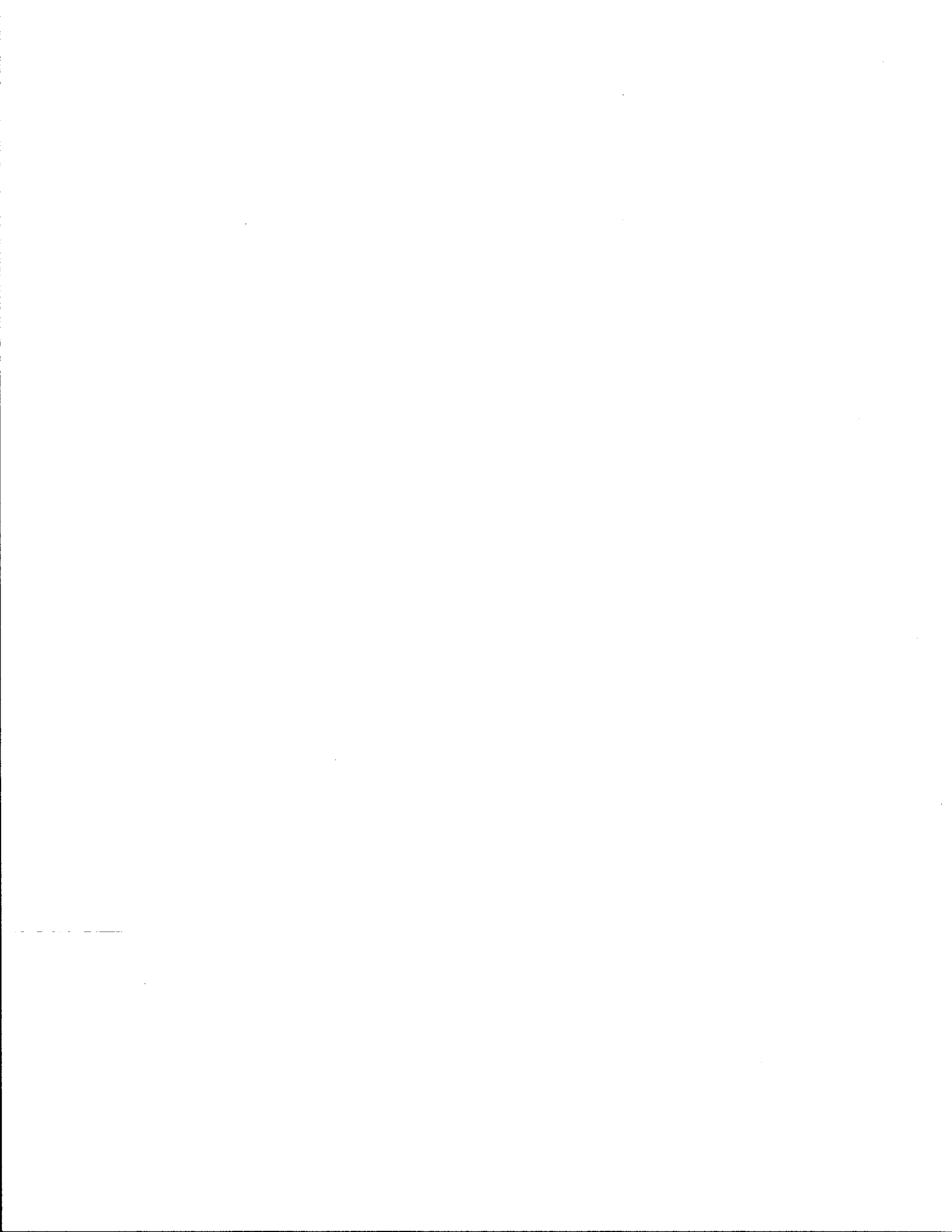
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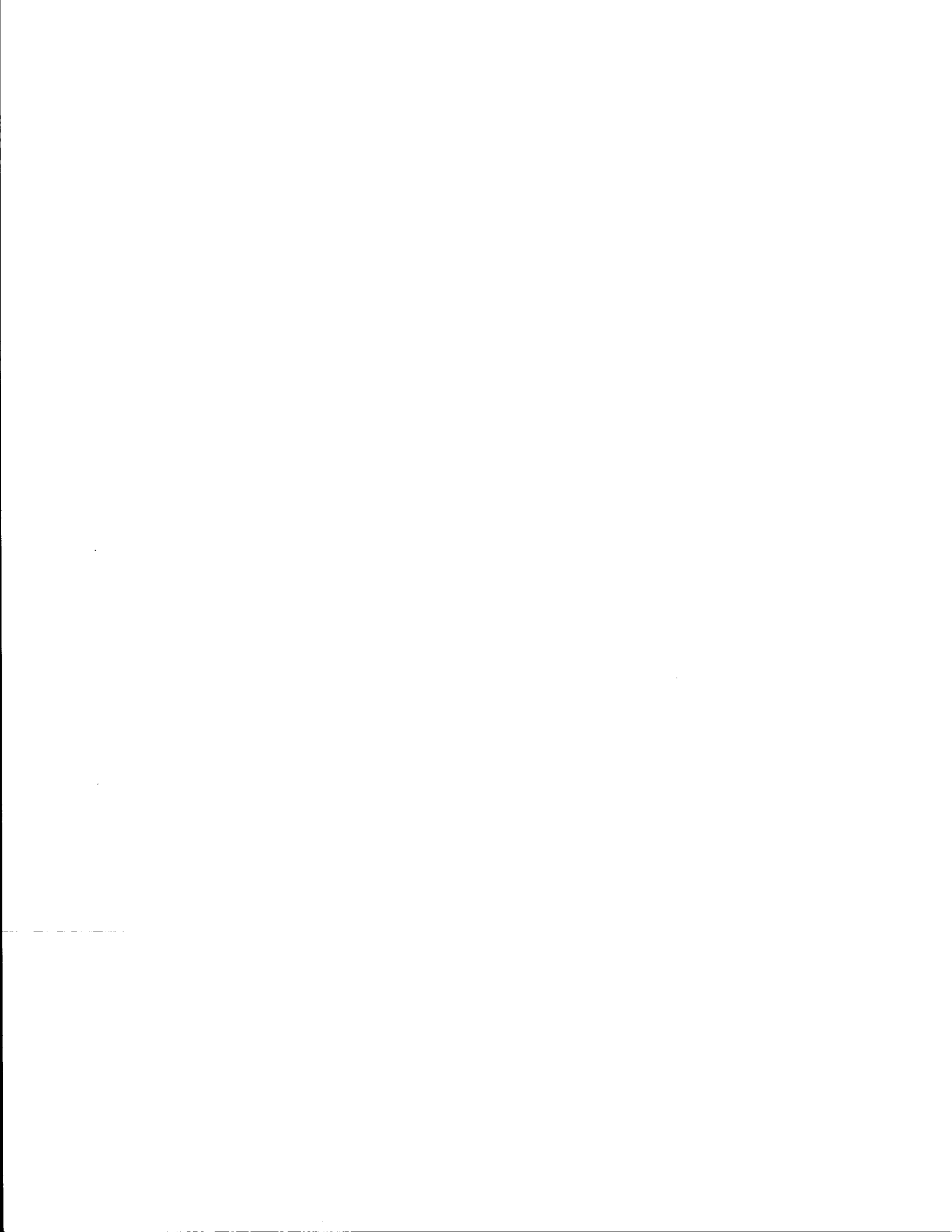
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# METRIC (SI\*) CONVERSION FACTORS

## APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
<b>LENGTH</b>				
in	inches	2.54	millimetres	mm
ft	feet	0.3048	metres	m
yd	yards	0.914	metres	m
mi	miles	1.61	kilometres	km

<b>AREA</b>				
in <sup>2</sup>	square inches	645.2	millimetres squared	mm <sup>2</sup>
ft <sup>2</sup>	square feet	0.0929	metres squared	m <sup>2</sup>
yd <sup>2</sup>	square yards	0.836	metres squared	m <sup>2</sup>
mi <sup>2</sup>	square miles	2.59	kilometres squared	km <sup>2</sup>
ac	acres	0.395	hectares	ha

<b>MASS (weight)</b>				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams	Mg

<b>VOLUME</b>				
fl oz	fluid ounces	29.57	millilitres	mL
gal	gallons	3.785	litres	L
ft <sup>3</sup>	cubic feet	0.0328	metres cubed	m <sup>3</sup>
yd <sup>3</sup>	cubic yards	0.0765	metres cubed	m <sup>3</sup>

NOTE: Volumes greater than 1000 L shall be shown in m<sup>3</sup>.

## TEMPERATURE (exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C
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## APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
<b>LENGTH</b>				
mm	millimetres	0.039	inches	in
m	metres	3.28	feet	ft
m	metres	1.09	yards	yd
km	kilometres	0.621	miles	mi

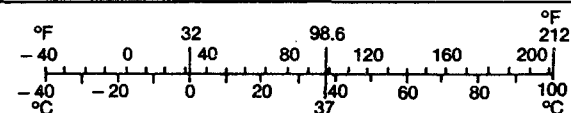
<b>AREA</b>				
mm <sup>2</sup>	millimetres squared	0.0016	square inches	in <sup>2</sup>
m <sup>2</sup>	metres squared	10.764	square feet	ft <sup>2</sup>
km <sup>2</sup>	kilometres squared	0.39	square miles	mi <sup>2</sup>
ha	hectares (10 000 m <sup>2</sup> )	2.53	acres	ac

<b>MASS (weight)</b>				
g	grams	0.0353	ounces	oz
kg	kilograms	2.205	pounds	lb
Mg	megagrams (1 000 kg)	1.103	short tons	T

<b>VOLUME</b>				
mL	millilitres	0.034	fluid ounces	fl oz
L	litres	0.264	gallons	gal
m <sup>3</sup>	metres cubed	35.315	cubic feet	ft <sup>3</sup>
m <sup>3</sup>	metres cubed	1.308	cubic yards	yd <sup>3</sup>

## TEMPERATURE (exact)

°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F
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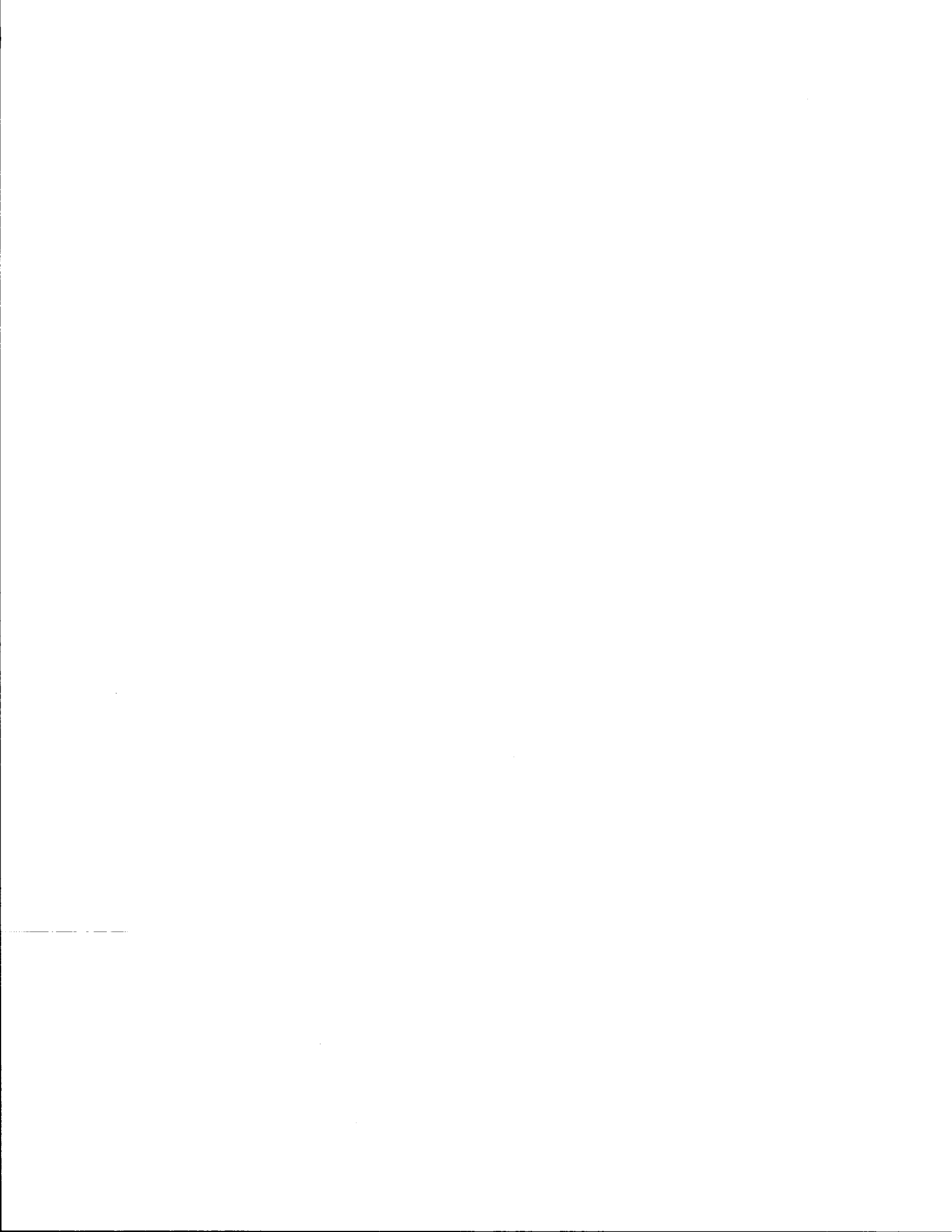
These factors conform to the requirement of FHWA Order 5190.1A.

\* SI is the symbol for the International System of Measurements



## **DISCLAIMER**

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**EXECUTIVE SUMMARY**  
**DALLAS NORTH CENTRAL EXPRESSWAY USER SURVEY**

The Texas Transportation Institute, in conjunction with the Public Policy Resources Laboratory at Texas A&M University, conducted a telephone survey of Dallas and suburban Dallas residents to determine North Central Expressway user opinions, travel behaviors, and transportation preferences.

Of the 1356 Dallas and Collin County residents surveyed, 81 percent used the expressway to some extent. A distinction was made between users and non-users with non-users defined as those who traveled on North Central Expressway less than once a week, and users defined as those who traveled on North Central Expressway at least once a week. Using this definition, 31 percent of the survey respondents were North Central Expressway users. Eleven percent of those surveyed reported they traveled on North Central Expressway every day.

Forty-one percent of the North Central Expressway users traveled on the expressway to get to work. Of this group, 41 percent traveled to or through the downtown area to get to work. These commuters typically resided in the North Central Expressway corridor, traveled from the West side of the corridor, drove to work alone, and had more than one vehicle in their household.

Overall, users of North Central Expressway differed from non-users with regard to the following:

- Larger number of public transportation users
- More who take the bus to work
- Public transportation issues more important
- More apt to use rail
- Younger
- More males than females
- Higher incomes

In response to questions concerning transportation alternatives, 15.5 percent of the sample reported that they have ever ridden a city bus (39 percent of this group reported being frequent bus riders). Sixty-one percent of the survey respondents said they would use rail to some extent, if provided on North Central Expressway, and 12 percent of this group predicted they would use it every day. Fifty-two percent of the respondents said they would use a high occupancy vehicle (HOV) lane on North Central Expressway, if provided, and 13 percent of this group predicted they would use it every day. Predicted use of the HOV lane had a negative association with income--the higher the income, the lower the expected use. Predicted rail transportation users were more likely to be young (20 to 39 years) and male.

When provided a list of transportation issues related to North Central Expressway use, survey respondents rated **safety** as the number one issue. A similar question pertaining to public transportation also revealed safety as the most important issue.

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**TELEPHONE SURVEY OF DALLAS  
NORTH CENTRAL EXPRESSWAY USERS**

**INTRODUCTION**

For several years, the Texas State Department of Highways and Public Transportation (SDHPT) has been working toward a design for the reconstruction of the North Central Expressway in Dallas. Changing political issues and transportation priorities have complicated the decision-making process. Currently, the Dallas Area Rapid Transit authority and SDHPT are seeking solutions to accommodate the transportation needs for travel in the North Central Corridor.

In seeking solutions, the SDHPT put into action recommendations that were summarized in the Transportation 2020 study conducted in 1988. The role of planning as determined by the Transportation 2020 study should include all governmental entities and the private sector in the planning process as early as possible. "Accurate information about needs and pitfalls is best identified this way" (SDHPT, 1988, p. 30). The report continues with the charge:

Practice strategic planning, which enables the public sector to establish broad direction. Strategic planning envisions long-term needs and resources while evaluating external concerns and expectations. It allows better evaluation of competitive transportation initiatives for allocation of limited monetary resources (SDHPT, 1988, p.31).

To enhance involvement of the public in the planning process, a telephone survey was conducted by the Texas Transportation Institute (TTI). This telephone survey was designed to provide current information that would assist SDHPT in documenting the public's use of the corridor, expectations of its future use, and preferences for transportation choices within the corridor.

Information was sought regarding the transportation habits of users of the North Central Expressway corridor as well as expectations of future use. Four specific objectives were addressed with the telephone survey:

1. Determine the number of users and potential users.
2. Determine the origins and destinations of users who live in (a) the North Central corridor and (b) other Metroplex areas.
3. Determine the purpose of user trips on North Central Expressway.
4. Determine public attitudes and preferences for type and intended use of transportation systems on North Central Expressway.

#### **SURVEY METHOD**

The sample was drawn from Dallas and Collin County, south of US Highway 380. A sampling plan was developed in which 600 users of North Central Expressway would be randomly selected from households with telephones, with 300 from an area designated as the North Central Expressway corridor and 300 from outside the designated corridor. Users were defined as those who traveled on North Central Expressway at least once a week.

It was anticipated that the process of screening for North Central Expressway users would yield a much larger proportion of non-users. For comparison purposes, and to take advantage of the opportunity provided by the telephone contact, these non-user respondents were asked an abbreviated set of questions.

As shown in Figure 1, the North Central Expressway corridor was defined as the area adjacent to North Central Expressway bordered by State Highway 78 on the East, Spur 366 and Interstate 30 on the South, the Dallas North Tollway on the West, and U.S. Highway 380 and State Highway 121 on the North. The corridor sample was drawn from telephone prefixes within these boundaries,



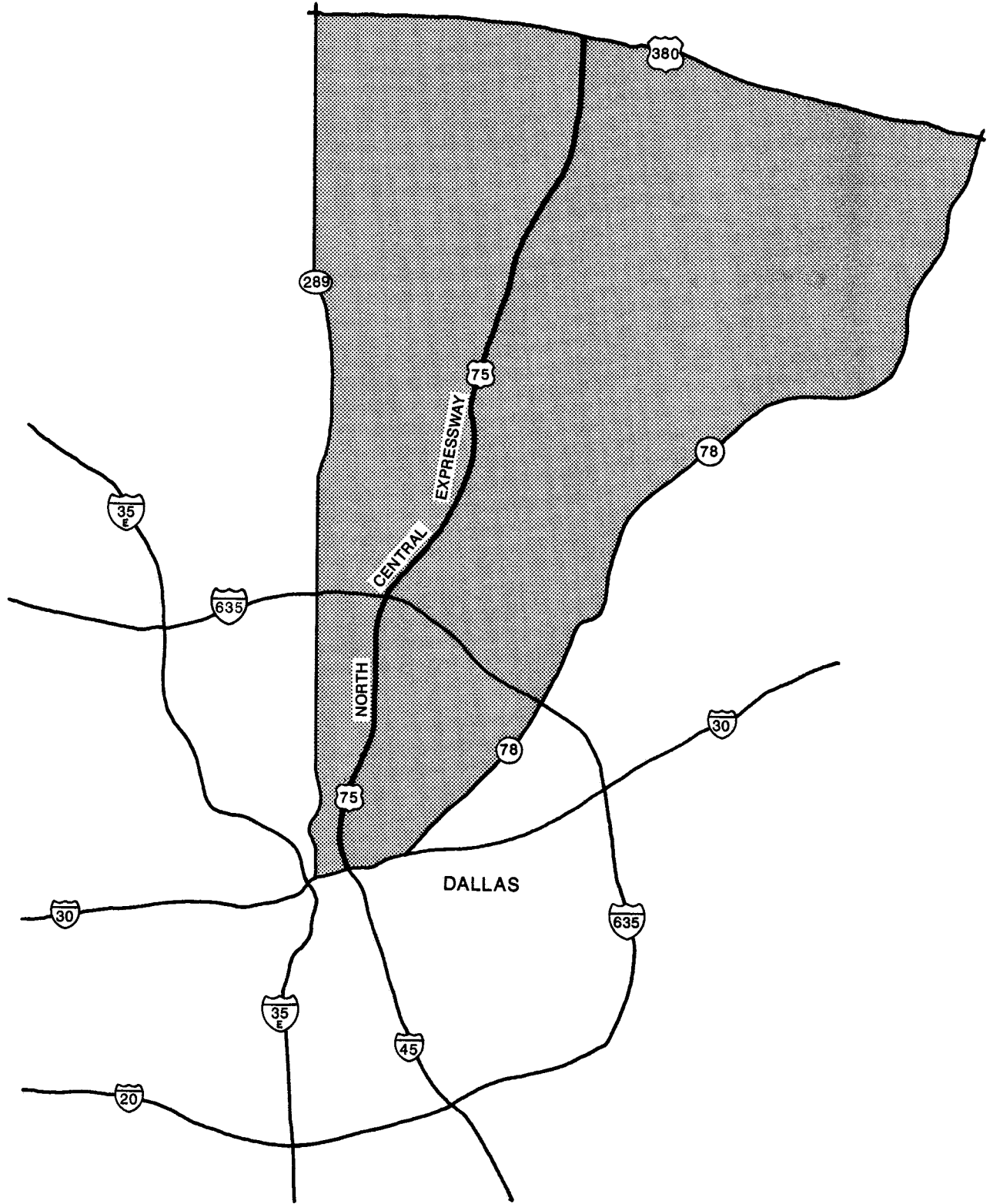


FIGURE 1. North Central Expressway  
Corridor  
3

although telephone prefix areas do not necessarily correspond with roadway boundaries. Eligible respondents from outside the corridor were defined as Dallas or Collin County residents not included in the above defined corridor. Using the first 500 random calls, it was estimated that approximately 45 percent of the population was within the corridor boundaries and 55 percent was outside the corridor.

The sample size was determined to be sufficient to produce a sampling error of plus or minus four percent with a confidence interval of 95 percent. In other words, in 95 out of 100 such samples, the results should differ by no more than four percent in either direction from what would have been obtained if every telephone household in the Dallas and Collin County study area had been surveyed.

The telephone survey was conducted from May 25 through June 14, 1989. A total of 2,226 households were contacted that agreed to be interviewed. There were 411 refusals, for a cooperation rate of 84 percent. Three percent of the interviews were conducted in Spanish.

Of the 2,226 cooperating households, 585 were from within the corridor boundaries. Of these 585 households, 299 respondents were classified as users of the expressway and 286 were non-users. A total of 296 expressway users and 476 non-users outside the corridor were interviewed. The remaining 869 respondents were identified as non-users that were contacted in an effort to obtain the desired number of users for the sample. These households were not interviewed; however, their contribution to the non-user category was applied to the weighting scheme described below.

The sample was divided into four strata based on use or non-use of North Central Expressway and location inside or outside of the corridor area. Each strata was then weighted according to its proportional contribution to the sample, as compared to its relative contribution in the general population under consideration. The weights for each strata were as follows:

<u>Strata</u>	<u>Corridor</u>	<u>User</u>	<u>Weight</u>
1	In	Yes	.934
2	In	No	1.155
3	Out	Yes	.494
4	Out	No	1.264

The telephone interviews were conducted by the Public Policy Resources Laboratory at Texas A&M University. Calls were made between 6 p.m. and 9 p.m. Monday through Friday and on weekends between 1 p.m. and 9 p.m.

Once a household was reached, the respondent was selected using the "last birthday" method. The interviewer asked to speak to the person 18 years of age or older who had the most recent birthday. This technique randomizes within household, which is necessary to minimize the potential presented by a tendency for females within households to answer the phone more often than males. A description of the survey sample is provided in Table 1.

## **RESULTS**

### **North Central Expressway Usage**

For the sample as a whole, over 11 percent of the respondents reported that they traveled on North Central Expressway every day. An additional twenty percent were frequent users of the expressway (at least once a week), and 27 percent were infrequent users (less than once a month). The percent that reported they never traveled on North Central Expressway was 18.6 for the total sample surveyed.

As expected, the frequency of use of North Central Expressway was greater for people who lived within the corridor. Table 2 gives the percentages of each category. Over half (55 percent) of those living in the corridor use the expressway on a frequent basis. Of those living outside the corridor, approximately 20 percent use the expressway on a frequent basis.

**Table 1. Characteristics of Survey Sample  
Sample Size = 1356**

<u>Gender</u>		
	%	N
Male	43	581
Female	57	770

<u>Age</u>		
Under 20	3	41
20-29	22	298
30-39	28	379
40-49	17	234
50-59	12	168
60+	17	228

<u>Income</u>		
< \$15,000	12	168
\$15,000-\$25,000	19	258
\$26,000-\$50,000	35	468
> \$50,000	25	334
Don't Know/Refused	9	128

<u>Expressway Users</u>		
Users Inside Corridor	21	279
Users Outside Corridor	11	146
Non-Users Inside Corridor	24	330
Non-Users Outside Corridor	44	600

**Table 2. Frequency of Use For Respondents Located  
Inside and Outside the North Central Corridor**

	<u>Inside</u>	<u>Outside</u>
	Percent	
Every day	18.2	6.2
Several times/week	12.9	5.9
Once/week	15.4	7.8
Once/month	20.0	22.3
Less than once/month	19.0	35.1
Never	14.4	22.6

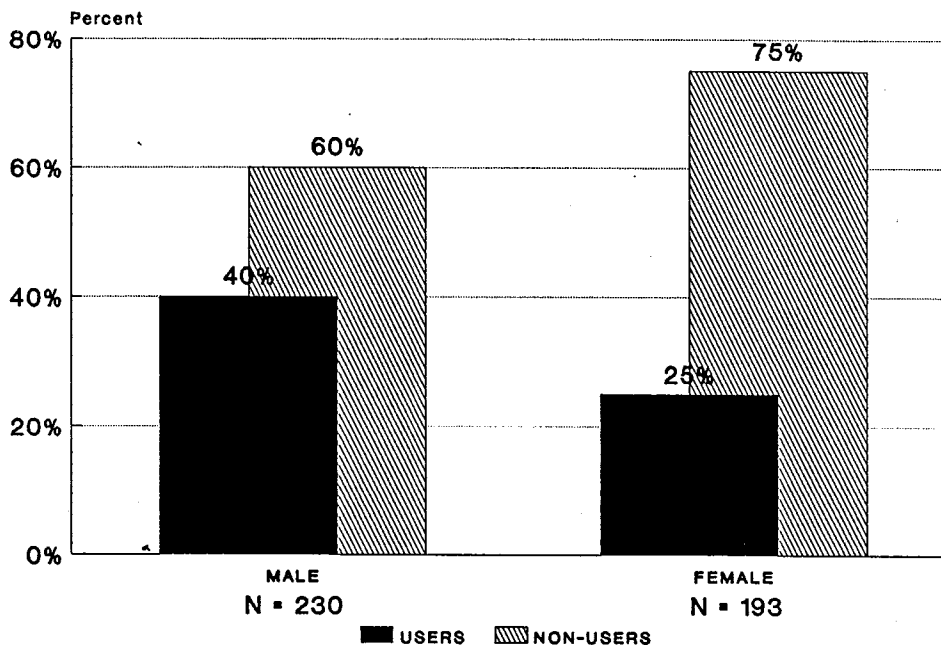
Twenty-two percent of all the respondents who infrequently or never traveled on North Central Expressway said they avoided this expressway. Most residents who did not travel on North Central Expressway on a regular basis indicated the reason was that travel on North Central simply was not necessary to get to their desired destination. Overall, this response was given by 64 percent of the respondents. Respondents were twice as likely to cite this as a reason for not using North Central Expressway if they were located outside the corridor. "Outside" respondents also were twice as likely to report that the use of other routes was a reason for not using North Central Expressway.

Analysis of the demographic characteristics of the expressway users revealed that males tended to be more frequent North Central Expressway users than females (see Figure 2). The use of the freeway was also significantly related to the age of the respondent. The age group that represented the highest usage percentage was 18 to 20. Fifty-two percent in this age group reported that they traveled on North Central Expressway at least once a week, compared to 44 percent in the 20 to 29 age group, 30 percent in the 30 to 60 age group, and 17 percent in the over 60 age group (Figure 3). The location of the respondent (inside or outside the corridor) had a significant effect on use of the expressway by age. A higher percentage of each age group residing inside the corridor were expressway users, except the under 20 group (see Figure 4).

A third demographic variable, income, was also associated with use of the expressway. The results showed that as income

Figure 2

North Central Expressway Usage By  
GENDER



increased, expressway use also increased for all respondents (Figure 5). Further analysis, however, revealed that the positive relationship between North Central Expressway use and income was true only for those residing inside the corridor (Figure 6).

**Trip Purpose**

A series of questions addressed the purposes for which North Central Expressway is used. As shown in Table 3, the more discretionary type trips (i.e., shopping, medical, and personal) were made by a greater percentage of those residing inside the

Table 3. Trip Purpose of Users by Location

	<u>Inside</u>	<u>Outside</u>
	Percent	
Work	41.5	44.9
School	6.9	9.5
Shopping	59.6	47.8
Medical appointments	35.1	30.7
Personal trips	80.5	68.0

Figure 3  
 North Central Expressway Usage By  
 AGE

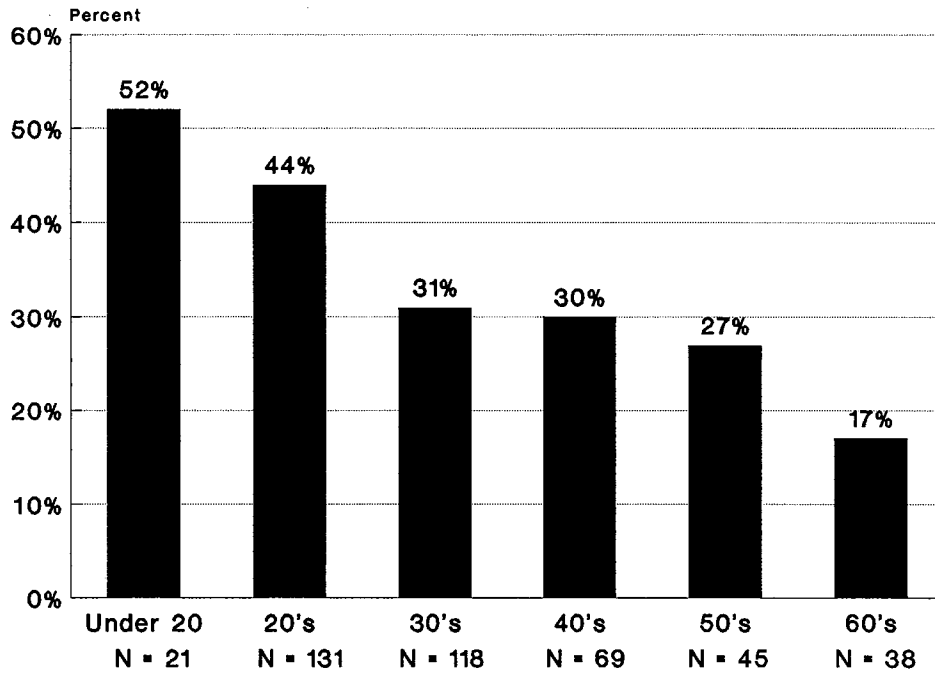


Figure 4  
 North Central Expressway Usage By  
 AGE and LOCATION

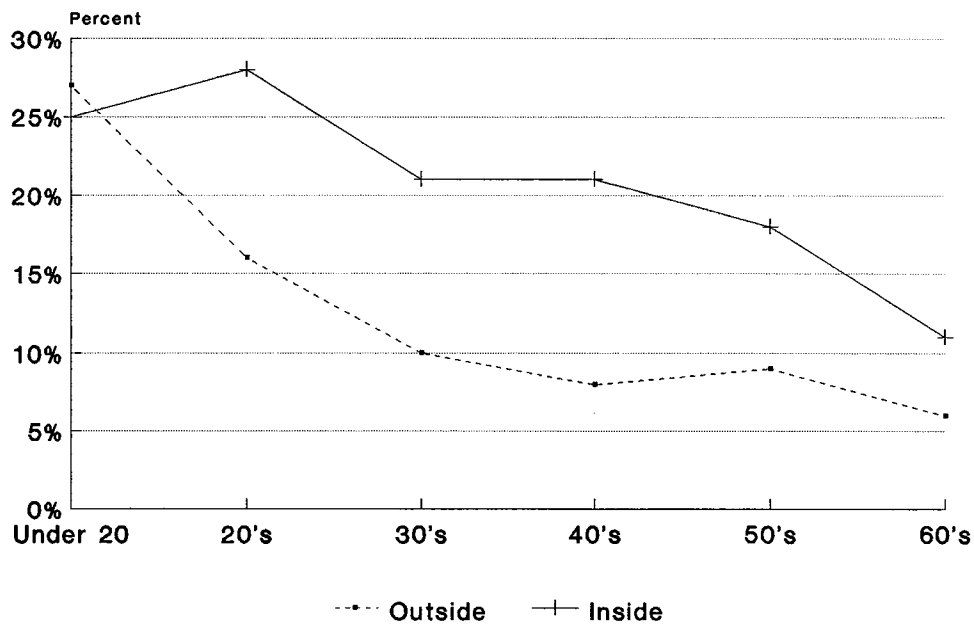


Figure 5  
 North Central Expressway Usage By  
 INCOME

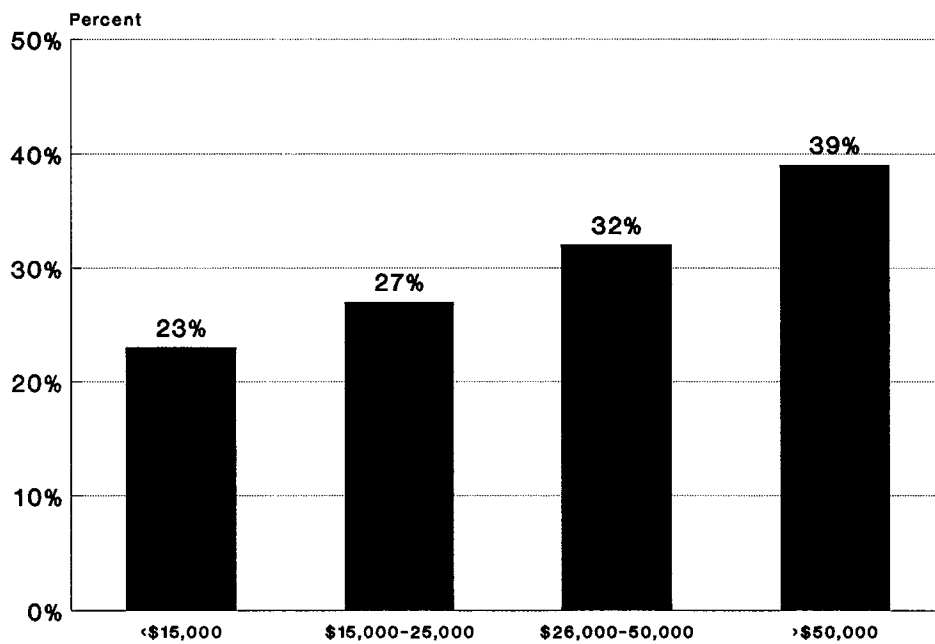
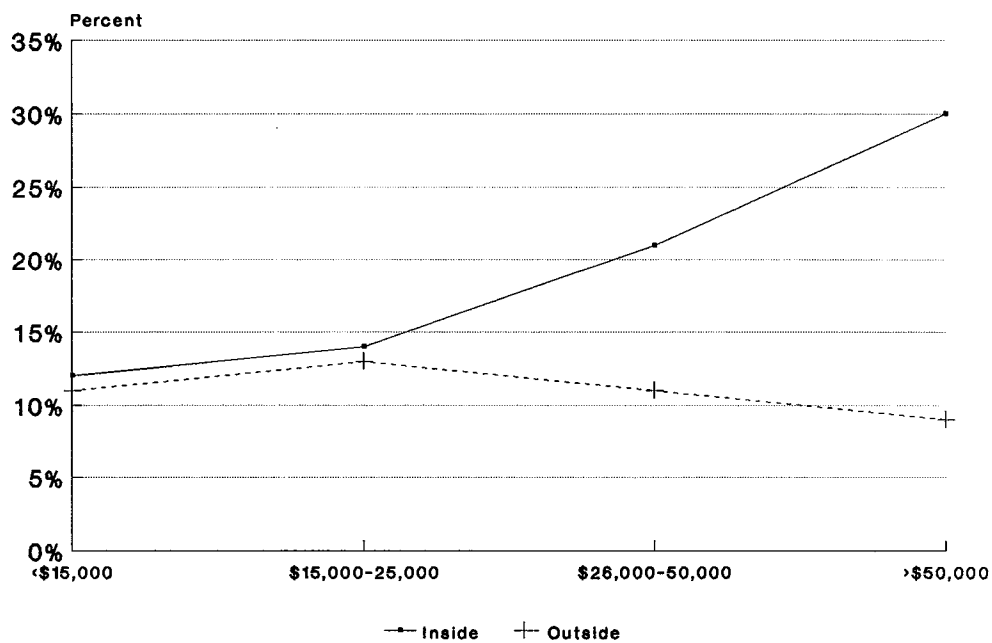


Figure 6  
 North Central Expressway Usage By  
 INCOME and LOCATION





corridor. A slightly larger (although non-statistically different) percentage of respondents residing outside the corridor said they used the expressway for work and school trips. Statistically significant differences were found by location (inside and outside the corridor) for shopping and personal trips. As shown in Table 4, females used the freeway a greater percentage of the time than males for shopping and medical appointments, whereas males were more inclined to make work and school trips in greater percentages than females.

**Table 4. Trip Purpose by Gender**

	<u>Male</u>	Percent	<u>Female</u>
Work	48.5		35.9
School	9.1		6.1
Shopping	51.7		59.9
Medical appointments	29.3		38.9
Personal trips	77.6		74.7

**Travel Behavior**

Several aspects of travel behavior were of interest regarding users of North Central Expressway. Specific items of interest were: (1) percentage of carpoolers; (2) downtown trips; (3) number of trip interruptions; and (4) distance and time traveled. Travel behavior related to public transportation (city bus) was also examined for North Central Expressway users and non-users.

The question was posed to regular users of North Central Expressway: "Thinking of the trips that you took to work on the North Central Expressway during the last two weeks, how many times did you drive in the car alone, drive or ride in the car with someone else, or take the bus?" The mean response was 10.2 times for driving alone, 1.9 times for sharing a ride, and .8 times for taking the bus. For trips other than work trips, the mean number of times respondents drove alone was 3.7. Respondents shared rides an average of 2.4 times during the two week interval, and took the bus an average of .14 times for non-work trips during the two week

period (see Table 5). No significant differences were found be-

**Table 5. Average Number of Trips Alone, Shared, and by Bus During Previous Two-Week Period**

	Work Trips	Non-Work Trips
Driven alone	10.2	3.7
Shared ride	1.9	2.4
Bus	.8	0.1

tween males and females, income levels, or by location inside or outside the corridor for the three methods of transportation.

Forty-one percent of the working commuters who used North Central Expressway traveled to or through the downtown area on their way to work. They were predominantly from inside the North Central corridor, with the highest percentage coming from the west side of the corridor. Downtown commuters were also more likely than others to a) drive to work alone, b) have more than one vehicle in their household, c) report they would use an HOV lane frequently, and d) report that they would use a rail system regularly. There were no significant differences for downtown commuters in a) income, b) frequency of stops made while commuting to work, or c) gender.

Expressway users typically do not get on and off the freeway more than once during a single trip. Sixty-eight percent of the respondents reported they did not make any stops on the way to work. Twenty-nine percent said they stop two or three times during non-work related trips, and five percent said they stop four or more times during a non-work related trip.

Respondents were queried as to their reasons for making stops as they commute to work. The most prevalent reason was to make a grocery stop (given by 76 percent of the respondents who made commuting stops). The pattern of work trip interruptions was no different for those who lived outside the corridor from those who lived inside the corridor.

The respondents were provided with categories for estimating distance normally traveled on North Central Expressway. The miles traveled on North Central Expressway for those located inside and outside the corridor are provided in Table 6. As evidenced by the Table, users who lived outside the corridor were traveling the

**Table 6. Usual Distance Traveled on North Central Expressway**

	<u>Inside</u>	<u>Outside</u>
	Percent	
Less than one mile	2.0	0.7
One to three miles	14.4	8.8
Three to five miles	29.4	24.3
More than five miles	52.2	64.2
Don't know/No answer	2.0	2.0

longest distances on North Central Expressway. According to zip codes of home and work, where the two were different (i.e., a respondent lived and worked in two different zip code areas), the most frequently traveled trip was from home inside the corridor on the east side to work inside the corridor on the east side of Dallas.

Related to distance traveled was the duration of travel. Respondents were asked to estimate the time it usually took them to travel the distance they reported as usual for them. The average across all trips was 23 minutes. Respondents were also asked how long they thought the same trip should take. The desired duration was an average of eight minutes less than the estimated time for usual trips.

#### Use Of Public Transportation

Public transportation usage was measured by the percent who reported they currently ride the city bus. The majority (84 percent) of respondents did not ride city buses. Bus use for each strata is shown in Table 7. Fifteen percent said they rode the bus

at least occasionally. Most (61 percent) of the bus riders were infrequent riders (once per month or less). The trip purposes given most often for riding the city bus were for work (44 percent) and for personal trips (54 percent).

**Table 7. Bus Use By Location and North Central Expressway Use**

	Percent Yes	Percent No
Expressway User	18.5	81.5
Expressway Non-User	14.1	85.9
Inside Corridor	17.1	82.9
Outside Corridor	14.2	85.8

Those who did not take public transportation cited the availability of personal transportation as the primary reason for not taking the bus. However, 15 percent said their reason for non-use was due to the unavailability of service in their area. An additional 12 percent said the routes were not feasible, and five percent said the schedule was not feasible.

When asked if they thought the current bus system on North Central Expressway is adequate, the majority (59 percent) said they did not know. Persons living outside the corridor were more likely than persons within the corridor to believe the bus system on North Central was adequate.

The respondents were asked what they were willing to pay for a one-way bus trip in Dallas. Between \$.50 and \$1.00 was the most frequent response (41 percent). Twenty-two percent said they would pay more than \$1.00, and six percent said they would pay more than \$2.00. Two percent of the respondents said they would not be willing to pay anything for a city bus ride.

## Transportation Preferences

The fourth objective of the survey was to determine public attitudes about several transportation options for the North Central corridor. Users of the North Central Expressway were asked to rate the importance of six characteristics of travel on North Central Expressway. Table 8 provides the ratings of these six characteristics according to location of the respondent.

As indicated in Table 8, safety was rated as the most important issue to users on North Central Expressway both inside and outside the corridor. In a follow-up question, the respondent was asked to name from the list the most important issue to them. Safety was most often named by users of the expressway residing inside and outside of the corridor. Thirty-three percent of the former and 37.5 percent of the latter gave this response. Reasonable time for travel was very close in importance for users inside the corridor (32.4 percent). Twenty-six percent of users outside said this was the most important item on the list.

There were significant differences between males and females on the importance of safety. Ninety-four percent of the female respondents, compared to 86 percent of the male respondents labeled safety as important. Additionally, a significantly greater percentage of females than males rated the ability to make stops for errands as important (61 percent compared to 42 percent, respectively).

Users and non-users of North Central Expressway were asked a similar set of questions with regard to public transportation. The ability to get to your destination in a reasonable time was rated as important by the largest percentage of users, and safety was the highest rated issue for non-users of North Central Expressway (Table 9). Safety was listed most often for both groups in response to the follow-up question--"which, if any of the list is most important." Convenient parking, frequent trips, and cost were least important. However, cost and frequent trips were significantly more important for younger respondents and respondents with lower incomes. Further, there were significant

**Table 8. Ratings of Transportation Issues by North Central Expressway Users**

	Important		Neutral		Not Important	
	Inside	Outside	Inside	Outside	Inside	Outside
The ability to get on and off the freeway frequently	64.9	61.8	18.7	21.0	16.1	15.9
The ability to get to your destination in a reasonable time	90.0	82.8	7.7	10.8	1.7	5.4
Safety	91.0	85.1	6.7	8.8	2.0	4.7
Driving your own car	66.9	67.6	24.7	22.6	7.7	8.5
The ability to make stops for errands	51.8	45.2	26.4	32.8	19.7	19.3
The ability to travel at the time you choose	88.0	81.4	9.4	11.1	2.3	6.4

**Table 9. Ratings of Public Transportation Issues by  
North Central Expressway Users and Non-Users**

	Important		Neutral		Not Important	
	Users	Non-Users	Users	Non-Users	Users	Non-Users
Cost	52.5	46.2	30.8	30.3	16.7	23.6
Convenient Schedule	83.9	72.7	8.9	12.1	7.1	15.1
Safety	86.9	78.6	8.1	12.9	5.0	8.6
The ability to get to your destination in a reasonable time.	88.8	80.9	5.8	9.6	5.4	9.5
Frequent Trips	56.7	44.3	30.9	36.1	12.4	19.6
Convenient Parking	75.7	66.5	15.9	19.3	8.5	14.3
Secure Parking	81.3	75.7	10.9	12.8	7.8	11.5

differences between males and females on all of the public transportation issues except the frequency of trips.

Several questions addressed transportation alternatives for the North Central Expressway. Current users of the expressway were asked if they would use a high occupancy vehicle (HOV) lane described as a special lane for buses, carpools, and vans, if available. The responses are provided in Table 10. Of those who said they would use an HOV lane, if available, 24 percent said they would use it every day, 36 percent said they would use it at least once a week, 21 percent said they would use it at least once a month, and the remainder said they would use it less than once a month or they did not know how often they would use it.

**Table 10. Likelihood of Using HOV Lane  
By Location**

	Percent Inside	Percent Outside
Definitely use	16.0	14.2
Probably use	12.4	20.6
Might use	21.4	19.9
Would not use	48.5	43.2

When the combined 47 percent who said they would not use an HOV lane were asked the reasons why not, the most common reason given was that they drive alone, not in carpools, and therefore would not be eligible. For most of the 200 respondents who would not use the HOV lane, the indication was that this option was just not a practical one for their transportation needs. The likelihood for using the HOV lane was not associated with gender or age; however, respondents with higher incomes were more likely to report that they would not use an HOV lane.

Users and non-users of North Central Expressway were also asked the likelihood that they would use a rail system, if provided. Sixty percent of the respondents indicated they would use rail to some degree. Thirteen percent said they would



definitely use it and 19 percent said they would probably use it. Thirty-nine percent said they would not use rail, if provided.

**Table 11. Likelihood of Using Rail  
By Location**

	Percent Inside	Percent Outside	Percent Users	Percent Non-users
Definitely use	14.4	11.9	17.3	11.0
Probably use	20.4	18.7	26.9	16.0
Might use	29.3	27.3	28.8	27.9
Would not use	35.9	42.1	27.0	45.0

Respondents (both inside and outside the corridor) who were not currently using North Central Expressway were less likely than expressway users to predict they would use a rail system if provided. There was no significant difference among the respondents living inside and outside the corridor as to whether or not they believed they would use a rail system. Potential users tended to be young (20 to 39 years) and male.

Of those who said they would use rail, 19 percent said they would use it every day, 25 percent said they would use it at least once a week, 26 percent said at least once a month, and 19 percent said less than once a month. For comparison purposes, Table 12 shows the percentage breakdowns for predicted use of both the HOV lane option and the rail option. Note that only current North Central users were asked the HOV question.

Respondents were asked what they would be willing to pay for a one way trip they would usually be making by rail. Thirty-eight percent said between \$.50 and \$1.00. Twenty-eight percent said they would pay between \$1.00 and \$1.50. And 14 percent said they would pay between \$1.50 and \$2.00. Another nine percent said they would be willing to pay more than \$2.00 for a one-way trip. In general, current expressway non-users were willing to pay more for a rail trip, if offered, than expressway users. A comparison of the amounts respondents were willing to pay for bus and rail is provided in Table 13.

Table 12. Predicted HOV Lane Use and Rail Use

	Inside Corridor		Outside Corridor	
	HOV	Rail	HOV	Rail
Definitely Use	16.0	14.4	14.2	11.9
Probably Use	12.4	20.4	20.6	18.7
Might Use	21.4	29.3	19.9	27.3
Would Not Use	48.5	35.9	43.2	42.1

**Table 13. Comparison of Willingness to Pay  
for Rail and Bus Trips**

	Percent	
	Bus	Rail
None	2.1	1.4
Up to \$.50	18.8	7.9
\$.51 to \$1.00	41.1	33.7
\$1.01 to \$1.50	17.0	24.9
\$1.51 to \$2.00	4.8	12.6
More than \$2.00	6.4	8.1
Don't know/No answer	9.8	11.5

The response given most often for those who would not use rail was inaccessibility to the corridor. This response was by 39 percent of those who would not ride on a rail system, and was given by respondents located inside as well as outside the North Central corridor.

#### **SUMMARY AND DISCUSSION**

The Texas Transportation Institute, in conjunction with the Public Policy Resources Laboratory at Texas A&M University, conducted a telephone survey of Dallas and suburban Dallas residents to determine North Central Expressway user opinions, travel behaviors, and transportation preferences.

Of the 1356 Dallas and Collin County residents surveyed, 81 percent used the expressway to some extent. A division was made between users and non-users with non-users defined as those who traveled on North Central Expressway less than once a week, and users defined as those who traveled on North Central Expressway at least once a week. There were 425 expressway users and 906 non-users in the sample. Results were analyzed by location inside or outside the corridor and by user and non-user where appropriate. Response frequencies for each of the questions are included as an Appendix. The following synopsis of the survey results is intended to highlight the differences and similarities among the four groups.

North Central Expressway users originate primarily from within the corridor delineated for this study. Over 50 percent of this group usually traveled more than five miles per trip. Users from within the corridor had higher incomes than users from outside the corridor. Expressway users from inside the corridor traveled by bus more often than expressway users from outside the corridor, and convenient bus schedules were significantly more important to them.

Approximately 20 percent of the users who lived outside the North Central corridor traveled on the expressway at least once a week. Over 64 percent of this group usually traveled more than five miles per trip. Expressway users who lived outside the corridor were more likely than users from inside the corridor to own a pickup truck and less likely to use the expressway for shopping trips, medical, and other personal trips.

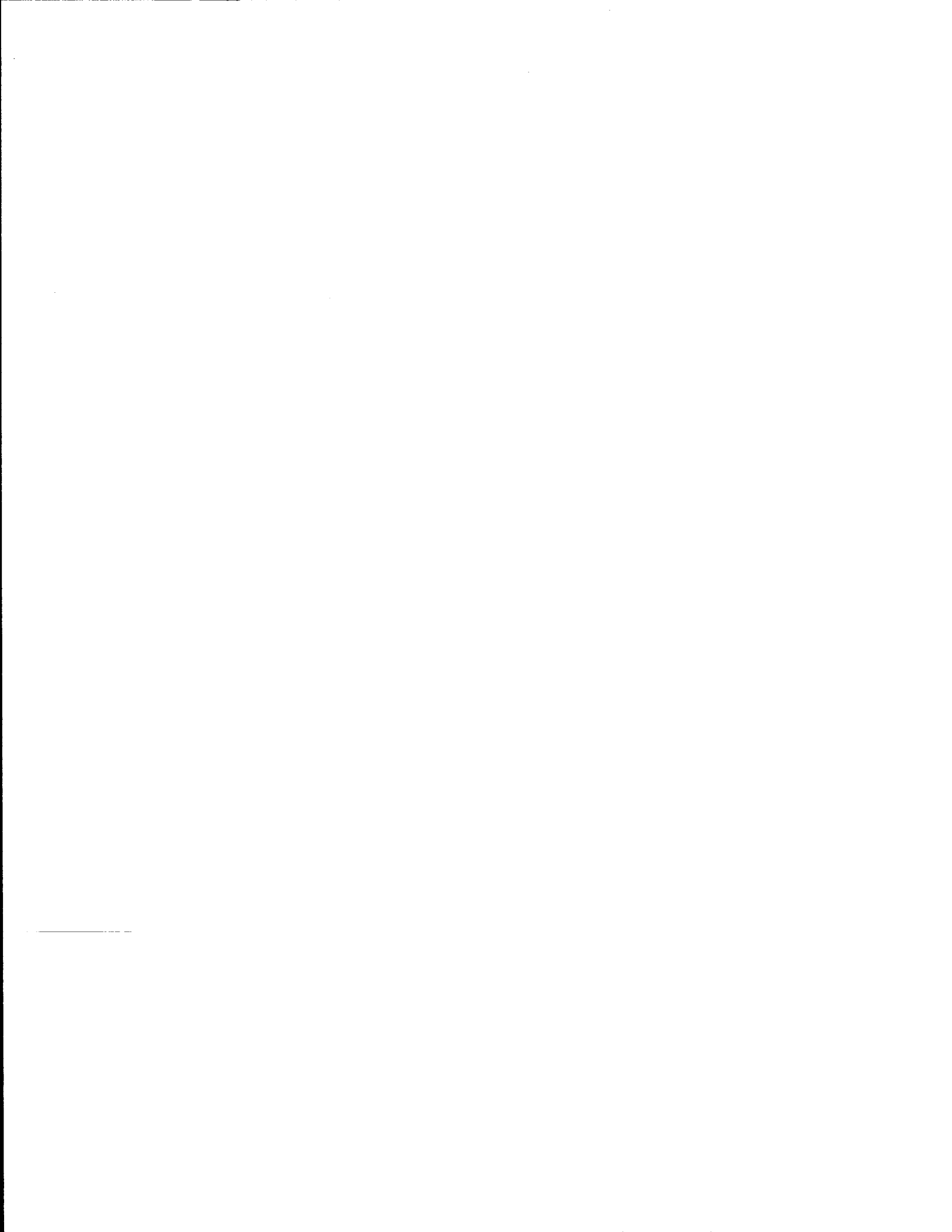
North Central Expressway users from inside and outside the corridor were not significantly different in their opinions of the bus system on North Central. They also did not differ in their projected use of an HOV lane or a rail system. The number and purpose of stops or trip deviations while traveling on North Central was not significantly different for these two groups.

There was no difference in opinion regarding the adequacy of the bus system on North Central Expressway between the users of the expressway and non-users of the expressway. The two groups were also statistically similar with regard to the number of vehicles per family.

Users of North Central Expressway differed from non-users with regard to the following:

- Larger number of public transportation users
- More who take the bus to work
- Public transportation issues more important
- More apt to use rail
- Younger
- More males than females
- Higher incomes

**APPENDIX**



**DALLAS NORTH CENTRAL EXPRESSWAY  
SURVEY RESULTS**

**1. What form of transportation do you use most of the time in Dallas?**

	% Total
	N=1356
Drive a car.....	86.1
Ride as a car passenger...	5.9
Take the bus.....	5.2
Drive or ride motorcycle..	.4
Walk.....	.6
Other.....	1.3
Dont' know/No answer.....	.5

**2. Do you ever take the city bus?**

	% In	% Out	% Total
	N=572	N=712	N=1284
Yes/Sometimes.....	17.1	14.2	15.5
No.....	82.9	85.8	84.5

\* "In" refers to respondents residing inside the North Central Expressway corridor. "Out" refers to respondents residing outside the corridor.

**3. For what purpose do you ride the bus?**

	% Yes
	N=269
Work.....	44.3
School.....	10.3
Shopping.....	27.1
Medical trips.....	24.2
Personal.....	54.6

**4. How often do you ride on a city bus?**

	%
	N=269
Every day.....	16.9
Several times a week.....	11.1
Once a week.....	10.4
Once a month.....	19.9
Less than once a month....	40.9
Don't know/No Answer.....	.9

**5. What is the main reason you don't ride the bus?**

	N	%
Service not available.....	162	14.9
Own transportation.....	386	35.5
Routes not feasible.....	130	12.0
Schedule not feasible.....	56	5.2
Other.....	333	30.6
Don't know/No answer.....	20	1.8

**6. How often do you travel on North Central Expressway?**

	% In N=600	% Out N=731	% Total N=1331
Every day.....	18.2	6.2	11.6
Several times a week.....	12.9	6.0	9.1
At least once/week.....	15.4	7.8	11.2
At least once/month.....	20.0	22.3	21.3
Less than once/month.....	19.1	35.1	27.9
Never.....	14.4	22.6	18.9

**7. Is the reason that you don't travel more on North Central Expressway because...**

	% In N=289	% Out N=523	% Total N=812
It is not necessary to get where you normally go.....	58.4	66.9	63.9
You avoid this express- way.....	32.0	21.7	25.4
Other routes are more convenient.....	9.6	11.4	10.7

**8. Do you travel on North Central Expressway to go to work?**

	% In N=279	% Out N=146	% Total N=425
Yes/Sometimes.....	41.5	45.1	42.7
No.....	58.5	54.9	57.3



9. Of the trips that you took to work on the North Central Expressway during the last two weeks, how many times did you...

	Mean Response	N
Drive in the car alone....	10	181
Drive or ride with someone else.....	2	181
Take the bus.....	1	181

10. Going to and from work, do you travel to or through downtown Dallas?

	N	%
Yes.....	66	36.2
No.....	107	59.0
Sometimes.....	8	4.5

11. On your way to or from work, do you usually make any stops along the way?

	N	%
Yes.....	42	23.1
No.....	123	67.8
Sometimes.....	16	8.8

12. What kind of stops do you make?

	% Yes N=58
School or day care.....	14.7
Grocery store.....	74.6
Dry cleaners.....	40.5
Auto related.....	31.7
Pick up or drop off someone.....	27.7
Other.....	37.5

13. Which of the following kinds of trips do you make on the North Central Expressway?

	% Yes
	N=425
School.....	7.6
Shopping.....	54.4
Medical trips.....	32.9
Personal.....	75.9

14. If a special traffic lane for buses, carpools, and vans were now available on North Central Expressway, what is the likelihood that you would use it?

	% Total
	N=425
Definitely use it.....	15.4
Probably use it.....	15.2
Might use it.....	20.9
Would not use it.....	46.7
Don't know/No answer.....	1.8

15. How often do you think you would use the special lane?

	% Total
	N=227
Every day.....	24.4
Once/week.....	36.0
Once/month.....	21.4
Less than once/month.....	7.7
Never.....	2.5
Don't know/No answer.....	8.0

16. When you drive on North Central, how many times do you usually get on and off the expressway during one trip?

	N	%
Only once.....	273	64.3
2 or 3 times.....	120	28.2
4 or more times.....	20	4.7
Don't know/No answer.....	12	2.8

17. How far do you usually travel on North Central Expressway?

	N	%
Less than 1 mile.....	7	1.5
1 to 3 miles.....	53	12.5
3 to 5 miles.....	118	27.7
More than 5 miles.....	240	56.3
Don't know/No answer.....	9	2.0

18. How long does it usually take you to travel this distance?

Average response: 23 minutes

19. How long do you think that trip should take?

Average response: 15 minutes

20. On a scale of 1 to 5, with 1 being not important at all, and 5 being most important, and using 3 as neutral, how important are the following to you when you travel on North Central Expressway?

	% Response					
	1	2	3	4	5	DK/NA
The ability to get on and off the freeway frequently.....	10.1	5.9	19.5	16.5	47.3	.7
The ability to get to your destination in a reasonable time.....	1.7	1.3	8.8	14.1	73.4	.8
Safety.....	1.9	1.0	7.4	10.3	78.7	.7
Driving your own car.....	4.4	3.6	24.0	17.0	50.1	.9
The ability to make stops for errands.....	11.0	8.6	28.6	19.8	29.8	2.2
The ability to travel at the time you choose.....	2.3	1.5	10.0	17.2	68.5	.6

21. Which of these issues is most important?

	N	%
The ability to get on and off the freeway frequently.....	42	10.0
The ability to get to your destination in a reasonable time.....	129	30.3
Safety.....	146	34.4
Driving your own car.....	16	3.8
The ability to make stops for errands.....	20	4.7
The ability to travel at the time you choose.....	47	11.2
Don't know/No answer.....	24	5.6

22. On a scale of 1 to 5, with 1 being not important at all, and 5 being most important, and using 3 as neutral, how important are the following to you when it comes to public transportation (either bus or rail)?

	% Response					
	1	2	3	4	5	DK/NA
Cost.....	15.5	4.2	28.1	12.2	32.3	7.6
Convenient schedule.....	9.9	1.7	10.2	12.5	57.7	8.1
Safety.....	6.0	0.9	10.6	10.2	65.7	6.5
The ability to get to destination in a reasonable time.....	6.8	.9	7.9	15.1	63.2	6.2
Frequent trips.....	11.0	4.4	30.7	16.2	27.0	10.6
Convenient parking.....	8.9	2.5	16.7	19.6	44.2	8.0
Secure parking.....	7.8	1.7	11.2	12.5	58.8	7.9

**23. Which of these issues is most important?**

	N	%
Cost.....	73	5.4
Convenient schedule.....	191	14.1
Safety.....	376	27.7
The ability to get to destination in a reasonable time.....	292	21.6
Frequent trips.....	63	4.6
Convenient parking.....	47	3.5
Secure parking.....	110	8.1
Don't know/No answer.....	203	15.0

**24. Do you think that the bus system now available on North Central is adequate?**

	N	%
Yes.....	242	17.8
No.....	289	21.4
Other.....	29	2.2
Don't know/No answer.....	795	58.6

**25. What is the most you would pay for a city bus trip (one way)?**

	N	%
Up to \$.50.....	255	18.8
\$.51 to \$1.00.....	557	41.1
\$1.01 to \$1.50.....	230	17.0
\$1.51 to \$2.00.....	65	4.8
More than \$2.00.....	87	6.4
None.....	29	2.1
Don't know/No answer.....	133	9.8

26. If a rail system were operating now in the North Central Expressway Corridor, what is the likelihood that you would use it?

	% In N=600	% Out N=730	% Total N=1330
Definitely use it.....	14.4	11.9	13.0
Probably use it.....	20.4	18.7	19.0
Might use it.....	29.3	27.3	28.2
Would not use it.....	35.9		
42.1	39.3		

27. Assuming the cost was reasonable to you, how often do you think you would use the rail system?

	% Total N=833
Every day.....	19.2
Once/week.....	24.6
Once/month.....	25.9
Less than once/month.....	19.0
Never.....	2.4
Don't know/No answer.....	8.9

28. For the usual trip you would be taking, what is the most you would pay for a rail system trip (one way)?

	N	%
Up to \$.50.....	66	7.9
\$.51 to \$1.00.....	281	33.7
\$1.01 to \$1.50.....	207	24.9
\$1.51 to \$2.00.....	105	12.6
More than \$2.00.....	67	8.1
None.....	11	1.4
Don't know/No answer.....	96	11.5

29. Is there anything you would like to add about North Central Expressway?

Responses given by 69 percent of the respondents were categorized as follows:

Positive comments of a general nature (examples: "not that bad," "not really a problem," "it's the best thing in this area," and "it gets you to different places quicker") were given by 3.4 percent of the respondents.

Generally negative comments were given by 10.2 percent of the respondents (examples: "don't like it", "hate it," "avoid it," "it's a pain," "it's horrible," "it stinks," "it's hopeless").

15.4 percent of the comments were related to the design of the system in some way (examples: "needs to be widened," "more lanes," "out-dated," "inadequate"). Another 1.0 percent were comments specifically regarding ramp related problems.

Maintenance and construction issues were mentioned by 4.5 percent of those commenting.

Safety related comments were made by 3.8 percent of the respondents.

Comments referring to congestion were made by 8.7 percent.

Various requests and statements of preferences for different forms of public transportation and improvements to public transportation were made by 5.8 percent of the respondents.

**SAMPLE DEMOGRAPHICS**

**Age groups:**

	N	%
Under 20.....	41	3.0
20's.....	298	22.0
30's.....	379	28.0
40's.....	234	17.2
50's.....	168	12.4
60's or over.....	228	16.8
Don't know/No answer.....	8	0.6

**Income:**

	N	%
Less than \$15,000.....	168	12.4
\$15,000 - \$25,000.....	258	19.1
\$26,000 - \$50,000.....	468	34.5
More than \$50,000.....	334	24.6
Don't know/No answer/Ref..	128	9.4

**Gender:**

	N	%
Male.....	581	43.0
Female.....	770	57.0

**Vehicles:**

Average number of cars.....	1.81	
Average number of pickups..	.37	(owned by 31.4 percent of the respondents)
Average number of vans.....	.13	(owned by 10.9 percent of the respondents)
Average number of motorcycles.....	.12	(owned by 7.8 percent of the respondents)

**Special transportation needs:**

	N	%
Yes.....	56	4.1
No.....	1292	95.3
No answer.....	8	.6