CARPOOL AND BUS MATCHING PROGRAM FOR THE UNIVERSITY OF TEXAS AT AUSTIN
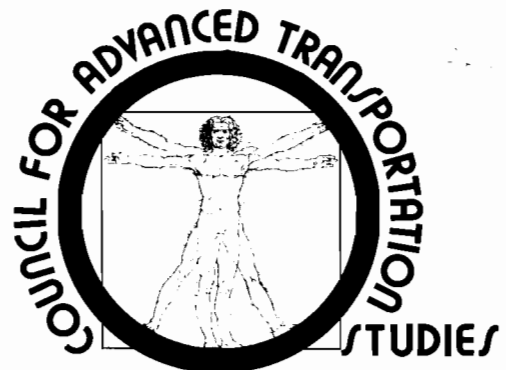
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CARPOOL AND BUS MATCHING PROGRAMS FOR THE
UNIVERSITY OF TEXAS AT AUSTIN

by

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Table of Contents

List of Figures

List of Tables

I. Foreword

In October 1973 officials of the University of Texas at Austin became concerned with the effect on the continued smooth operation of the University of the growing energy crisis. The President's ad hoc Energy Conservation Committee called on members of the Graduate Program in Community and Regional Planning (CRP) for assistance in the development of effective contingency plans and the development of meaningful transportation alternatives for University personnel. CRP faculty and students designed and administered a carpool and bus matching survey and program, with the University Data Processing Division in charge of compilation and computer services.

In March 1974, Professor Rosenbloom, the survey director, was awarded a grant by the Council for Advanced Transportation Studies, to study the impact of the implementation of the CRP bus and carpool matching program on the University community. Although it was hoped that the CRP program would be underway prior to the start of the spring semester, January 1974, a number of delays retarded completion of the survey until late spring and several additional computer problems caused a delay in the production of the final carpool matching lists until the end of the spring semester.

The many delays and the production of several erroneous carpool lists, which had to be voided <u>after</u> delivery to survey respondents, undoubtedly adversely affected the formation of many carpools and made much of the information too untimely to be useful. Those involved in the original survey believe that carpooling is a viable transportation alternative for many university employees and believe that the University should consider

timely and effective methods of encouraging this transportation mode. In addition to this carpool report, a separate analysis was prepared on the bus-related responses to this survey. Ms. Nancy J. Shelton undertook this analysis and the results are presented in her Masters thesis "A Proposed Bus System to Serve the Faculty and Staff of the University of Texas at Austin."

II. Introduction

In January of 1974 the University of Texas at Austin undertook a survey of its full-time faculty and staff to determine their interest in both carpooling and bus alternatives to their present mode of travel. Over 65% of the slightly under 10,000 persons surveyed returned completed questionnaires; the compilation and analysis of those data is presented in this report. Because University programmers wanted to 1) address questionnaires to each respondent individually and 2) reduce data compilation costs for information already on permanent personnel files (e.g. addresses, phone numbers, work location), a special program was written to collect and analyze all collected data and the offer to use the existing Federal Highway Administration carpooling program was declined. See Appendix I for a summary of the parameters of the computer program used.

The collected data were compiled and analyzed in two stages. First, all persons indicating interest in carpooling (either as a passenger or a driver) were given an individual print-out listing all other interested persons in their neighborhood. Neighborhoods were determined by Austin traffic zones; all respondents were asked to identify the traffic zone in which they lived from a map attached to each questionnaire. Interested carpoolers were listed on print-outs by the time of day they wished to leave home for work and the days they desired to carpool. Three separate carpool matching routines were run; the largest for the UT campus itself, one for University Systems employees in downtown Austin and one for the joint Balcones Research, Applied Labs facility north of Austin on Hwy 183.

1

Initial compilation of data from this survey, presented in this report, reveals that 44% of all campus personnel come to campus <u>alone</u> in their cars, while only 24% currently carpool. Seven percent of campus commuters walk to work, another two percent take the city bus, ten percent ride part or the entire way on the student shuttle bus, and a little over four percent cycle to work. Twenty-five percent of the respondents, however, indicated they would be interested in both carpools and bus services if they were available and convenient; another 13% were interested in only bus services while seven percent were interested in only carpools.

A master list of all interested carpoolers is maintained at the Periodicals Reserve desk in the Main Library so that any new personnel or those changing their mind can still form carpools.

The second stage of the work involved a detailed analysis of the responses indicating interest in special bus services. Several bus options were investigated using the survey data to both set parameters for and to project the effectiveness of proposed systems such as demand-actuated services, subscription home-to-work services and new bus routes. The University currently contracts for a special shuttle bus service for its 40,000 students; this bus system carries 30,000 passenger trips daily and the analysis of bus data generated suggestions for either incorporation into this existing system or for improvements in the City of Austin bus system.

A preliminary study was made of the immediate short-term improvements derived from the matching of interested carpoolers. This study consisted of a "before and after" survey of traffic congestion and vehicle occupancy (performed by the Austin Urban Transportation Department) at key

locations around the University campus and a sampling of those who in-
dicated carpool interest to determine their experience and actual changes
in travel habits.

III. Survey Procedures and Preliminary Results

To obtain information on faculty/staff interest in carpooling and buses, a questionnaire was individually addressed and distributed to all faculty and staff members working 20 hours per week or more. Questions on personnel interest, schedules, and level of service desired were included, and all persons were asked to locate their residence on a zoned map of the city. A list of persons in each department who had not returned useable forms was sent to the department head with the request that the department contact these people and encourage them to return the questionnaires; new forms were available for persons who no longer had their personalized form. Some forms had to be returned directly to persons who inadvertently failed to answer one or more of the questions, yet expressed interest in carpooling or buses. Persons who were not interested in either carpooling or buses frequently simply acknowledged lack of interest and returned an incomplete questionnaire; these questionnaires were also returned and the persons were asked to note their zone of residence and present mode of transportation to provide better information for the overall study on residences and modes for the faculty/staff as a whole.

Approximately 10,000 survey forms were sent to faculty and staff members and, after two follow-ups, 6240 useable questionnaires were returned. Since the university sent forms to all persons on their payroll working at least 20 hrs/wk, this also included some persons working in out-of-town research centers such as McDonald Observatory and the Marine Science Institute at Port Aransas; and the Galveston, San Antonio,

and El Paso Nursing Schools. These questionnaires were returned blank, along with those for people who had resigned from the university recently. Two other UT branches in Austin also received questionnaires, but these are not being included in the study, since the staff involved is small and so many different locations are involved. (There were 268 useable questionnaires from the Balcones Research Center in Northwest Austin and 57 from the UT Systems Office in downtown Austin.)

There were several lengthy time delays in the computer matching of interested respondents and, in addition, errors in computer programming resulted in the necessity to void the first distributed carpool lists. All respondents were told to discard the first list, and a second list was later distributed to interested persons. There is no way to estimate the number of people who were disuaded from carpool use because of either the initial time delay or the recurrent computer errors.

Persons interested in carpooling were given lists of names and phone numbers and addresses (both campus and home numbers) of people living in or near their zone who were also interested in carpooling and the times at which they left home for work. This was done with a computerized matching program developed by the University of Texas Data Processing Division.

A master list of all interested carpoolers, a large zone map, and a detailed instruction sheet were placed in the periodicals room of the Main Library on campus to aid those persons who joined the university later or changed their minds about carpooling. This list included the same information as the individual carpool lists, arranged by zone, so that interested people merely had to find their zone and then contact the persons whose schedules matched theirs.

Because of the errors in the original matching program and other demands on their time the Data Processing Division was unable to provide promised information on the questionnaire responses, as originally anticipated. Eventually, at great additional expense, all survey data were converted from the Data Processing Division's IBM 360 to the University Research computer and data analysis was continued as orginally contemplated.

The number of faculty and staff members living in each zone is shown in Table 1. The number who expressed interest in bus service to and from campus are shown, by zone, in Table 2. Regarding the present mode of transportation to and from campus of all the respondents; 46.32% were car drivers alone; 25.42% were car passengers or in a carpool; 8.82% used the UT shuttle buses; 7.42% walk; 4.51% rode a bicycle or motorcycle; 2.12% used a city bus; 1.10% used a park and ride system with the UT shuttle buses, and 4.28% used some other means of transportation. This is a total of 71.75% who arrived in automobiles and 9.92% who arrived at campus on the UT shuttle buses. (See Table 3).

These percentages were different from those for persons expressing an interest in buses. Of those expressing an interest in bus service, 64.4% came to campus as cardrivers alone, 19.98% were car passengers or in a carpool. 2.79% rode the UT shuttle buses; 2.75% rode a bicycle or motorcycle, 2.66% walked; 1.61% used the city buses; 1.05% used the UT shuttle buses in a park and ride situation, and 4.67% used other means of transportation to campus. This is a total of 84.38% who arrived in automobiles and 3.84% who arrived on UT shuttle busses.

This constitutes a larger percentage of car drivers and car passengers than the total sample (84.38% for the bus people vs. 71.75% total). The percentages were smaller for shuttle bus use (3.84% for bus people vs. 9.92% total sample), for bicycle/motorcycle use (2.75% vs. 4.51% total)

6

and for walking (2.66% vs. 7.42% total). This is understandable, since persons within walking distance would probably not need bus service as much as those living further away from campus, who were otherwise depen-dent upon automobiles. Likewise, persons who already had access to UT shuttle bus service would not be as interested in new bus service as persons with no shuttle bus serivce.

Table 1

NUMBER STAFF AND FACULTY IN EACH CENSUS TRACT

QUESTION #1;

CENSUS TRACT	TRAFFIC ZONES	DENSITY PER ACRE
0001	230	0.113
0002	221	0.139
0003	421	0.187
0004	191	0.196
0005	194	0.602
0006	314	0.503
0007	104	0.267
0008	84	0.056
0009	45	0.044
0010	22	0.037
0011	31	0.049
0012	104	0.168
13.01	94	0.107
13.02	99	0.066
0014	124	0.141
15.01	149	0.173
15.02	133	0.114
15.03	61	0.073
16.01	408	0.202
16.02	210	0.289
17.01	324	0.145
17.02	124	0.124
18.01	270	0.231
18.02	158	0.139
18.03	124	0.123
0019	110	0.095
0020	87	0.055
21.01	402	0.131
21.02	85	0.038
0022	6	0.015
23.01	221	0.122
23.02	38	0.028
23.03	5	0.043
0024	30	0.025

Table 2
CARPOOL STUDY - ZONE BY ZONE TOTALS

TOTALS FOR QUESTION 1

TRAFFIC CONTROL ZONE NUMBER	TOTAL COUNT FOR ZONE	BUS OR CARPOOL (1)	BUS ONLY (2)	TOTAL BUS (1 and 2)
0000	6	1	1	2
0100	3	0	1	1
1000	13	4	2	6
1010	4	1	0	1
1020	3	1	1	2
1030	0	0	0	0
1040	2	0	1	1
1050	6	0	1	1
1060	25	3	5	8
1070	24	3	3	6
1080	44	9	2	11
1100	11	6	0	6
1110	28	7	6	13
1120	15	1	2	3
1130	19	3	4	7
1140	8	2	3	·5
1200	46	11	4	15
1210	35	10	8	18
1220	42	10	8	18
1230	2	0	1	1
1240	5	1	0	1
1250	43	13	6	19
1260	39	11	8	19
1271	75	12	8	20
1272	46	5	3	8
1300	3	1	0	·1
1310	19	8	4	12
1320	8	2	2	4
1330	22	11	4	15
1340	51	15	16	31
1400	34	9	8	17
1410	28	14	15	19
1420	13	2	2	4
1430	26	7	4	11
1500	19	6	3	9
1520	15	4	5	9
1600	30	9	4	13
1610	14	3	3	6
1620	37	13	15	18
1700	34	9	8	17
1710	20	8	3	11
1720	2	1	0	1
1730	24	9	2	11
1740	25	10	4	14
1800	48	16	4	20
1810	75	34	11	45
1820	16	4	2	6
1900	0	0	0	0
1910	59	22	9	31
2000	20	4	0	4
2010	14	1	1	2
2020	32	6	3	9

(continued)

CARPOOL STUDY - ZONE BY ZONE TOTALS

TOTALS FOR QUESTION 1

TRAFFIC CONTROL ZONE NUMBER	TOTAL COUNT FOR ZONE	BUS OR CARPOOL (1)	BUS ONLY (2)	TOTAL BUS (1 and 2)
2030	25	2	3	5
2040	8	3	0	3
2050	2	0	0	0
2100	55	2	1	3
2110	1	0	0	0
2120	2	0	0	0
2200	11	1	0	1
2210	35	5	2	7
2220	8	0	0	0
2230	15	0	2	2
2240	6	0	0	0
2250	15	0	0	0
2300	49	4	9	13
2310	37	3	5	8
2320	31	5	0	5
2330	20	1	3	4
2340	32	4	4	8
2400	6	3	2	5
2410	56	5	13	18
2420	75	6	7	13
2430	73	9	9	8
2500	1	0	0	0
2510	27	3	0	3
2520	11	1	0	1
2530	19	0	0	0
2540	27	7	2	9
2550	17	2	2	4
2560	25	5	3	8
2600	10	0	2	2
2610	8	0	1	1
2620	25	6	2	8
2630	38	6	4	10
2640	29	5	7	12
2650	14	0	1	1
2700	39	4	7	11
2710	33	6	1	7
2720	2	0	0	0
2730	16	7	2	9
2740	9	1	1	2
2750	12	2	2	4
2760	4	0	0	0
2800	11	4	0	4
2810	6	1	2	3
2820	24	3	5	8
2830	6	1	0	1
2840	3	0	0	0
2850	6	1	1	2
2860	15	6	5	11
2870	2	0	0	0
2880	26	8	4	12
2890	15	1	2	3
2900	2	0	0	0

10

(continued)

CARPOOL STUDY - ZONE BY ZONE TOTALS

TOTALS FOR QUESTION 1

TRAFFIC CONTROL ZONE NUMBER	TOTAL COUNT FOR ZONE	BUS OR CARPOOL (1)	BUS ONLY (2)	TOTAL BUS (1 and 2)
2910	19	0	1	1
2920	21	4	4	8
2930	39	7	4	11
2940	13	4	1	5
2950	22	5	3	8
2960	12	3	2	5
2970	8	0	0	0
2980	7	4	2	6
2990	15	2	3	5
3000	4	1	1	2
3010	7	1	0	1
3020	8	4	1	5
3030	5	2	0	2
3040	0	0	0	0
3050	27	6	3	9
3060	1	0	1	1
3070	4	2	1	3
3080	14	4	4	8
3100	22	3	6	9
3110	6	1	2	3
3120	13	3	2	5
3130	14	2	3	5
3140	8	3	0	3
3150	16	5	2	7
3200	0	0	0	0
3210	14	5	3	8
3220	24	6	8	14
3230	27	15	3	18
3240	8	2	1	3
3250	17	8	2	10
3260	29	12	3	15
3270	30	12	5	17
3300	20	4	3	7
3310	5	2	0	2
3320	12	3	1	4
3330	17	4	0	4
3400	15	5	4	9
3410	11	6	1	7
3420	27	13	1	14
3430	20	9	4	13
3440	78	22	8	30
3450	5	0	0	0
3500	28	9	5	14
3510	30	11	2	13
3520	17	3	3	6
3530	32	8	7	6
3540	9	4	2	6
3550	8	1	1	2
3600	2	0	1	1
3610	1	0	0	0
3700	4	0	2	2
3710	25	9	1	10

11

(continued)

CARPOOL STUDY - ZONE BY ZONE TOTALS

TOTALS FOR QUESTION 1

TRAFFIC CONTROL ZONE NUMBER	TOTAL COUNT FOR ZONE	BUS OR CARPOOL (1)	BUS ONLY (2)	TOTAL BUS (1 and 2)
3720	35	15	5	20
3730	9	3	1	4
3740	3	1	0	1
3800	9	1	1	2
3810	15	3	3	6
4000	6	1	1	2
4010	10	0	1	1
4020	8	2	2	4
4030	2	1	0	1
4040	21	3	4	7
4050	60	13	13	26
4060	10	4	4	8
4070	26	7	4	11
4080	5	2	1	3
4090	15	4	0	4
4100	2	0	1	1
4110	7	4	0	4
4120	13	1	2	3
4130	3	0	0	0
4140	6	3	0	3
4200	18	4	1	5
4210	70	26	7	33
4220	40	12	7	19
4300	36	11	3	14
4310	28	10	1	11
4320	27	7	7	14
4330	19	2	5	7
4340	17	5	5	10
4350	33	8	4	12
4400	80	24	9	33
4410	3	0	0	0
4420	2	1	0	1
4430	9	3	1	4
4431	7	0	0	0
4500	2	0	0	0
4510	19	7	5	12
4520	1	0	0	0
4530	17	8	0	8
4540	5	0	1	1
4550	23	10	4	14
4600	36	16	7	23
4610	8	3	2	5
4620	4	2	1	3
4630	0	0	0	0
4700	29	16	1	17
4710	0	0	0	0
4800	7	1	1	2
4901	0	0	0	0
5000	10	2	0	2
5010	8	2	1	3
5020	2	0	0	0
5030	3	2	0	2

(continued)

CARPOOL STUDY - ZONE BY ZONE TOTALS

TOTALS FOR QUESTION 1

TRAFFIC CONTROL ZONE NUMBER	TOTAL COUNT FOR ZONE	BUS OR CARPOOL (1)	BUS ONLY (2)	TOTAL BUS (1 and 2)
5040	6	0	1	1
5050	3	0	0	0
5100	2	0	0	0
5110	4	2	0	2
5120	3	0	2	2
5130	6	0	1	1
5140	3	1	0	1
5150	3	1	2	3
5160	5	0	2	2
5200	13	0	2	2
5210	6	0	0	0
5220	1	0	0	0
5230	1	0	1	1
5240	0	0	0	0
5300	11	1	1	2
5310	1	0	0	0
5320	1	1	0	1
5330	5	1	0	1
5340	4	2	0	2
5350	5	2	1	3
5400	7	0	1	1
5410	21	6	1	7
5420	10	2	2	4
5430	4	1	0	1
5440	6	0	1	1
5450	5	0	0	0
5500	8	2	1	3
5510	1	0	0	0
5520	13	1	1	2
5530	15	6	3	9
5600	4	1	0	1
5610	5	0	0	0
5620	6	9	0	1
5630	8	1	1	2
5640	3	2	1	3
5650	0	0	0	0
5700	2	0	1	1
5710	1	1	0	1
5720	8	1	0	1
5730	2	1	0	1
5740	9	2	2	4
5750	0	0	0	0
5751	0	0	0	0
5800	3	1	0	1
5810	1	0	0	0
6000	10	2	4	6
6010	16	10	3	13
6020	18	5	4	9
6030	9	3	1	4
6040	14	4	3	7
6050	25	6	5	11
6060	4	2	0	2

13

CARPOOL STUDY – ZONE BY ZONE TOTALS

TOTALS FOR QUESTION 1

TRAFFIC CONTROL ZONE NUMBER	TOTAL COUNT FOR ZONE	BUS OR CARPOOL (1)	BUS ONLY (2)	TOTAL BUS (1 and 2)
6070	10	3	2	5
6080	2	1	1	2
6090	11	4	5	9
6100	10	5	1	6
6110	9	1	4	5
6120	10	2	3	5
6130	8	3	2	5
6140	2	0	0	0
6200	18	1	2	3
6210	32	14	6	20
6222	26	7	2	9
6223	4	8	0	3
6224	22	8	2	10
6225	11	2	1	3
6230	1	0	1	1
6301	18	2	5	7
6302	15	2	0	2
6303	26	5	4	9
6304	14	4	1	5
6310	0	0	0	0
6320	3	1	0	1
6400	4	2	0	2
6410	5	0	1	1
6420	8	5	0	5
6430	5	1	1	2
6500	6	1	1	2
6510	1	1	0	1
6520	0	0	0	0
6530	4	0	0	0
6600	5	2	0	2
6700	0	0	0	0
6701	0	0	0	0
6710	1	0	0	0
6720	2	0	0	1
6730	0	0	0	0
6800	2	0	0	0
6810	0	0	0	0
6820	6	1	1	2
6900	15	6	0	6
6901	2	0	0	0
6910	11	2	1	3
6911	0	0	0	0
6920	0	6	0	0
7000	2	1	0	1
7010	2	0	1	1
7020	0	0	0	0
7030	13	6	1	7
7040	6	1	1	2
7050	3	1	0	1
7060	6	0	2	2
7070	8	2	1	3
7080	15	5	2	7

14

CARPOOL STUDY - ZONE BY ZONE TOTALS

TOTALS FOR QUESTION 1

TRAFFIC CONTROL ZONE NUMBER	TOTAL COUNT FOR ZONE	BUS OR CARPOOL (1)	BUS ONLY (2)	TOTAL BUS (1 and 2)
7100	4	1	0	1
7110	17	4	5	9
7120	11	7	1	8
7130	6	2	2	4
7140	16	5	2	7
7150	10	1	1	2
7160	9	9	9	9
7170	9	6	9	6
7180	12	6	2	8
7200	1	0	1	1
7210	49	24	10	34
7220	34	15	9	23
7300	27	15	1	16
7310	59	26	7	33
7400	9	4	4	8
7500	17	6	3	9
7501	9	2	1	3
7510	0	0	0	0
7520	0	0	0	0
7530	5	1	0	1
7600	8	3	0	3
7610	9	1	0	1
7620	8	2	1	3
7630	6	3	9	3
7640	24	8	2	10
7650	6	3	0	3
7700	13	8	0	8
7710	10	3	1	4
7720	7	2	1	3
7730	5	1	0	1
7740	3	1	0	1
7750	3	1	0	1
7760	1	1	0	1
7770	2	1	1	2
7800	4	0	0	0
7810	5	1	1	2
7820	2	0	0	0
7830	8	2	0	2
7840	1	0	1	1
7841	3	0	1	1
7850	10	2	1	3
7860	9	2	0	2
7870	17	5	1	6
7871	4	0	1	1
7900	12	4	0	4
7910	8	4	1	5
7920	21	10	3	13
7930	4	0	0	0
7940	6	3	0	3
7950	14	4	4	8
7960	16	9	0	9
8000	4	2	1	3

15

(continued)

CARPOOL STUDY - ZONE BY ZONE TOTALS

TOTALS FOR QUESTION 1

TRAFFIC CONTROL ZONE NUMBER	TOTAL COUNT FOR ZONE	BUS OR CARPOOL (1)	BUS ONLY (2)	TOTAL BUS (1 and 2)
8060	3	2	0	2
8070	21	4	2	6
8080	4	3	0	3
8130	10	4	1	5
8140	0	0	0	0
8150	1	0	0	0
8160	2	1	0	1
8170	9	3	3	6
8180	3	0	0	0
8220	18	5	2	7
8230	7	6	0	6
8240	30	10	2	12
8250	1	0	0	0
8260	2	0	0	0
8270	9	3	0	3
8300	22	8	2	10
8310	4	1	0	1
8320	2	0	1	1
8330	6	2	1	3
8340	23	11	5	16
9000	1	0	0	0
9010	10	4	1	5
9020	52	15	5	20
9030	14	7	3	10
9060	4	2	1	3
9070	33	12	2	4
9080	12	4	4	8
9090	14	6	0	6
9100	2	1	0	1
9110	7	1	0	1
9120	1	0	1	1
9130	0	0	0	0
9140	0	0	0	0
9150	0	0	0	0
9160	1	1	0	1
9170	2	1	0	1
9180	0	0	0	0
9190	0	0	0	0
9290	2	0	0	0
9300	3	2	0	2
9310	2	1	0	1
9996	219	39	5	44
9997	127	26	1	27
9998	200	24	7	31
9999	94	31	3	34

Table 3

PRESENT MODE - PERCENT BY CENSUS TRACT

CENSUS TRACT	CAR DRIVER ALONE	CARPOOL/ CAR PASSENGER	PARK AND RIDE: USE SHUTTLE	SHUTTLE BUS	CITY BUS	BICYCLE/ MOTORCYCLE	WALK	OTHER: EXPLAIN
	1	2	3	4	5	6	7	8
0001	64.15	21.69	0.94	0	4.72	5.2	0.47	2.83
0002	42.65	18.48	2.37	6.16	3.32	16.1	7.1	3.79
0003	35.6	16.54	1.0	24.06	2.25	11.2	4.51	4.76
0004	31.15	17.58	0.5	16.1	2.01	10.55	19.09	3.0
0005	17.8	8.9	0.52	8.37	0	18.32	44.5	1.57
0006	8.82	4.58	0	10.78	0	9.47	62.4	3.92
0007	16.16	4.04	0	7.07	1.01	6.06	63.6	2.02
0008	51.9	30.7	0	1.92	6.73	3.85	4.8	0
0009	41.86	27.9	0	0	25.58	0	2.32	2.32
0010	50	10	0	0	35	5	0	0
0011	28.57	10.7	0	17.8	7.14	14.28	17.8	3.57
0012	22.2	17.17	2.02	36.36	0	10.10	4.04	8.08
13.01	58.5	28.72	1.06	1.06	4.25	3.19	0	3.19
13.02	54.9	24.17	1.09	0	7.69	5.49	1.09	5.49
0014	43.2	23.7	0.84	17.7	1.69	4.24	0	8.47
15.01	56.94	36.8	0	0	0.69	1.38	0	4.16
15.02	57.14	27.7	2.38	1.58	3.17	1.58	0	6.35
15.03	60.3	17.2	10.34	3.45	1.72	5.17	0	1.72
16.01	52.04	17.09	1.27	16.3	0.51	5.10	2.29	5.35
16.02	18.6	16.7	1.96	56.8	0	1.47	0.49	3.92
17.01	66.7	27.3	0	0	0.63	1.27	0	4.13
17.02	62.7	27.1	0.84	0	0	3.39	0	5.9
18.01	62.7	25.9	1.18	0	3.53	1.57	0	5.09
18.02	62.9	31.8	1.3	0	0.65	0.65	0	2.6
18.03	55.5	32.8	0	0	2.52	0.84	0	8.4
0019	70.1	23.4	1.87	0	0.93	1.87	0	1.87
0020	58.02	38.3	2.5	0	0	0	0	1.23
21.01	54.85	26.3	1.02	6.12	2.55	1.78	0.26	7.14
21.02	64.1	19.29	1.28	0	10.2	0	0	5.13
0022	80	20	0	0	0	0	0	0
23.01	44.8	22.8	1.29	26.3	0.43	0.43	0	3.88
23.02	44.1	35.3	0	0	8.82	2.94	0	8.82
23.03	50	50	0	0	0	0	0	0
0024	42.85	42.85	0	0	0	0	0	14.28

Persons who were interested in carpools were asked (question 8) which things were most important to them and it was found that preference in parking at the university and early university leaving time for carpool members were desired most. Other responses are shown in Fig. 1.

Question 9 asked the respondents what time they left home for UT each day. Of the persons who left at the same time each week, 30.1% left between 7:30 and 8:00am; 28.17% left between 7:00 and 7:30am; and a total of 81.21% left between 6:30 and 8:30am. Persons who left at different times during the week had more trips and these trips were spread out through the day with a less pronounced peak period. The most common leaving time on Monday was 9-11am (18.32%), 8:00-8:30am on Tuesday (19.18%), 8:30-9:00am on Wednesday (17.48%), 8:00-8:30am on Thursday (18.45%), and 9-11am on Friday (17.82%). The percentages and exact numbers for the other times are shown in Table 4.

Faculty and staff members were then asked in question 10 to give the approximate time at which they left the campus for home. The most common time both for persons who left at the same time every day and for those who left at different times during the week was from 5:00 to 5:30pm. Table 5 contains data on the exact numbers and percentages.

The majority (54.69%) of persons who were interested in carpooling said they would use it Monday through Friday. Fig. 1 shows the percentages for the other responses.

Persons interested in buses showed similar preferences, with 63.85% using them Monday through Friday. Therefore, it might be best to operate the buses only on weekdays.

When asked if they expected significant changes in their schedules for the 1974-75 academic year, 62.30% said they did not, 13.39% said they did,

Table 4

TIME LEAVING HOME FOR SCHOOL

	6:30 – 7:00 am	7:00 – 7:30	7:30 – 8:00	8:00 – 8:30	8:30 – 9:00	9:00 – 11:00	11:00 – 1:00 pm	1:00 – 3:00	3:00 – 3:30	3:30 – 4:00
Same time all week	11.06% (377)	28.17% (960)	30.1% (1026)	11.88% (405)	6.25% (213)	4.05% (138)	1.17% (40)	2.82% (96)	0.56% (19)	0.09% (3)
Monday	3.90% (26)	12.30% (82)	15.92% (106)	16.07% (107)	15.62% (104)	18.32% (122)	9.61% (64)	1.65% (11)	0.90% (6)	0.75% (5)
Tuesday	4.40% (28)	9.75% (62)	11.01% (70)	19.18% (122)	16.82% (107)	16.04% (102)	10.69% (68)	2.36% (15)	0.47% (3)	0.31% (2)
Wednesday	4.14% (27)	11.20% (73)	15.18% (99)	15.80% (103)	17.48% (114)	16.41% (107)	9.97% (65)	2.30% (15)	0.61% (4)	0.31% (2)
Thursday	4.26% (27)	8.04% (51)	11.04% (70)	18.45% (117)	16.4% (104)	17.03% (108)	10.25% (65)	4.42% (28)	0.63% (4)	0.63% (4)
Friday	3.53% (23)	11.52% (75)	14.90% (97)	16.44% (107)	16.90% (110)	17.82% (116)	9.22% (60)	1.69% (11)	0.61% (4)	0.15% (1)

	4:00 – 4:30 pm	4:30 – 5:00	5:00 – 5:30	5:30 – 6:00	6:00 – 6:30	6:30 – 8:30	8:30 – 10:30	10:30 – 12:30	12:30 – 6:30	not applicable
Same time all week	0.06% (2)	0.06% (2)	0.06% (2)	0.09% (3)	0.06% (2)	0.18% (6)	0.12% (4)	0.32% (11)	0.12% (4)	2.79% (95)
Monday	0.15% (2)	0% (0)	0% (0)	0.30% (2)	0.15% (1)	0.15% (1)	0.15% (1)	0.15% (1)	0.15% (1)	3.75% (25)
Tuesday	0.16% (1)	0.47% (3)	0.32% (2)	0.31% (2)	0.31% (2)	0.63% (4)	0.16% (1)	0.47% (3)	0.16% (1)	5.97% (38)
Wednesday	0% (0)	0.15% (1)	0% (0)	0.46% (3)	0.15% (1)	0.46% (3)	0.15% (1)	0.31% (2)	0.15% (1)	4.75% (31)
Thursday	0.16% (1)	0.16% (1)	0.47% (3)	0.63% (4)	0% (0)	0.63% (4)	0.32% (2)	0.32% (2)	0.16% (1)	5.99% (38)
Friday	0% (0)	0.15% (1)	0% (0)	0.46% (3)	0.15% (1)	0% (0)	0.15% (1)	0% (0)	0% (0)	6.30% (41)

Table 5

TIME LEAVING SCHOOL FOR HOME

	6:30 - 7:00 am	7:00 - 7:30	7:30 - 8:00	8:00 - 8:30	8:30 - 9:00	9:00 - 11:00	11:00 - 1:00 pm	1:00 - 3:00	3:00 - 3:30	3:30 - 4:00
Same time all week	0.55% (18)	0.40% (13)	0.40% (13)	0.15% (5)	0.27% (9)	0.06% (2)	1.43% (47)	2.08% (68)	1.59% (52)	1.40% (46)
Monday	0% (0)	0% (0)	0% (0)	0.26% (2)	0.13% (1)	1.42% (11)	3.86% (30)	5.79% (45)	5.66% (44)	4.50% (35)
Tuesday	0% (0)	0.13% (1)	0% (0)	0% (0)	0% (0)	0.67% (5)	3.89% (29)	6.04% (45)	4.97% (37)	4.83% (36)
Wednesday	0% (0)	0.26% (2)	0% (0)	0.13% (1)	0% (0)	0.52% (4)	5.34% (41)	6.90% (53)	6.51% (50)	4.82% (37)
Thursday	0% (0)	0.27% (2)	0% (0)	0.13 (1)	0% (0)	0.67% (5)	4.43% (33)	6.71% (50)	5.10% (38)	3.49% (26)
Friday	0.13% (1)	0% (0)	0% (0)	0.13% (1)	0.26% (2)	0.79% (6)	6.42% (49)	11.01% (84)	7.60% (58)	5.37% (41)

	4:00 - 4:30 pm	4:30 - 5:00	5:00 - 5:30	5:30 - 6:00	6:00 - 6:30	6:30 - 8:30	8:30 - 10:30	10:30 - 12:30	12:30 - 6:30	not applicable
Same time all week	5.10% (167)	17.6% (578)	45.75% (1499)	9.83% (322)	3.05% (100)	2.23% (73)	0.79% (26)	3.82% (125)	0.61% (20)	2.84% (93)
Monday	9.14% (71)	13.13% (102)	17.63% (137)	11.71% (91)	7.34% (57)	6.18% (48)	7.72% (60)	2.44% (19)	0.39% (3)	2.70% (21)
Tuesday	7.65% (57)	10.30% (77)	15.84% (118)	8.60% (64)	10.34% (77)	7.65% (57)	10.47% (78)	2.42% (18)	0.40% (3)	5.77% (43)
Wednesday	8.46% (65)	11.20% (86)	17.58% (135)	10.16% (78)	6.51% (50)	5.60% (43)	8.59% (66)	2.34% (18)	0.39% (3)	4.69% (36)
Thursday	8.19% (61)	12.62% (94)	14.76% (110)	9.13% (68)	9.66% (72)	8.46% (63)	8.32% (62)	2.28% (17)	0.54% (4)	5.23% (39)
Friday	11.27% (86)	12.84% (98)	20.18% (154)	9.30% (71)	4.06% (31)	2.88% (22)	0.79% (6)	0.92% (7)	0.13% (1)	5.90% (45)

20

and 24.32% did not know. It would therefore be safe to assume that the data gathered in this study would be applicable to a system for the 1974-75 year, also.

Potential carpool drivers were asked how many people including themselves could comfortably fit in their cars (question 14), and 30.44% said that four people could while 13.65% said five people could. Other responses were less frequent and appear in Fig. 1.

A student survey was taken in the fall of 1973 to provide information for the shuttle bus system. This was done during registration and student identification card distribution to include the greatest number of students possible. In the interest of combining these data with those obtained from the faculty and staff on their residence patterns and to avoid double counting, faculty and staff members were asked whether or not they were registered for a class in the fall of 1973. Results showed that 78.39% said they were not students, and 21.61% said they were, which means they were also included in the student survey.

Faculty and staff members said they would be willing to pay 25-50¢/day/round trip (71.78% of the faculty and staff) and 21.32% said they would pay 50-75¢/day/round trip. With slightly over 93% preferring a daily cost of under 75¢ it is necessary to keep the cost under 75¢ and preferably under 50¢.

The way in which they would prefer to pay for the service was also examined. A daily fare was preferred by 27.30%, a monthly pass by 21.79%, a semester pass by 18.78%. Other responses are shown in Fig. 1.

The maximum distances that people would walk to be picked up by a carpool and a bus were asked for in question 18 and 19, respectively. Generally, people were willing to walk further to be picked up by a bus than by a carpool. For a carpool, 21.05% of the people wanted to be

21

picked up at home only, 7.07% would walk 1/2 block or less, 14.64% would walk 1 block; 14.14% would walk 2 blocks. For the question on buses, 19.13% would walk 1 block or less, 22.51% would walk 2 blocks; 17.49% would walk 3 blocks; 14.88% would walk 4 blocks or more.

Ten to thirty minutes riding time for bus or carpool was acceptable to over 70% of those responding. For a one way trip between home and campus, 7.02% were willing to ride 10 minutes or less, 33.14% accepted a 10-20 minute trip; 3.5% accepted a 20-30 minute trip, 13.04% a 30-45 minute trip, 3.25% a 45 minute or longer trip, and 5.05% said the question was not applicable.

The university currently sells parking permits to faculty, staff, and students to allow them to park in UT lots. Question 21 asked the faculty and staff members if they would still buy a UT parking permit for their car if they used the bus; and 51.38% said they would, while 48.62% said they would not. This would result in about a 50% reduction in parking fees for bus riders.

Persons using the bus, who would still buy the parking permit were asked to explain why, and it was found that 37.78% would need it to come to campus at night and on weekends and 24.75% wanted the permit in case emergencies arose. The other responses occurred less frequently and are given in Table 2.

Maximum waiting time for carpool and bus users was examined to help determine bus headways, and it was found that 46.88% would wait 5-10 minutes, 30.75% would wait 10-15 minutes. It would therefore be unadvisable to attempt to operate a system with headways greater than 15 minutes.

22

Of the total number of respondents, 64.39% said they were interested in considering other transportation modes than their present one, while 35.61% were not interested in new modes. Those who said they were not interested were asked to return the questionnaire at that point, and did not complete the rest of the questionnaire.

Questions 4 and 5 asked whether or not the person would consider a bus or a carpool under different circumstances. If gasoline were rationed or cost 80¢ per gallon, 46.79% said they would use either a bus or a carpool, 18.06% said they would only use a bus, 10.52% said they would only use a carpool, 6.35% said the question was not applicable, and 18.28% said they already used a bus or carpool. In question 5, which asked what they would do at the present time, 39.14% would use only a carpool, 9.66% said the question was not applicable, and 21.52% said they already used a bus or carpool.

To include persons who did not have a car, question 6 asked whether or not they would like to be a carpool passenger, although they could never be a carpool driver. The results showed that 25.65% said they would like to be carpool passengers, 22.74% said they would not, and 51.64% said the question was not applicable. The last response includes people who do not have access to a car.

The hours of bus service desired were explored in question 7, and 35.87% of the respondents said that peak morning and afternoon service only (7am-9am and 4pm-7pm) was important to them; 25.36% wanted all day, fairly frequent service; and 21.13% wanted both all day and late evening service. Other responses are shown in Fig. 1.

Table 6

COST PREFERENCE, ROUND TRIP, BY CENSUS TRACT

	25¢-50¢	50¢-75¢	75¢-$1.00	$1.00-$1.50	$1.50-$2.00
0001	64.2	31.8	2.65	0.662	0.662
0002	80	18.5	0.74	0	0.74
0003	90.3	9.27	0	0	0.39
0004	87.2	10.09	2.75	0	0
0005	93.2	5.48	1.37	0	0
0006	86.9	10.6	2.46	0	0
0007	81.4	16.3	2.32	0	0
0008	81.4	16.3	2.32	0	0
0009	68.75	31.25	0	0	0
0010	87.5	12.5	0	0	0
0011	82.4	17.6	0	0	0
0012	89.7	10.3	0	0	0
13.01	66.2	28.17	5.63	0	0
13.02	80.64	17.8	1.61	0	0
0014	79.3	17.24	3.44	0	0
15.01	60	33.04	6.09	0.87	0
15.02	69.5	26.83	3.66	0	0
15.03	75	20	5	0	0
16.01	79.49	17.22	3.3	0	0
16.02	90.14	7.75	1.41	0	0.70
17.01	46.93	41.67	10.53	0.88	0
17.02	59.26	34.57	4.94	1.23	0
18.01	65.73	29.78	3.93	0.56	0
18.02	62.73	33.64	2.73	0	0.91
18.03	63.75	27.5	8.75	0	0
0019	60.98	28.05	9.76	1.22	0
0020	69.39	24.49	6.12	0	0
21.01	75.30	21.96	2.74	0	0
21.02	83.33	16.67	0	0	0
0022	0	0	0	0	0
23.01	75.6	19.64	2.98	1.19	0.6
23.02	86.96	8.7	4.35	0	0
23.03	100	0	0	0	0
0024	89.47	10.53	0	0	0

Figure 1

Percentage Response to all Survey Questions

University Transportation Alternatives

PLEASE INDICATE THE ITEM SUITABLE
TO YOUR SITUATION

Present

Number of Responses		1.	Please check the attached map and find the traffic zone you live in; write it in the space at the left.

		2.	Which mode of transportation do you use most of the time:
2772	46.32%		(1) cardriver alone
1522	25.43%		(2) carpool/car passenger
66	1.10%		(3) park and ride: use shuttle
528	8.82%		(4) shuttle bus
127	2.12%		(5) city bus
270	4.51%		(6) bicycle/motorcycle
444	7.42%		(7) walk
256	4.28%		(8) other: explain

		3.	In view of the national energy and pollution crises, would you consider exploring transportation options such as expanding your carpool or using improved bus service or acquiring riders for your car, etc.?
3927	64.39%		(1) Yes, I would be interested in exploring transportation options
2172	35.61%		(2) No, I would not be interested in exploring transportation options.

If your response is Yes, please continue the questionnaire. If not, please return this questionnaire without finishing it to your immediate supervisor.

		4.	Would you use a bus system and/or a carpool for your daily work trips, if gasoline were rationed or cost 80¢ per gallon?
1953	46.79%		(1) Yes, bus or carpool
754	18.06%		(2) Yes, bus only
439	10.52%		(3) Yes, carpool only
265	6.35%		(4) Not applicable
763	18.28%		(5) I already use a bus or a carpool

		5.	Would you use a bus system and/or a carpool for your daily work trips now, if it were available and convenient?
1612	39.14%		(1) Yes, bus or carpool
776	18.84%		(2) Yes, bus only
446	10.83%		(3) Yes, carpool only
398	9.66%		(4) Not applicable
887	21.52%		(5) I already use a bus or a carpool

		6.	Even though you would never be a carpool driver, would you like to be a carpool passenger? (potential carpool drivers should give (3) as their answer)
1051	25.65%		(1) Yes
932	22.74%		(2) No
2115	51.61%		(3) Not applicable

		7.	If you are willing to use a bus, which of these is important to you?
1043	25.36%		(1) all day fairly frequent service (7 am to 6 pm)
1475	35.87%		(2) peak morning and afternoon service only (7 am to 9 am and 4 pm to 7 pm)
110	2.68%		(3) late evening service (6 pm to 12 pm)
869	21.13%		(4) 1 and 3
615	14.96%		(5) not applicable

		8.	If you are willing to use a carpool which of these is important to you?
293	7.27%		(1) ride only with friends
613	15.22%		(2) preference in parking at the University
209	5.19%		(3) early Univ. leaving time for carpool members
363	9.01%		(4) all of the above
341	8.46%		(5) 1 and 2 above
638	15.83%		(6) 2 and 3 above
1571	39.00%		(7) not applicable

9. Please write the approximate time you leave home for UT each working day, using the code in parentheses. If it is generally the same time each day write the code in the top boxes. If it is not, use the appropriate code for each day of the week.

☐☐ same time all week

☐ Monday
☐ Tuesday
☐ Wednesday
☐ Thursday
☐ Friday

(01) 6:30 – 7:00 am   (11) 4:00 – 4:30
(02) 7:00 – 7:30   (12) 4:30 – 5:00
(03) 7:30 – 8:00   (13) 5:00 – 5:30
(04) 8:00 – 8:30   (14) 5:30 – 6:00
(05) 8:30 – 9:00   (15) 6:00 – 6:30
(06) 9:00 –11:00   (16) 6:30 – 8:30
(07)11:00 – 1:00 pm   (17) 8:30 –10:30
(08) 1:00 – 3:00   (18)10:30 –12:30
(09) 3:00 – 3:30   (19)12:30 – 6:30
(10) 3:30 – 4:00   (20)not applicable

10. Using the time codes above please write the approximate time you leave the UT campus each working day. If it is generally the same time each day write the code in the top boxes. If it is not, use the appropriate code for each day of the week.

☐☐ same time all week

☐ Monday
☐ Tuesday
☐ Wednesday
☐ Thursday
☐ Friday

		11.	Which days of the week would you generally use a carpool to campus?
2227	54.69%		(1) Monday through Friday
239	5.87%		(2) Monday, Wednesday, Friday
114	2.80%		(3) Tuesday and Thursday
258	6.33%		(4) Other
1234	30.30%		(5) Not applicable

		12.	Which days of the week would you generally use a bus to campus?
2602	63.85%		(1) Monday through Friday
188	4.61%		(2) Monday, Wednesday, Friday
115	2.82%		(3) Tuesday and Thursday
272	6.67%		(4) Other
898	22.04%		(5) Not applicable

		13.	Do you expect significant changes in your schedule in the academic year 1974-75?
(1) 551			
(2) 2564			
(3) 1001			(1) Yes 13.39% (2) No 62.30% (3) Unknown 24.32%

		14.	If you were to be a carpool driver, how many people, including yourself, could comfortably ride in your car?
317	7.76%		(1) Two people
441	10.79%		(2) Three people
1244	30.44%		(3) Four people
558	13.65%		(4) Five people
220	5.38%		(5) Six people
1307	31.98%		(6) Not applicable

		15.	Everyone registered for a class in the fall of 1973 has been included in the student shuttle bus survey. Were you registered for a class in the fall of 1973?
877	21.61%		(1) Yes
3182	78.39%		(2) No

		16.	If you would be interested in buses, how much would you be willing to pay?
2643	71.78%		(1) 25¢-50¢/day round trip
785	21.32%		(2) 50¢-75¢/day round trip
185	5.02%		(3) 75¢-$1.00/day round trip
49	1.33%		(4) $1.00-$1.50/day round trip
20	0.54%		(5) $1.50-$2.00/day round trip

		17.	If you would be interested in buses, how would you prefer to pay for the service?
97	2.43%		(1) nine months
264	6.61%		(2) twelve months
750	18.78%		(3) semester pass
870	21.79%		(4) monthly pass
325	8.14%		(5) weekly pass
1090	27.30%		(6) daily fare
178	4.45%		(7) amount deducted from each paycheck
419	10.49%		(8) not applicable

(continued)

		18.	What is the maximum distance you would walk to be picked up by a carpool, regardless of the weather?
860	21.05%		(1) want to be picked up at home only
289	7.07%		(2) 1/2 block or less
598	14.64%		(3) 1 block
578	14.14%		(4) 2 blocks
380	9.30%		(5) 3 blocks
298	7.29%		(6) 4 blocks or more
1083	26.50%		(7) not applicable

		19.	What is the maximum distance you would walk to be picked up by a bus, regardless of the weather?
165	4.02%		(1) want to be picked up at home only
385	9.39%		(2) 1/2 block or less
795	19.39%		(3) 1 block
923	22.51%		(4) 2 blocks
717	17.49%		(5) 3 blocks
610	14.88%		(6) 4 blocks or more
505	12.32%		(7) not applicable

		20.	What is the maximum time you would be willing to spend riding on the bus or in a carpool for a one-way trip between home and campus?
289	7.02%		(1) 10 minutes or less
1365	33.14%		(2) 10 - 20 minutes
1586	38.50%		(3) 20 - 30 minutes
537	13.04%		(4) 30 - 45 minutes
134	3.25%		(5) 45 minutes or more
208	5.05%		(6) not applicable

		21.	If you used the bus, would you still buy a UT parking permit for your car?
(1) 2042			
(2) 1932			(1) Yes 51.38% (2) No 48.62%

		22.	If you answered yes to question 21 why would you still buy a UT permit?
271	12.31%		(1) need to come to campus alone during day
832	37.78%		(2) come to campus at night/weekends
545	24.75%		(3) emergencies might arise
235	10.67%		(4) can only use bus on certain days
319	14.49%		(5) other

		23.	What is the maximum time that you are willing to wait if you have to wait either by a bus stop or to be picked up by a carpool?
321	7.78%		(1) less than 5 minutes
1933	46.88%		(2) 5 - 10 minutes
1268	30.75%		(3) 10 - 15 minutes
295	7.15%		(4) 15 - 20 minutes
82	1.99%		(5) 20 - 30 minutes
27	0.65%		(6) more than 30 minutes
197	4.78%		(7) not applicable

IV. Impact Analysis

An attempt was made to measure the impact of this survey by moni-
toring traffic flows and vehicle occupancy near and around the University
campus before and after the presentation of carpool matching data to the
University community. A planned before-and-after modal choice study
had to be dropped because the carpool matching information was not
presented to the University community effectively until the end of the
Spring semester. Since many respondents and interested carpoolers had
decided schedule variations during the summer months, it was deemed in-
feasible to attempt to measure impact in this way at that time.

Four major locations around the University were chosen to monitor
traffic flows into and out of the campus. Table 7 identifies those loca-
tions and gives preliminary vehicle counts before and after the dissemina-
tion of carpool matching information.

Table 7

LOCATION	24-HOUR VOLUME	
	Before (3-5-74)	After (4-9-74)
1. Southbound on Speedway (north of San Jacinto)	3,313	2,838
2. Northbound on Guadalupe (south of 26th Street)	11,521	11,308
3. Westbound on 26th Street (east of San Jacinto)	5,137	8,986
4. Eastbound on 24th Street (west of San Gabriel)	6,149	6,578

Vehicle occupancy counts were also taken on the above dates during the A.M. peak period between 7:15 and 8:15 at a location on Speedway just north of 19th Street. The following information was derived from the count:

CATEGORY	BEFORE	AFTER
Percent Passenger Vehicles	90.56	89.88
Percent Trucks	1.04	0.00
Percent Buses	8.38	10.35
Average Passenger Vehicle Occupancy	1.22	1.39
Average Truck Occupancy	1.00	0.00
Average Bus Occupancy	25.72	17.93
Overall Average Vehicle Occupancy	3.27	3.11

Tables 8 and 9 present these summary data in detailed tabular form; Appendix III presents full traffic counts.

In general these variations in traffic flows and vehicular occupancy cannot be considered significant; their statistical validity as measures of change in travel behavior are in doubt. It is assumed that another set of data points would have to be collected to adequately assess the impact of the carpooling program on individual travel behavior.

Table 8

VECHICLE OCCUPANCY BEFORE

03-05-74   SPEEDWAY NORTH OF 19TH ST   NORTHBOUND

	** PASSENGER VEH. **			TRUCKS		**	BUSES		**	TOTALS		**
TIME	VEH.	PASS.	PASS/ VEH.	VEH.	PASS.	PASS/ VEH.	VEH.	PASS.	PASS/ VEH.	VEH.	PASS.	PASS/ VEH.
715	34	36	1.05	0	0	0.00	2	86	44.00	36	124	3.44
720	40	42	1.05	0	0	0.00	2	70	35.00	42	112	2.66
725	56	59	1.05	0	0	0.00	1	28	28.00	57	87	1.52
730	55	59	1.07	0	0	0.00	3	98	32.66	58	157	2.70
735	61	65	1.06	0	0	0.00	4	86	21.50	65	151	2.32
740	45	70	1.55	0	0	0.00	5	101	20.20	50	171	3.42
745	28	41	1.46	2	2	1.00	4	121	30.25	34	164	4.52
750	39	63	1.61	1	1	1.00	4	66	16.50	44	130	2.95
755	23	28	1.21	0	0	0.00	3	64	21.33	26	92	3.53
800	16	20	1.25	1	1	1.00	3	65	21.66	20	66	4.30
805	12	17	1.41	1	1	1.00	3	72	24.00	16	90	5.62
810	23	30	1.30	0	0	0.00	6	170	28.33	29	200	6.89
TOTL	432	530	1.22	5	5	1.00	40	1029	25.72	477	1564	3.27

```
PERCENT PASSENGER VEH = 90.56
PERCENT TRUCKS        =  1.04
PERCENT BUSES         =  8.38
```

Table 9

VEHICLE OCCUPANCY AFTER

04-09-74　　　　　　　　　　SPEEDWAY NORTH OF 19TH ST　　　　　　　NORTHBOUND

	** PASSENGER VEH. **			* TRUCKS **			* BUSES **			* TOTALS **	
TIME	VEH.	PASS.	PASS/ VEH.	VEH.	PASS.	PASS/ VEH.	VEH.	PASS.	PASS/ VEH.	VEH.	PASS.	PASS/ VEH.
715	6	9	1.50	0	0	0.00	2	16	8.00	8	25	3.12
720	14	16	1.14	0	0	0.00	2	38	19.00	16	54	3.37
725	23	31	1.34	0	0	0.00	2	30	15.00	25	61	2.44
730	23	28	1.21	0	0	0.00	5	62	12.40	28	90	3.21
735	15	31	2.06	0	0	0.00	0	0	0.00	15	31	2.06
740	26	43	1.65	0	0	0.00	4	51	12.75	30	94	3.13
745	32	40	1.25	0	0	0.00	1	75	75.00	33	115	3.48
750	27	45	1.66	0	0	0.00	4	106	26.50	31	151	4.87
755	29	37	1.27	0	0	0.00	4	81	20.25	33	118	3.57
800	39	55	1.41	0	0	0.00	3	43	14.33	42	98	2.33
805	28	35	1.25	0	0	0.00	3	53	17.66	31	88	2.83
810	15	17	1.13	0	0	0.00	2	19	9.50	17	36	2.11
TOTL	277	387	1.39	0	0	0.00	32	574	17.93	309	961	3.11

```
PERCENT PASSENGER VEH =  89.64
PERCENT TRUCKS        =   0.00
PERCENT BUSES         =  10.35
```

LAMAR AT BRIDGE — NORTHBOUND

	TIME		PASS VEH			TRUCKS			BUSES			TOTALS			PERCENT OF TOTL VOL		
DATE	BEG	END	VEH	PASS	PASS/VEH	VEH	PASS	PASS/VEH	VEH	PASS	PASS/VEH	VEH	PASS	PASS/VEH	VEH	TRUCK	BUS
11/27/73	715	815	2060	2697	1.29	29	44	1.51	4	81	20.25	2113	2822	1.33	98.43	1.37	0.18
12-18-73	715	815	2194	2791	1.27	31	41	1.32	3	74	24.66	2228	2906	1.30	98.47	1.39	0.13
01/08/74	715	815	1825	2349	1.28	11	11	1.00	2	75	37.50	1838	2435	1.32	99.29	0.59	0.10
01/29/74	715	815	1913	2427	1.26	16	23	1.43	3	56	18.66	1932	2506	1.29	99.01	0.82	0.15
02/19/74	715	815	2068	2553	1.23	14	17	1.21	2	69	34.50	2084	2639	1.26	99.23	0.67	0.09
03/19/74	715	815	2235	2890	1.29	27	40	1.48	3	100	33.33	2265	3030	1.33	98.67	1.19	0.13

SOUTH CONGRESS AT BRIDGE — NORTHBOUND

	TIME		PASS VEH			TRUCKS			BUSES			TOTALS			PERCENT OF TOTL VOL		
DATE	BEG	END	VEH	PASS	PASS/VEH	VEH	PASS	PASS/VEH	VEH	PASS	PASS/VEH	VEH	PASS	PASS/VEH	VEH	TRUCK	BUS
11/27/73	715	815	1582	2130	1.34	24	32	1.33	7	156	22.57	1613	2320	1.43	98.07	1.48	0.43
12-18-73	715	815	1709	2273	1.33	9	11	1.22	7	200	28.57	1725	2484	1.44	99.07	0.52	0.40
01/08/74	715	815	1501	2004	1.38	22	50	2.27	8	195	24.37	1531	2329	1.52	98.04	1.43	0.52
01/29/74	715	815	1272	1691	1.32	16	21	1.31	10	226	22.80	1298	1940	1.49	97.99	1.23	0.77
02/19/74	715	815	1551	2033	1.31	17	22	1.29	9	207	23.00	1577	2262	1.43	98.35	1.07	0.57
03/19/74	715	815	1692	2366	1.39	23	28	1.21	8	228	28.50	1723	2622	1.52	98.20	1.33	0.46

LAMAR BLVD AT W 19TH ST — SOUTHBOUND

	TIME		PASS VEH			TRUCKS			BUSES			TOTALS			PERCENT OF TOTL VOL		
DATE	BEG	END	VEH	PASS	PASS/VEH	VEH	PASS	PASS/VEH	VEH	PASS	PASS/VEH	VEH	PASS	PASS/VEH	VEH	TRUCK	BUS
11/27/73	715	815	1727	2149	1.24	5	10	2.00	0	0	0.00	1732	2159	1.24	99.71	0.28	0.00
12-18-73	715	815	1547	1931	1.24	9	11	1.22	0	0	0.00	1556	1942	1.24	99.42	0.57	0.00
01/08/74	715	815	1604	1921	1.19	8	15	1.87	0	0	0.00	1612	1936	1.20	99.50	0.49	0.00
01/29/74	715	815	1516	1858	1.22	9	14	1.55	0	0	0.00	1525	1872	1.22	99.40	0.59	0.00
02/19/74	715	815	1540	1899	1.23	7	10	1.42	0	0	0.00	1547	1909	1.23	99.54	0.45	0.00
03/19/74	715	815	1469	1871	1.27	10	21	2.10	0	0	0.00	1479	1892	1.27	99.32	0.67	0.00

RED RIVER NORTH OF 26TH ST — SOUTHBOUND

	TIME		PASS VEH			TRUCKS			BUSES			TOTALS			PERCENT OF TOTL VOL		
DATE	BEG	END	VEH	PASS	PASS/VEH	VEH	PASS	PASS/VEH	VEH	PASS	PASS/VEH	VEH	PASS	PASS/VEH	VEH	TRUCK	BUS
11/24/73	715	815	791	1034	1.30	6	8	1.33	10	325	32.50	807	1367	1.69	98.01	0.74	1.23
12-20-73	715	815	660	871	1.31	6	6	1.00	5	94	18.80	671	971	1.44	98.36	0.89	0.74
01/09/74	715	815	626	841	1.34	5	5	1.00	5	73	14.60	636	919	1.44	98.42	0.78	0.78
01/30/74	715	815	910	1238	1.36	7	8	1.14	30	323	10.76	947	1569	1.65	96.09	0.73	3.16
01/20/74	715	815	889	1148	1.29	6	8	1.33	13	362	27.84	908	1518	1.67	97.90	0.66	1.43
0-/20/74	715	815	826	1120	1.35	6	6	1.00	11	329	29.90	843	1455	1.72	97.98	0.71	1.30

VEHICLE OCCUPANCY SUMMARY REPORT

EAST 7TH ST AT CHICON — WESTBOUND

	TIME		PASS VEH			TRUCKS			BUSES			TOTALS			PERCENT OF TOTL VOL		
DATE	BEG	END	VEH	PASS	PASS/VEH	VEH	PASS	PASS/VEH	VEH	PASS	PASS/VEH	VEH	PASS	PASS/VEH	VEH	TRUCK	BUS
11/24/73	715	815	1142	1772	1.55	56	71	1.26	2	4	2.00	1200	1847	1.53	95.16	4.66	0.16
12-20-73	715	815	777	1226	1.57	35	54	1.54	2	6	3.00	814	1286	1.57	95.45	4.29	0.24
01/09/74	715	815	770	1106	1.54	33	48	1.45	1	5	5.00	804	1239	1.54	95.77	4.10	0.12
01/30/74	715	815	828	1239	1.49	38	44	1.15	0	0	0.00	866	1283	1.48	95.61	4.38	0.00
01/20/74	715	815	761	1109	1.45	43	52	1.20	1	3	3.00	805	1164	1.44	94.53	5.34	0.12
03/20/74	715	815	787	1146	1.45	45	71	1.57	0	0	0.00	832	1217	1.46	94.59	5.40	0.00

V. Proposed new routes for service to the University Community

There were many respondents to the initial survey who expressed great
interest in extension of existing bus service as a viable transportation
alternative for themselves. Only preliminary recommendations for such
services can be made at this time, and no specific system is considered
as the actual operator of these routes. Areas of sufficient density or
concentration of interested personnel were identified from the survey as
possible trip-generators but no recommendations are made as to actual
number of vehicles in service, headways or service characteristics.

Faculty and staff members living in areas already served by the
UT shuttle bus system can use that system by paying a small semester fee,
so no new routes will be added in those areas. East Austin between Town
Lake and Manor Road has very few people interested in a bus system, so
no new routes will be devised for this area. Southeast Austin, except
for the already served Riverside Drive area south of Town Lake and east
of IH 35, also had very few persons interested in buses, so it likewise
is being excluded.

To serve the area west of IH 35 and south of Town Lake, two routes
have been devised as illustrated in Figure 2. The area west of IH 35
and north and east of the Colorado River, in the northwest and west
parts of the city has two proposed routes. The area north of the muni-
cipal airport and south of US Hwy 290 has one route.

These five routes should be able to reach the majority of the faculty/
staff persons who presently do not have access to the UT shuttle bus system
but who are interested in bus transportation to and from campus. Part II

of this report gave a detailed analysis of the service characteristics
desired by respondents on such bus routes, including waiting and riding
time, cost per round trip, and method of payment.

MAP & STREET GUIDE
OF
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AND
URBAN AREAS
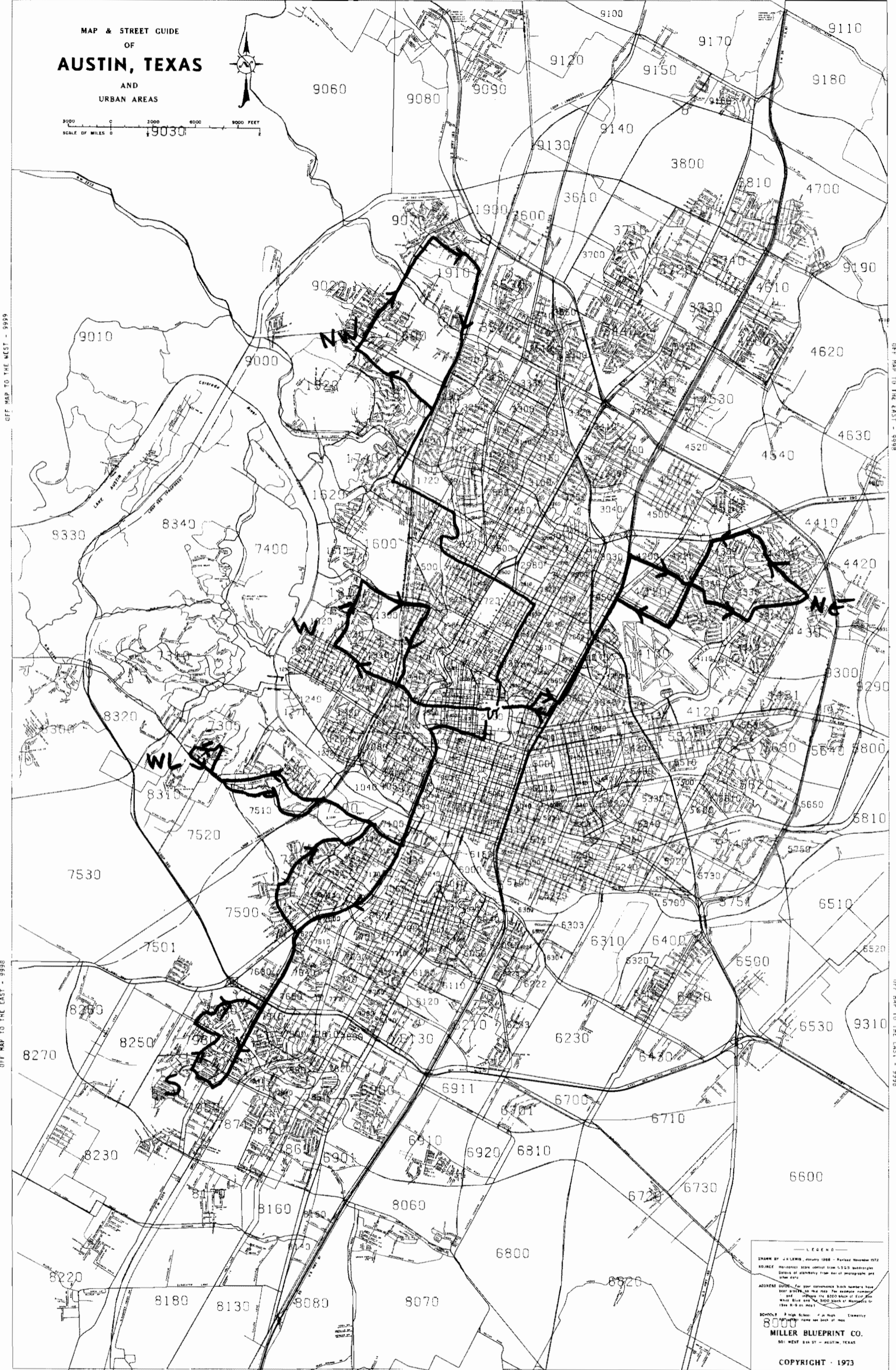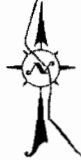
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_____. Vanpools. U. S. Department of Transportation, Office of the Secretary, Federal Highway Administration, Urban Mass Transportation Administration, January 1974, 13 pp.

An overview of vanpooling presented in non-technical terms for those interested in starting a program. The report describes the methods, benefits, costs and problems associated with implementing a vanpool program.

WEBSTER, DANIEL, JR., Director. Correspondence Concerning Ongoing Projects. Maine Department of Transportation, Augusta, Maine, July 24, 1974

A letter announcing that carpooling projects have just begun in the Augusta and Lewiston-Auburn areas.

Appendix I

CARPOOL COMPUTER PROGRAM DESCRIPTION

Software Status

Inquiry Date:	02/15/74
First Used:	February 1974
Current Version:	1974
Installed at:	One location
Language:	(ANSI) COBOL
Computer:	IMB 370/155
Core Required:	120K bytes
Tape or Disk:	Sequential Access
Time Required:	10 minutes
Test Case:	413 matches

Capability Summary

Geo-coding--Uses a system of traffic zones to identify the home zone.

Matching--The program will match participant within traffic zones and time ranges. The program is a single destinations program.

Reporting--A master list--one for each traffic zone will be printed. An individualized, one for each person in a traffic zone, list is also produced and mailed to each participant.

File Maintenance--Updating of the master file for additions and deletions is available. A request list for selected traffic zones can be obtained.

System Management

The system is unique to the University of Texas and has been used only at the University of Texas at Austin.

Limitations

The program is limited to a single destination. The program requires
120K bytes of core and the only access available at the present time is
sequential. Documentation for the system is not available.

Traffic Control Zones in Each Census Tract

Census Tracts

	0001	0002	0003	0004	0005	0006	0007	0008
Zones	1500	2400	2600	*2500	2420	2100	0100	4000
	1520	2410	2610	2510	2430	2200	2000	4010
	1600	2720	2620	2520	2530	2210	2010	4020
	1610	2730	2630	2550	2540	2220	2020	4030
	1620	2740	2640	2560		2230	2030	5000
	1700	2750	2650	2650		2240	2040	5010
	1710	2760	*2710	*(2110)		2250	2050	5020
	1720	2800	2910	(2120)		2300		5310
	1730	2810	2920	4000		2310		5320
	1740	2820	2930	4010		2320		5330
		2830	2940	4020		2330		5340
		2840	2950	4030		2340		5400
		2850	2960	4040				5410
		2860	2970	4050				5420
		2870	2980					5430
		2880	2990					5440
		2890	3000					5450
		2900	4060					
			4070					
			4080					
			4090					
			4100					
			4110					
			*2700					

0009	0010	0011	0012	13.01	13.02	0014	15.01
5030	5130	0000	1020	7100	7000	6000	3200
5040	5140	1000	1030	7110	7010	6010	3210
5110	5160	1010	1040	7120	7020	6020	3220
5120	5210	5050	1050	7130	7030	6030	3230
5200	5220	5100	1060	7140	7040	6040	3240
5240	5230	5150	1070	7150	7050	6050	3250
5300			1080	7150	7060	6060	3260
5350				7170	7070	6070	3270
				7180	7080	6200	
				7600	7700		
				7610	7710		
					7720		
					7730		
					7740		
					7750		
					7760		
					7770		

15.02	15.03	16.01	16.02	17.01	17.02	18.01	18.02
3100	3010	1100	1230	1800	7920	1900	4500
3110	3020	1110	1240	1810	7940	3400	4510
3120	3040	1120	1250	1820	7950	3410	4520
3130	3050	1130	1260	1910	7960	3420	4530
3140	3060	1140	1271	9000	8220	3430	4540
3150	3070	1200	1272	9010	8230	3440	4550
3300	3080	1210		9020	8240	3450	4600
3310		1220		9030	8250.	3600	4610
3320		1300		9060	8260	3610	4620
3330		1310		9070	8270	3700	4630
		1320		9080		3710	4700
		1330				3720	4710
		1340				3730	4800
		1400				3740	9110
		1410				3810	9180
		1420				9090	9190
		1430				9120	
						9130	
						9140	
						9150	
						9160	
						9170	
						9100	

18.03	0019	0020	21.01	21.02	0022	23.01	23.02
3500	7200	7620	3030	4130	4410	6080	6310
3510	7210	7630	4120	5500	5800	6090	6320
3520	7220	7640	4200	5510		6100	6400
3530	7500	7650	4210	5520		6110	6410
3540	7501	7800	4220	5530		6120	6420
3550		7810	4300	5600		6130	6430
		7820	4310	5610		6140	6500
		7830	4320	5620		6200	6510
		7900	4330	5630		6210	6520
		7910	4340	5700		6222	6530
		7930	4350	5710		6223	9310
			4400	5720		6224	
			4430	5730		6225	
			4431	5740		6230	
				5750		6301	
				5751		6302	
						6303	
						6304	

23.03	0024
6600	6710
	6900
	7840
	7841
	7850

VEHICLE VOLUME COUNT

Location _U. T. Occupancy & Traffic Flow_   Weather _Before_   Date _____

Starting Time M	From North (2-way) On SPEEDWAY				From South (2-way) On Guadalupe				From East (2-way) On _____				From West (2-way) On _____				Total Entering		
	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	T	NS	EW	T
7:00 AM				33				42				39				32			
7:15				82				86				80				68			
7:30				117				123				106				92			
7:45				138				122				159				137			
HR. TOT.				370				373				383				329			
8:00				103				104				113				161			
8:15				89				119				94				133			
8:30				121				125				99				150			
8:45				144				120				136				200			
HR. TOT.				463				468								610			
9:00				227				461				287				451			
10:00				202				584								307			
11:00				177				702				228				260			
12:00 N				169				795				378				366			
1:00 PM				143				169				509				361			
2:00				122				732				252				395			
3:00				135				717				377				349			
TOTAL				1187				4660								2739			
4:00				39				201				81				76			
4:15				34				214				99				88			
4:30				21				241				100				61			
4:45				44				291				126				94			
HR. TOT.				141				947				406							
5:00				46				336				102				110			
5:15				47				265				71				134			
5:30				28				220				94				105			
5:45				59				167				95							
HR. TOT.				180				988				410				424			
6:00				256				600				357				462			
12 Hr. Total				2597				9036				3701				4647			
12 Hr. 2-Way				2597			9036			3901				4647				
24/12 F				1.28			1.43			1.32				1.32				
24 Hr. 2-Way				3313			11521			5137				6149				

48

VEHICLE VOLUME COUNT

Location _U.T. Occpancy & Traffic Flow_ Weather _Eastward traffic_ _west or windows_ Date _4-9-74_

Starting Time	From North On Speedway				From South On Guadalupe				From East On E26th				From West On SanGabriel				Total Entering		
M	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	T	NS	EW	T
7:00 PM				159				542				423				410			
8:00				148				547				398				329			
9:00				111				572				343				231			
10:00				59				412				296				187			
11:00				63				340				221				140			
12:00 M				32				230				117				85			
1:00 AM				13				106				43				28			
2:00				9				51				23				24			
3:00				2				12				10				11			
4:00				1				17				7				6			
5:00				8				28				26				19			
6:00				30				19				113				77			

	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	T	NS	EW	T
Sub-total				635				2773				2072				1557			
24 Hrs. Total				2838				11308				8986				6518			
24 Hr.	2838				11308				8986				6518						
24/12 F	1.29				1.35				1.30				1.31						

49

VEHICLE VOLUME COUNT

Location: _U.T. Occupancy & Traffic Flow_ Weather: _Nifty_ Date _4-9-74_

Starting Time M	From North On				From South On				From East On 26th				From West 24th West San Gabriel				Total Entering		
	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	T	NS	EW	T
7:00 AM				29				38				68				74			
7:15				61				77				137				86			
7:30				91				120				215				134			
7:45				113				122				253				149			
HR. TOT.				314				342				673				443			
8:00				72				123				178				155			
8:15				76				96				132				123			
8:30				106				118				178				205			
8:45				95				130				176				166			
HR. TOT.				349				467				664				641			
9:00				173				456				482				447			
10:00				153				577				183				347			
11:00				128				722				476				301			
12:00 N				187				318				570				412			
1:00 PM				136				778				583				377			
2:00				122				806				518				347			
3:00				177				801				657				360			
TOTAL				1036				4921				3676				2732			
4:00				33				191				157				89			
4:15				27				208				132				93			
4:30				34				267				144				120			
4:45				45				266				196				130			
HR. TOT.				139				932				121				432			
5:00				40				324				180				115			
5:15				35				283				124				106			
5:30				44				213				178				109			
5:45				53				207				163				99			
HR. TOT.				172				1027				645				429			
6:00				213				601				627				111			
12 Hr. Total				2203				8370				6714				5021			
12 Hr.	2203				8370				6714				5021						
24/12 F	1.29				1.35				1.30				1.31						
24 Hr.	2838				11308				8786				6578						

VEHICLE VOLUME COUNT

Location _SPEEDWAY AT SAN JACINTO_   Weather _____   Date _3-5-74_

Starting Time	From North On SPEEDWAY				From South On _____				From East On E. 2 6th				From West On W. 2 th				Total Entering		
M	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	T	NS	EW	T
7:00 PM				350				610				327				405			
8:00				151				604				214				328			
9:00				114				663				202				207			
10:00				62				459				173				171			
11:00				46				412				101				146			
12:00 M				42				577				57				77			
1:00 AM				10				165				27				43			
2:00				0				54				13				21			
3:00				3				26				3				7			
4:00				1				24				8				10			
5:00				10				23				19							
6:00				27				76				52							

Sub-total				716				3485				1736				1502			
24 Hrs. Total				3313				11521				5137				6149			
24 Hr.				3313		11521				5137				6149					
24/12 F				1.28		1.43				1.32				1.32					

51

SUPPORTING DATA FOR SUGGESTED BUS ROUTES

NE route--goes through zones 4210, 4300, 4340, 4330, 4320, 4400, 4350, 4220, 4200. Total of 147 bus people interested in buses. 30 min route; with stops, 35.

NW route--1730, 1810, 9020, 1800, 1910, 3270, 3230, 3220, 1710, 1700, 2740, 2820, 2750. Total of 210 bus people interested in buses. 45 min route; allowing for stops, 50.

W route--1200, 1340, 1210, 1330, 1370, 1300, 1410, 1400, 1420, 1430, 1110, 1100, 1220, 1320. Total of 184 bus people interested in buses. 20 min route; with stops, 25-30.

West Lake Hills-------large numbers in zones 7310, 7300, 8340, 7220, 7210 -- total of 122 bus people in these 5 zones; 26.2% interested in buses only; 73.7% interested in bus or carpool. Most arterials in the area remote from residences and residential streets are primarily curve-linear, loops -- not through streets. Therefore, this area is being eliminated from bus service, since 73% of those interested in buses are also interested in carpools.

a5 -- 2388 people interested in bus or carpool or bus only; NE, NW, W = 541

people in shuttle served zones = 392

933

Shuttle buses already serve zones with NR + SR: 6040, 6050, 6200, 6301 6302, 6303, 6304, 6222, 6224, 6225, 2030, 2040 = 74

ER + MS: 1230, 1240, 1271, 1250, 1260, 1272, 1120, 1080, 1040, 1050, 1060, 1070, 1130, 1140, 1010, 1020, 1000, 2000, 2020, 2010 = 134

IF: 2420, 2430, 2700, 2620, 2710, 2630, 2910, 2920, 2980 = 82

CR: 4200, 3030, 2950, 4090, 2650, 2640, 2610, 2600, 2550, 2560, 2520 = <u>48</u>
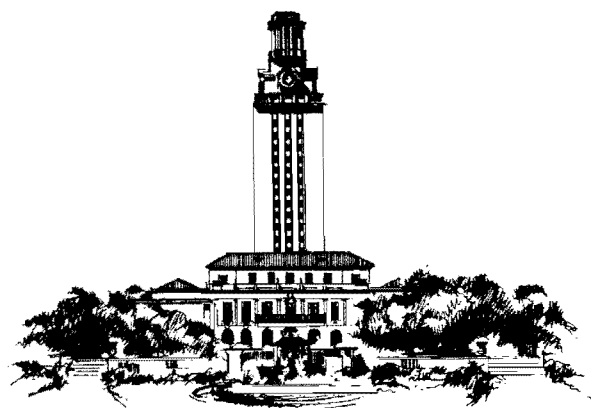
EC + WC + IC: 2320, 2310, 2340, 2330, 2300, 2250, 2220, 2210, 2240, 2230,

       2100, 2200, 2120, 2110, 2510, 2500 = <u>54</u>

<u>392</u> in shuttle served zones

S route--7100, 7110, 7140, 7210, 7500, 7120 = <u>68</u> people <u>27</u> minutes; if add

       2nd loop of 7920, 7968, 8240, 7950, 7940, 7930, 7910, 7950 = 53 people,

       Total of <u>121</u> people = <u>45</u> minutes

WL route--7220, 7300, 8310, 7510 = <u>40</u> people 7310 has 33 people, but roads

       too bad - narrow, hills, poor paving - no buses <u>35</u> minutes

Council for Advanced Transportation Studies

THE UNIVERSITY OF TEXAS AT AUSTIN