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| 16. Abstract<br><br>This report presents the results of the October 1993 survey of the automobile user panel established to assist in monitoring the traffic impacts of the North Central Expressway (NCE) reconstruction in the Dallas District. Overall, researchers detected only minimal changes in travel patterns and operating conditions. Perhaps more importantly, the majority of panelists continued to believe that their travel patterns had not been impacted significantly by construction. Generally, the few individuals who did believe they had altered their travel patterns actually reported departure times, travel times, and/or other travel characteristics in October 1993 that differed from what they had reported in October 1992. |  |   |  |   |           |
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**U.S. 75 NORTH CENTRAL EXPRESSWAY RECONSTRUCTION:  
LEMMON/OAK LAWN/PEAK SCREEN LINE AUTOMOBILE USER PANEL,  
OCTOBER 1993 SURVEY RESULTS**

by

Gerald L. Ullman, P.E.

Research Report 1994-1  
Research Study Number 7-1994, Task 8  
Research Study Title: Highway Planning and Operations for District 18, Phase III

Sponsored by the  
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TEXAS TRANSPORTATION INSTITUTE  
The Texas A&M University System  
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## **IMPLEMENTATION STATEMENT**

This report presents the results of the October 1994 survey of the automobile user panel established to assist in monitoring the traffic impacts of the North Central Expressway (NCE) reconstruction. Overall, the lack of significant changes in motorists' actual and perceived travel behavior relative to October 1992 conditions can be taken as a positive sign that the Texas Department of Transportation's traffic control and management efforts within the NCE reconstruction project limits continue to be quite adequate. The report will be useful to officials in the North Central Project Office who receive requests from media personnel and others about motorist perceptions and behaviors during the lengthy reconstruction process. It should be noted that the percentage of panelists who perceive changes in their travel patterns, although currently a small fraction of the total panel group, appears to be growing slightly over time. Therefore, additional ongoing monitoring of motorist perceptions and patterns in the corridor seems warranted at this time.



## **DISCLAIMER**

This study was conducted in cooperation with the Texas Department of Transportation. This report is not intended to constitute a standard, specification, or regulation, and does not necessarily reflect the official views and policies of the Texas Department of Transportation. This report is not intended for construction bidding or permit purposes. Mr. Gerald L. Ullman (P.E. #66876) was the supervising engineer responsible for the preparation of the report.



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## SUMMARY

The results of the October 1993 survey of automobile panelists in the NCE corridor indicate that construction has continued only minimal impacts upon motorist perceptions of their travel patterns and driving conditions. The following is a list of the specific findings from the survey:

- Overall, average weekly tripmaking activity of the new and original panel members was unchanged between October 1992 and October 1993. A significant proportion of both panel groups (45 percent of the new panel and 47 percent of the original panel) believed they were using NCE less in October 1993 than in October 1992.
- Home-to-work median departure times were unchanged between the October 1993 and October 1992 surveys. On the other hand, work-to-home departure times were 10 to 15 minutes later for the new and original panel groups.
- Average travel times to and from work did not change significantly between October 1992 and October 1993 for the new panel group. However, average travel times were 4 to 7 minutes faster in October 1993 for the original panel group. A sizeable proportion of original panelists (25 to 29 percent) and new panelists (34 to 40 percent) felt that travel times on NCE expressway had increased.
- No statistically significant changes occurred in the number of stops made between home and work from October 1992 and October 1993. Likewise, the distribution of travel modes used for trips to and from work was unchanged between the two surveys.
- Original panelists reported using NCE less frequently for their trips to and from work in October 1993 compared to October 1992. Whereas panelists used NCE for about 45 percent of the home-to-work trips in October 1992, only 34 percent did so in October 1993. For the trip home, NCE utilization dropped from 46 to 39 percent. These reductions in NCE utilization corresponded with the increased use of the Skillman/Live Oak, Greenville/Ross, and Abrams/Gaston arterial streets.



## INTRODUCTION

This report is the eighth in a series documenting the biannual surveys of a "panel" of automobile drivers using the North Central Expressway (NCE) corridor in Dallas, TX. This panel was created in June, 1990, immediately prior to the start of NCE reconstruction on the section between Woodall Rogers Freeway to the south and the Lyndon B. Johnson (I-635) Freeway to the north. Figure 1 illustrates the corridor. The purpose of a periodical survey of the panel is to obtain information on the actual and perceived traffic impacts of the reconstruction project by the motoring public as well as current public opinion regarding TxDOT's efforts to maintain as high a standard of traffic mobility during reconstruction as possible.

The initial panel was created via a mail-out survey to motorists who use the NCE corridor. This identification was accomplished through a license plate study conducted along a screen line at Northwest Highway (Loop 12). The license plate study yielded an initial panel of over 1,800 members. Unfortunately, panel attrition was extremely high during its approximate two-and-a-half year lifespan, such that fewer than 400 members were participating by October 1992. Part of the reason for this high attrition rate was the fact that these original panelists were not recontacted once they failed to return one of the follow-up surveys. Originally, it was the intention of the researchers to track individual responses at each of the six-month surveys to determine whether any long-term trends were developing. However, this process did not prove to be particularly fruitful, so it was decided that comparisons at each six-month survey would be made only to the original survey data collected at the initiation of the panel. Furthermore, panelists would be contacted every six months regardless of whether or not they had returned the last survey, and would be removed from the panel only if their survey was returned because no forwarding address was available or they explicitly requested to be removed from the panel on the survey form.

Given the change in panel management and data analysis procedures, a second license plate study was performed in October 1992 along a screen line roughly following the cross streets of Lemmon, Oak Lawn, Peak, and Haskell closer to the Dallas central business district (see Figure 1).



From this second study, another 1,253 motorists agreed to serve as panel members. Initial data were collected from these panel members in October 1992 regarding their basic travel patterns and were summarized in a recent report (1).

In keeping with the biannual schedule, panelists were again surveyed in October 1993 and this report presents the results of that survey. As in the past, the findings tend to demonstrate only minimal impact of NCE construction upon motorist travel patterns.



## STUDY METHODOLOGY

A two-part survey instrument was sent to both new (October 1992) and original (June 1990) panelists; the first part requested information on the panelists' recent overall tripmaking activity (i.e., the number of trips being made per week for various reasons), the number of trips per week made on the North Central Expressway, and perceptions as to whether they had changed the frequency of these trips. In this way it is possible to observe how actual changes in motorists' behavior and their perceptions of these changes correlate. A copy of the survey instrument from October 1993 is provided in Appendix A.

The second part of the survey was devoted to home-to-work and work-to-home commuting perceptions and behaviors (i.e., during peak period travel). In this part of the survey, panelists were queried as to their recent

- departure times,
- travel times,
- number and types of intermediate stops on the way to and from work,
- mode of travel (driving alone, carpooling, etc.), and
- use of other roadways in the corridor.

Panelists were also asked explicitly whether they believed their departure times and travel times had changed since October 1992. In this way, the correlation between their perceptions and actual changes in behavior (comparing their responses between surveys) could be examined.





## RESULTS

### Response Rate

A total of 1,685 surveys were sent to panelists in October 1993 (1,253 to panelists recruited in October 1992; 432 to the original panelists recruited in June, 1990). Of these, 106 were returned undeliverable. A total of 839 of the remaining 1,579 surveys distributed were returned for an effective return rate of 53.1 percent. This rate is consistent with those of previous surveys, which have netted yielded return rates ranging between 57.5 and 83.5 percent (2-6).

A considerable difference in response rate was again evident between the original and "new" panel groups, as illustrated in Table 1. Whereas a 70.3 percent response rate was obtained from the original panel members, only 43.4 percent of the new panelists responded to the survey. Presumably, those new panelists not having as great an interest in the surveys discontinue their participation after the first few surveys, leaving more active participants to continue to faithfully respond. The gradual shift to responses from more dedicated panelists has not influenced the values reported over time in the past, as very few significant changes in travel patterns have been documented. However, it will be necessary to keep this possible attrition influence in mind when assessing the results of subsequent surveys, since these active panel members may be more sensitized and vocal about any changes they make in travel patterns due to construction.

**Table 1. Panel Response Rates for October 1993**

| Date That Panel Group was Created | Number Returned | Response Rate (%) |
|-----------------------------------|-----------------|-------------------|
| October 1992 (new)                | 552             | 43.4              |
| June 1990 (original)              | 287             | 70.3              |
| Total                             | 839             | 53.1              |

### **Total Tripmaking Characteristics**

Table 2 presents the average number of trips per week reported by the new and original panelists for the October 1993 and the October 1992 surveys. Statistically, no significant changes occurred with respect to total tripmaking activity for either panel group. However, both the new and the original panel groups reported small changes in the average number of trips per week made on the North Central Expressway to and from work. Whereas a slight increase (0.4 trips/week) in work-related tripmaking frequency was reported by the new panel group, the weekly rate reported decreased slightly (0.5 trips/week) for the original panelists. The significance of these changes are discussed later in this report in relation to panelist-reported route utilization for home-to-work and work-to-home trips.

In comparison to these actual tripmaking frequencies, panelists' perceptions of the changes they have made in their weekly tripmaking activity are presented in Table 3. Relative to October 1992, 71 percent of the new and 75 percent of the original panelists felt they were making the same number of trips in October 1993. Only 13 percent of the panelists felt they were making fewer trips overall in October 1993 than in October 1992.

Panelists' perceptions concerning changes in their tripmaking frequency on NCE are also summarized in Table 3. A substantial percentage of both panel groups (45 to 47 percent) felt that they were making fewer trips on the Expressway in October 1993 than they had made in October 1992. This is substantially greater than the 28 to 33 percent who felt this way when surveyed in May 1993 (6). Furthermore, these results contradict the slightly higher trip rates on NCE for the new panel group documented in Table 2.

**Table 2. Comparison of Total Tripmaking Activity**

| Type of Trip              | Total Trips/Wk |            | NCE Trips/Wk     |            | Percent of Total Trips on NCE |           |
|---------------------------|----------------|------------|------------------|------------|-------------------------------|-----------|
|                           | Oct. 93        | Oct. 92    | Oct. 93          | Oct. 92    | Oct. 93                       | Oct. 92   |
| New Panel:                |                |            |                  |            |                               |           |
| To/from work              | 5.5            | 5.5        | 2.3 <sup>a</sup> | 1.9        | 42                            | 35        |
| Other work-related        | 1.7            | 1.8        | 0.7              | 0.7        | 41                            | 39        |
| To/from school or daycare | 0.6            | 0.9        | 0.3              | 0.2        | 50                            | 22        |
| To/from social activity   | 2.6            | 2.6        | 0.7              | 0.7        | 33                            | 27        |
| To/from shopping          | 1.6            | 1.3        | 0.4              | 0.3        | 25                            | 23        |
| To/from personal business | <u>1.2</u>     | <u>1.2</u> | <u>0.3</u>       | <u>0.3</u> | <u>25</u>                     | <u>25</u> |
| <b>TOTAL</b>              | 13.2           | 13.3       | 4.7 <sup>a</sup> | 4.1        | 36                            | 31        |
| Original Panel:           |                |            |                  |            |                               |           |
| To/from work              | 5.4            | 5.5        | 2.2 <sup>b</sup> | 2.7        | 40                            | 49        |
| Other work-related        | 1.6            | 1.5        | 0.4              | 0.6        | 25                            | 40        |
| To/from school or daycare | 0.7            | 0.5        | 0.1              | 0.1        | 17                            | 20        |
| To/from social activity   | 2.5            | 2.1        | 0.6              | 0.7        | 24                            | 33        |
| To/from shopping          | 1.8            | 1.5        | 0.4              | 0.4        | 22                            | 27        |
| To/from personal business | <u>1.4</u>     | <u>1.1</u> | <u>0.4</u>       | <u>0.3</u> | <u>29</u>                     | <u>27</u> |
| <b>TOTAL</b>              | 13.4           | 12.2       | 4.1 <sup>b</sup> | 4.8        | 31                            | 39        |

<sup>a</sup> Rate is significantly higher than in October 1992 (based on test of means @  $\alpha = 0.05$ )

<sup>b</sup> Rate is significantly lower than in October 1992 (based on test of means @  $\alpha = 0.05$ )

**Table 3. Perceived Changes in Weekly Tripmaking Frequency:  
October 1993 Versus October 1992, Conditions**

| Perceived Change       | Percent of Responses |                |
|------------------------|----------------------|----------------|
|                        | New Panel            | Original Panel |
| Total Trips Per Week:  |                      |                |
| Making more trips      | 16                   | 12             |
| Making same trips      | 71                   | 75             |
| Making fewer trips     | 13                   | 13             |
| Trips Per Week on NCE: |                      |                |
| Making more trips      | 12                   | 8              |
| Making same trips      | 43                   | 45             |
| Making fewer trips     | 45                   | 47             |

Table 4 presents the average NCE utilization rates for members of both panel groups who felt they were using the NCE less in October 1993. In this way, it is possible to determine the degree to which the perceptions of those panelists corresponded to actual changes in reported behavior for each survey. As shown in Table 4, new panel members who felt they were making fewer trips on NCE actually did report significantly fewer trips (26 percent less) on NCE in October 1993 compared to October 1992. Conversely, the average weekly rate for original panelists who felt they were making fewer trips on NCE in October 1993 was only 8 percent lower than in October 1992 (not a statistically significant difference). Therefore, perceptions of lower NCE use by those in the new panel group were consistent with their actual behavior, but similar perceptions of those in the original panel group did not correspond to an actual reduced tripmaking rate on NCE.

**Table 4. Average Weekly Tripmaking Rates on NCE for Subjects  
Who Believed They were Making Fewer NCE Trips**

|                                       | New Panelists |                  |            | Original Panelists |              |            |
|---------------------------------------|---------------|------------------|------------|--------------------|--------------|------------|
|                                       | October 1992  | October 1993     | Difference | October 1992       | October 1993 | Difference |
| Trips/Day on North Central Expressway | 3.1           | 2.3 <sup>a</sup> | -0.8       | 2.600              | 2.4          | -0.2 (-8%) |

<sup>a</sup> Rate is significantly lower ( $\alpha = 0.05$ ) than reported in October 1992

### Work Trip Characteristics

#### Departure Times

Table 5 presents the median departure times to and from work reported by the new and original panelists in the October 1992 and October 1993 surveys. Departure times from work to home were slightly (10 to 15 minutes) later in October 1993 for both sets of panelists. However, the median departure time from home to work in October 1993 was identical to that reported in October 1992, for both panel groups.

**Table 5. Median Departure Times to and From Work**

| Panel Group        | Home-to-Work Trips |              | Work-to-Home Trips |              |
|--------------------|--------------------|--------------|--------------------|--------------|
|                    | October 1992       | October 1993 | October 1992       | October 1993 |
| New Panelists      | 7:30 am            | 7:30 am      | 5:20 pm            | 5:30 pm      |
| Original Panelists | 7:20 am            | 7:20 am      | 5:00 pm            | 5:15 pm      |

Panelists were asked directly whether they felt they were making work trips earlier, at the same time, or later in October 1993 than they had in October 1992. The results, shown in Table 6, indicate that most panelists (65 to 82 percent) perceived no change in their departure time patterns. There was a substantial minority (18 to 26 percent) who felt they were leaving for work earlier in October 1993.

**Table 6. Perceived Changes in Departure Times**

| Perceived Change in Departure Time    | Percent of Responses |                |
|---------------------------------------|----------------------|----------------|
|                                       | New Panel            | Original Panel |
| Home-to-Work Trip:<br>Leaving Earlier | 26                   | 18             |
| Leaving at the Same Time              | 65                   | 71             |
| Leaving Later                         | 9                    | 11             |
| Work-to-Home Trip:<br>Leaving Earlier | 7                    | 7              |
| Leaving at the Same Time              | 78                   | 82             |
| Leaving Later                         | 15                   | 11             |

The correlation between perceived and actual changes in departure times for those panelists believing they did leave for work earlier are shown in Table 7. The new panel subgroup, who felt they were leaving for work an average of eighteen minutes earlier, reported a median departure time in October 1993 that was thirty minutes earlier than in October 1992. For these individuals, then, their perceptions of an earlier departure time to work were consistent with their reported behavior. This was not the case for the subgroup of original panelists who perceived themselves as departing

for work earlier. Rather, these panelists believed they were leaving an average of twenty-six minutes earlier in October 1993; however, the median departure time for this subgroup was actually identical to that obtained in October 1992.

**Table 7. Home-To-Work Departure Times for Subjects  
Who Believed They were Leaving Earlier**

| Average Perceived<br>Change in Departure Time |                    | Median Home-to-Work Departure Time |                   |              |                   |                    |                   |
|---|--------------------|------------------------------------|-------------------|--------------|-------------------|--------------------|-------------------|
|   |                    | October 1992                       |                   | October 1993 |                   | Difference         |                   |
| New<br>Panel                                  | Original<br>Panel  | New<br>Panel                       | Original<br>Panel | New<br>Panel | Original<br>Panel | New<br>Panel       | Original<br>Panel |
| 18 min.<br>earlier                            | 26 min.<br>earlier | 7:30 am                            | 7:00 am           | 7:00 am      | 7:00 am           | 30 min.<br>earlier | no<br>change      |

### Travel Times

Average travel times reported by panelists in October 1992 and October 1993 are presented in Table 8. The average travel time values to and from work for both panel groups were lower in October 1993 compared to October 1992. However, the changes were not statistically significant for the new panel group. Though travel times for the original panel group were significantly lower (3.6 to 6.2 minutes), one must exercise caution in interpreting these travel time changes, as they represent a much smaller sample than the new panel group. Any unusually large differences reported by an individual member of the original panel between surveys will have a much more significant effect on the average. It appears safe to conclude, however, that NCE construction has not resulted in significantly higher travel times in October 1993 for either panel group.



**Table 8. Average Travel Times to and From Work**

| Panel Group        | Home-to-Work Trips |                       | Work-to-Home Trips |                       |
|--------------------|--------------------|-----------------------|--------------------|-----------------------|
|                    | October 1992       | October 1993          | October 1992       | October 1993          |
| New Panelists      | 27.7 min           | 27.4 min              | 29.3 min           | 28.1 min              |
| Original Panelists | 29.6 min           | 26.0 min <sup>a</sup> | 33.0 min           | 26.8 min <sup>a</sup> |

<sup>a</sup> Rate is significantly lower ( $\alpha = 0.05$ ) than reported in October 1992 based on test of means

Panelists' perceptions as to how their travel times to and from work changed between October 1992 and October 1993 are presented in Table 9. Also shown are the magnitude of both perceived changes in travel times (the increase or decrease in travel time panel members believed had occurred since October 1992) and actual changes in travel times (determined by subtracting actual reported travel times in October 1992 and October 1993). Overall, Table 9 indicates that perceptions were generally consistent with travel time changes actually experienced. A fairly sizeable proportion of both panel groups (25 to 40 percent) believed travel times had increased in October 1993 relative to October 1992. On the other hand, only 8 to 12 percent of the panel groups believed their travel times had decreased over time. It is interesting to note that the perceptions of travel time changes by panel members, regardless of whether those changes are increases or decreases, are consistently greater (by an average of approximately 4 to 6 minutes) than those determined by comparing their reported travel times in October 1992 and October 1993.

**Table 9. Perceived Changes in Travel Times**

|                                    | New Panel          |                        |                     | Original Panel     |                        |                     |
|------------------------------------|--------------------|------------------------|---------------------|--------------------|------------------------|---------------------|
|                                    | Percent Perceiving | Perceived Change, Min. | Actual Change, Min. | Percent Perceiving | Perceived Change, Min. | Actual Change, Min. |
| Home-to-Work Trip:<br>Shorter Trip | 8                  | -17.6                  | -11.8               | 12                 | -20.2                  | -13.4               |
| Longer Trip                        | 40                 | 11.0                   | 6.9                 | 29                 | 11.2                   | 4.9                 |
| Work-to-Home Trip:<br>Shorter Trip | 8                  | -18.7                  | -14.6               | 12                 | -19.5                  | -12.6               |
| Longer Trip                        | 34                 | 12.4                   | 7.5                 | 25                 | 11.5                   | 5.7                 |

Intermediate Stops to and from Work

Averages of the number of stops each panel group made on the way to and from work are presented in Table 10. On average, neither new nor original panel groups reported making stops with significantly greater or less frequency during either the home-to-work or work-to-home trips.

Choice of Travel Mode

Table 11 compares panelists' choices regarding travel modes used for work trips in October 1992 and October 1993. Because the panelists were originally identified through a license plate survey of automobiles travelling in the corridor, these values do not necessarily reflect the corridor-wide mode choice distributions. However, this statistic does provide a means of monitoring any changes in mode choice by these groups of drivers.

**Table 10. Intermediate Stops Made to and from Work**

|   | October 1992 |                | October 1993 |                | Difference   |                |
|---|--------------|----------------|--------------|----------------|--------------|----------------|
|   | New Panel    | Original Panel | New Panel    | Original Panel | New Panel    | Original Panel |
| Home-to-Work Trip:<br>School or daycare | 0.53         | 0.43           | 0.49         | 0.46           | -0.04        | +0.03          |
| Shopping                                | 0.23         | 0.20           | 0.21         | 0.23           | -0.02        | +0.03          |
| Social                                  | 0.35         | 0.20           | 0.26         | 0.13           | -0.09        | -0.07          |
| Personal Business                       | <u>0.50</u>  | <u>0.35</u>    | <u>0.42</u>  | <u>0.21</u>    | <u>-0.08</u> | <u>-0.14</u>   |
| TOTAL                                   | 1.61         | 1.18           | 1.38         | 1.03           | -0.23        | -0.15          |
| Work-to-Home Trip:<br>School or daycare | 0.37         | 0.22           | 0.34         | 0.28           | -0.03        | +0.06          |
| Shopping                                | 0.88         | 0.81           | 0.81         | 0.81           | -0.07        | 0.00           |
| Social                                  | 0.83         | 0.41           | 0.82         | 0.51           | -0.01        | +0.10          |
| Personal Business                       | <u>0.72</u>  | <u>0.57</u>    | <u>0.83</u>  | <u>0.65</u>    | <u>+0.11</u> | <u>+0.08</u>   |
| TOTAL                                   | 2.80         | 2.01           | 2.80         | 2.25           | 0.00         | +0.24          |

**Table 11. Work Trip Mode Choice Distributions**

|             | October 1992 |                | October 1993 |                |
|-------------|--------------|----------------|--------------|----------------|
|             | New Panel    | Original Panel | New Panel    | Original Panel |
| Drive Alone | 93%          | 91%            | 91%          | 92%            |
| Carpool     | 6%           | 5%             | 6%           | 6%             |
| Other       | 1%           | 4%             | 3%           | 2%             |

The October 1993 data reported in Table 11 does not suggest any meaningful shift away from single-occupant vehicles into carpools or other alternative travel modes. Single-occupant vehicle usage decreased 2 percent for the new panel and increased 1 percent for the original panel; neither of these results was found to be statistically significant based on a test of proportions.

### Roadway Utilization

Tables 12 and 13 illustrate panel utilization of the various North/South roadways in the NCE corridor for trips to and from work. With respect to both home-to-work and work-to-home trips, the results indicate the NCE usage was unchanged for the new panelists between October 1992 and October 1993 though it decreased slightly for the original panelists (by 11 percent and 7 percent, respectively). The decreased utilization of NCE by the original panelists corresponded to increased utilization on the Skillman/Live Oak, Greenville/Ross, and on Abrams/Gaston arterial streets.

The reduction in NCE utilization reported by original panelists was consistent in magnitude with the reduced number of trips reported in Table 2 for total work-related weekly tripmaking activity on NCE. Also from Table 2, work-related tripmaking activity on NCE by the new panel group increased significantly between October 1992 and October 1993. This was consistent with the data in Tables 12 and 13, although the changes were too small to be considered statistically significant. Together, the results imply increased utilization of NCE by new panelists for work but decreased utilization by original panel members. Reasons for these opposite effects are not immediately apparent. One possible explanation for these differences could be that the remaining members of the original panel are individuals more sensitive to the perceived effects of NCE construction and have, as a group, reduced their use of the Expressway more extensively than the driving population on NCE as a whole. It was noted, for example, that many of these original panel members perceived that they were leaving for work much earlier in October 1993 when in fact a comparison of their reported departure times in October 1992 and October 1993 showed no real change in median departure time. Unfortunately, this hypothesis could not be explored in detail with the data available at this time.

**Table 12. Roadway Utilization: Home-to-Work Trips**

|                            | Ave. Trips/Wk |                  | % of Total Trips |              |
|----------------------------|---------------|------------------|------------------|--------------|
|                            | October 1992  | October 1993     | October 1992     | October 1993 |
| <b>New Panelists:</b>      |               |                  |                  |              |
| NCE                        | 1.8           | 1.9              | 35               | 36           |
| Dallas N. Tollway          | 1.0           | 0.9              | 20               | 16           |
| Skillman/Live Oak          | 0.6           | 0.6              | 12               | 12           |
| Greenville/Ross            | 0.5           | 0.6              | 9                | 12           |
| Abrams/Gaston              | 0.4           | 0.4              | 8                | 8            |
| Hillcrest/Cole             | 0.4           | 0.4              | 8                | 8            |
| Preston                    | <u>0.4</u>    | <u>0.4</u>       | <u>8</u>         | <u>8</u>     |
| <b>TOTAL</b>               | <b>5.1</b>    | <b>5.2</b>       | <b>100</b>       | <b>100</b>   |
| <b>Original Panelists:</b> |               |                  |                  |              |
| NCE                        | 2.6           | 1.8 <sup>a</sup> | 45               | 34           |
| Dallas N. Tollway          | 0.6           | 0.8              | 12               | 14           |
| Skillman/Live Oak          | 0.4           | 0.6              | 7                | 12           |
| Greenville/Ross            | 0.4           | 0.6              | 8                | 12           |
| Abrams/Gaston              | 0.4           | 0.4              | 7                | 8            |
| Hillcrest/Cole             | 0.5           | 0.6              | 11               | 12           |
| Preston                    | <u>0.5</u>    | <u>0.4</u>       | <u>10</u>        | <u>8</u>     |
| <b>TOTAL</b>               | <b>5.1</b>    | <b>5.2</b>       | <b>100</b>       | <b>100</b>   |

<sup>a</sup> Rate is significantly lower than in October 1992 ( $\alpha = 0.05$ )

**Table 13. Roadway Utilization: Work-to-Home Trips**

|                            | Ave. Trips/Wk |                  | % of Total Trips |              |
|----------------------------|---------------|------------------|------------------|--------------|
|                            | October 1992  | October 1993     | October 1992     | October 1993 |
| <b>New Panelists:</b>      |               |                  |                  |              |
| NCE                        | 1.7           | 1.9              | 36               | 37           |
| Dallas N. Tollway          | 0.9           | 0.9              | 19               | 17           |
| Skillman/Live Oak          | 0.5           | 0.5              | 10               | 10           |
| Greenville/Ross            | 0.4           | 0.5              | 9                | 10           |
| Abrams/Gaston              | 0.5           | 0.4              | 9                | 8            |
| Hillcrest/Cole             | 0.4           | 0.5              | 8                | 10           |
| Preston                    | <u>0.4</u>    | <u>0.4</u>       | <u>9</u>         | <u>8</u>     |
| <b>TOTAL</b>               | 4.8           | 5.1              | 100              | 100          |
| <b>Original Panelists:</b> |               |                  |                  |              |
| NCE                        | 2.3           | 1.8 <sup>a</sup> | 46               | 39           |
| Dallas N. Tollway          | 0.8           | 0.7              | 16               | 15           |
| Skillman/Live Oak          | 0.4           | 0.4              | 7                | 9            |
| Greenville/Ross            | 0.3           | 0.5              | 5                | 11           |
| Abrams/Gaston              | 0.3           | 0.4              | 6                | 9            |
| Hillcrest/Cole             | 0.5           | 0.5              | 11               | 11           |
| Preston                    | <u>0.5</u>    | <u>0.3</u>       | <u>9</u>         | <u>7</u>     |
| <b>TOTAL</b>               | 4.9           | 4.6              | 100              | 100          |

<sup>a</sup> Rate is significantly lower than in October 1992 ( $\alpha = 0.05$ )



## SUMMARY

The results of the October 1993 survey of automobile panelists in the NCE corridor indicate that construction has continued to have little impact upon motorist travel patterns and driving conditions. The following is a list of the specific findings from the survey.

- Overall, average weekly tripmaking activity of the new and original panel members was unchanged between October 1992 and October 1993. Meanwhile, the average weekly trip rate to and from work on NCE increased significantly for the new panelists but decreased for the original panel members. A significant proportion of both panel groups (45 percent of the new panel, 47 percent of the original panel) believed they were using NCE less in October 1993 than in October 1992. Whereas the average weekly tripmaking rate on NCE did decrease for this group of new panelists, the rate for those original panelists who felt they were travelling NCE less, was not statistically different.
- Home-to-work median departure times were unchanged between the October 1993 and October 1992 surveys. Conversely, work-to-home departure times were 10 to 15 minutes later for the new and original panel groups. Strangely, though only 11 to 15 percent of the panelists believed they were leaving from work later (which did show a change), 18 to 26 percent believed they were leaving for work an average of 18 to 26 minutes earlier in October 1993. For those believing they were leaving for work earlier, the median departure time in October 1993 was 30 minutes earlier for the new panelists, but unchanged for the original panel.
- Average travel times to and from work did not change significantly between October 1992 and October 1993 for the new panel group. However, average travel times were 4 to 7 minutes faster in October 1993 for the original panel group. A sizeable proportion of original panelists (25 to 29 percent) and new panelists (34 to 40 percent) felt that travel times on NCE



expressway had increased. Comparing the perceptions of these individuals to their reported travel times in October 1993 and October 1992 it appears that subjects overestimated their actual changes in travel time by an average of 4.1 to 6.9 minutes. This represents an overestimation of between 28 and 55 percent of the actual changes reported.

- No statistically significant changes occurred in the number of stops made to and from work between October 1993 and October 1992. Likewise, the distribution of travel modes used for trips to and from work was unchanged between the two surveys.
- Original panelists reported using NCE less frequently for their trips to and from work in October 1993 compared to October 1992. Whereas panelists used NCE for about 45 percent of the home-to-work work trips in October 1992, only 34 percent did so in October 1993. For the trip home, NCE utilization dropped from 46 to 39 percent. These reductions in NCE utilization corresponded with increased use of the Skillman/Live Oak, Greenville/Ross, and Abrams/Gaston arterial streets.

## REFERENCES

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**APPENDIX A: OCTOBER 1993 SURVEY FORM**



October 19, 1993

Dear Motorist:

Thank you for returning the survey last May regarding travel conditions and patterns in the North Central Expressway corridor. We have presented the findings of that survey to the Texas Department of Transportation and other transportation agencies in Dallas. They are relying on that and other information to decide how to best accommodate motorist's travel needs throughout construction. Your input is very important, because you and the other members of the panel know best how travel conditions are being affected by the lengthy but necessary construction project.

We have prepared a follow-up survey to again assess your travel patterns in the North Dallas area. It asks many of the same questions as before, so that we can see if your travel has changed over time. The survey consists of two parts: the first requests general information about all of your tripmaking, while the second requests more specific information about your trips to and from work.

Please take a few moments, fill out the survey, and return it in the postage-paid envelope provided. Those of you who indicated that you do not work outside of your home need only complete part 1 of the survey. The information will remain confidential, only summaries of the data will be released. If you do not wish to participate in additional travel surveys in the future, please let us know on the back of the survey forms. Thank you for your participation in this effort.

October 1993

NORTH CENTRAL EXPRESSWAY CORRIDOR  
TOTAL TRAVEL SURVEY

- 1. Has your place of residence changed since October 1992?  yes  no
- 2. During your most recent work week (Monday - Friday), how many separate round trips by passenger vehicle (car, van, or pickup truck) did you make for the following purposes? Please indicate the total number made, as well as the number of those trips made using the North Central Expressway.

|  | <u>Total per week</u> | <u>Total per week<br/>on North Central Expressway</u> |
|--|-----------------------|---|
| to/from work                                   | ___                   | ___   |
| other work-related                             | ___                   | ___   |
| to/from school/child daycare                   | ___                   | ___   |
| to/from social/recreation/eat a meal           | ___                   | ___   |
| to/from shopping                               | ___                   | ___   |
| to/from personal business (bank, doctor, etc.) | ___                   | ___   |
| to/from bus stop                               | ___                   | ___   |

- 3. Overall, do you believe that you are making more trips, the same number of trips, or fewer trips per week now than you were in October 1992?  
 more  the same  fewer

- 4. Do you believe you are using the North Central Expressway more often, the same, or less than you were in October 1992?  
 more often  the same  less often

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NORTH CENTRAL EXPRESSWAY WORK TRIP SURVEY

- 1. Have you changed work locations since October 1992?  yes  no
- 2. When do you typically leave your home to go to work? \_\_\_\_\_ AM or PM (circle one)  
Has this time changed since October 1992?  
 Yes, I leave \_\_\_\_\_ minutes earlier now.  
 Yes, I leave \_\_\_\_\_ minutes later now.  
 No, I have not changed my departure time.
- 3. How much time does your trip from home to work typically take you? \_\_\_\_\_ minutes  
Has this time changed since October 1992?  
 Yes, it is \_\_\_\_\_ minutes longer now.  
 Yes, it is \_\_\_\_\_ minutes shorter now.  
 No, it has not changed.
- 4. When do you typically leave your work to go home? \_\_\_\_\_ AM or PM (circle one)  
Has this time changed since October 1992?  
 Yes, I leave \_\_\_\_\_ minutes earlier now.  
 Yes, I leave \_\_\_\_\_ minutes later now.  
 No, I have not changed my departure time.
- 5. How long does your trip from work to home typically take you? \_\_\_\_\_ minutes  
Has this time changed since October 1992?  
 Yes, it is \_\_\_\_\_ minutes longer now.  
 Yes, it is \_\_\_\_\_ minutes shorter now.  
 No, it has not changed.
- 6. How many times per week do you make each of the following types of stops on the way to and from work?  

|                              | <u>From home to work</u> | <u>From work to home</u> |
|------------------------------|--------------------------|--------------------------|
| school/child daycare         | ___                      | ___                      |
| shopping                     | ___                      | ___                      |
| personal business            | ___                      | ___                      |
| social/recreation/eat a meal | ___                      | ___                      |
- 7. How do you typically make your trips between home and work? (check one)  
 drove alone  carpool/vanpool (with \_\_\_ people)  bus  other
- 8. How many times per week do you typically use any of these roads on your way to and from work?

|                              | <u>From home to work</u> | <u>From work to home</u> |
|------------------------------|--------------------------|--------------------------|
| North Central Expressway     | ___                      | ___                      |
| Skillman/Live Oak St.        | ___                      | ___                      |
| Abrams Rd./Gaston Ave.       | ___                      | ___                      |
| Greenville/Ross Ave.         | ___                      | ___                      |
| Hillcrest/Cole/McKinney Ave. | ___                      | ___                      |
| Preston Rd.                  | ___                      | ___                      |
| Dallas North Tollway         | ___                      | ___                      |