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ABSTRACT

The patterns of time and transportation means adopted by the students and staff of the University of Alberta who commute from their residence to campus each week day are reviewed in an effort to assist in the University Long Range Development Plan. Emphasis is placed in the patterns in university commuting and the physical and behavioral aspects of commuting students and campus facilities. Major findings indicate: (1) the number of commuting students and commuting time and distance have increased disproportionately; faculty and staff have increased similarly; (2) there is a trend toward use of public transportation. The use of the automobile continues to be important; (3) the university has satisfied the vast majority of campus parkers with an increase in parking stalls of only 23.8% in the past five years; (4) the number of students holding part-time jobs and the number of students with families to care for has increased; and (5) the university is well used in the evenings, with 75% of the day-time population of students and staff returning to campus at least once per week in the evenings. Appendices of related material are included. Related documents are HE 004 493, HE 004 492, HE 004 494, and HE 004 526. (MJM)

THE COMMUTING STUDENT STUDY

REPORT I

PATTERNS IN UNIVERSITY COMMUTING

PREPARED FOR THE VICE-PRESIDENT OF

PLANNING AND DEVELOPMENT

THE UNIVERSITY OF ALBERTA

SUBMITTED BY

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OFFICE OF INSTITUTIONAL RESEARCH AND PLANNING

EDMONTON, ALBERTA

JUNE, 1971

ABSTRACT

The Commuting Student Study consists of three phases: first, Patterns in University Commuting; second, The Commuting Student and Campus Facilities--Physical Aspects; and third, The Commuting Student and Campus Facilities--Behavioral Aspects.

This report, 'Patterns in University Commuting' deals with the patterns of time and transportation means adopted by the students and staff who commute from their residences to campus each week day. It also deals with an understanding of the time and responsibility commitments of the student body with commuting as an integral facet. The report, therefore, lends itself to a review of transportation facilities and provisions which could assist with orderly planning as set out in the University Long Range Development Plan.

The major findings of the study are as follows:

1. With the continued growth of the city of Edmonton, and a near doubling of the University student enrolment since 1965, the number of commuting students and commuting time and distance have increased disproportionately; faculty and staff have increased similarly.

2. There is a decided trend towards use of public transportation for both students and staff. The use of the automobile continues to be important.

3. Through good use of parking regulations and parking fees the University has satisfied the vast majority of campus parkers with an increase in parking stalls of only 23.8% in the past five years. It

would, therefore, appear that the University is not going to have nor need the vast quantities of parking stock shown in the Long Range Development Plan.

4. The number of students holding part-time jobs and the number of students with families to care for has increased. This study, therefore, finds increased time and responsibility pressures on students in an accelerating urban environment.

5. The University is well used in the evenings with 75% of the day-time population of students and staff returning to campus at least once per week in the evenings.

In conclusion, the above study findings suggest some important trends for consideration by the University in implementing the Long Range Development Plan.

ACKNOWLEDGMENTS

This study was conceived and performed through the vision and timely help of many individuals at the University of Alberta. The assistance and helpful advice of Dr. Wm. A. Preshing, Dr. David Otto, Mr. Ken Coull, Mr. William Buxton and Miss M. Rosychuk is greatly appreciated.

The current and historical aspects of this study could not have been carried out without the complete cooperation of Administrative Data Processing and the Campus Development Office, the Edmonton Transit System, the Department of Physical Plant, the students and the faculty and staff. Their help is gratefully acknowledged.

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THE COMMUTING STUDENT STUDY 1970-71

INTRODUCTION

The Commuting Student Study was initiated by the Office of Institutional Research and Planning in answer to a need that became apparent after the development of the Long Range Development Plan by the University of Alberta, October, 1970.

In essence, the Long Range Development Plan outlines a framework to house an urban University of 30,000 students, presenting an obvious contrast to the previous target planning figure of 18,000 students. The Office of Institutional Research and Planning, therefore, has undertaken a series of studies to determine the needs of the commuting student, defined as any student who lives off campus and commutes to University. The data in these studies is from an exhaustive series of questionnaires completed by both students and staff during the 1970-71 academic year. The study's historical basis is a project run in 1965-66, by the Campus Development Office, and repeated for the 1966-67 and 1967-68 sessions.

In essence, there are three studies. Study I, "Patterns in University Commuting", deals with the time and means patterns adopted by the students and staff who commute to and from campus each week day. Essentially this is a campus transportation study, complete with a time and responsibility overview of the average student.

Study II, "The Commuting Student and Campus Facilities - Physical Aspects", deals with student reaction to and need for present and future campus space facilities and services. In the sense that development of

formal education space is coordinated with a reliable building planning system, Study II is directed at informal space available to the student. Student study space, food facilities space, lounging and recreational space, service and commercial space are studied in detail.

Study III, "The Commuting Student and Campus Facilities - Behavioral Aspects", focuses on the student as a person and his relationship to the academic environment. One can assume that while certain physical aspects of this campus may help the student achieve a sense of well-being, other facilities may achieve the opposite effect. In addition, there are variables other than physical facilities which affect the student's satisfaction with campus life (e.g., his marital status, support of a family, outside work, living at home, etc.): these particular variables were studied in one of the questionnaires developed by the Office of Institutional Research and Planning.

In general, the three studies consist of the highlights of the material covered for each subject area of study. In all cases, although the current and past situations make up the bulk of researchable material, some reliable patterns and trends are indicated. It is, therefore, envisaged that the study in total will be an aid in present and future campus planning.

Regarding Study I, "Patterns in University Commuting": in September, 1970, as part of the student registration procedure, 95% of the students on campus completed a Transportation Questionnaire designed by the Office of Institutional Research and Planning. A questionnaire is appended to this report. These questionnaires were then

coded with Metropolitan Edmonton Transportation Study (METS) zone codes, describing the students' city locations according to address. After debugging and clarification, they were processed by the Office of Administrative Data Processing. In the attempt to obtain a comprehensive University transportation pattern, a similar questionnaire was completed by 62% of the faculty and staff. This latter information was handled in a manner identical to that described for the students' information.

Upon completion of key punching, the information was transferred to tape and an exhaustive series of computer analyses were performed by the Offices of Institutional Research and Planning and Administrative Data Processing. The results of these analyses have been reduced to form the main body of this first report.

Midway through the autumn of 1970, the Students' Union and the Edmonton Transit System approached the administration regarding a campus bus study in which the University decided to participate. Personnel from the Office of Institutional Research and Planning joined a small planning group from the City Transit Office to handle a study which took place in the week of November 23 - 27, 1970. Once again, based upon the factual data collected in the study, a thorough analysis was performed by the City Transit Planners, and passed on to the Office of Institutional Research and Planning. The results of this analysis comprises Section IV of this report, "City - University Joint Bus Study".

The overall purpose of this report is to present reliable

information upon which the orderly development of campus and city transportation can be based. A further purpose of this report is to present an initial 'time and responsibility' picture of the students surveyed. Reports II and III in the commuting student series will have much more on this question. This report, "Patterns in University Commuting", consists of four sections.

Section I, University Population and Transportation Trends is that section of the report that looks at the University of Alberta growth and transport patterns in total. Because certain of the data has been collected on a uniform basis over five years, it was possible to perform computer projections on future University populations, and their home location by areas of the city. From these rough estimates and transport trends, it is possible to get some good idea of future transportation demand distribution. For 1970-71, it has been possible to compare a drawing of the city distribution of bus riders (and auto drivers) to established bus routes. Travel time is also presented.

Also, with regard to the University of Alberta parking stock and auto registration, the five-year trend is shown. This section of the report, therefore, is a summary of people and transportation more readily suitable for campus planning purposes.

Section II presents Student Transportation Questionnaire results, both the straight questionnaire tabulation and resulting analyses of the data. Also, the student time and responsibility picture is presented.

Section III deals with Faculty and Staff Transportation Questionnaire results, which serves to round out the study of all University commuters.

Section IV of the report, "City-University Joint Bus Study" presents the description and result of an on-campus bus study in the last week of November, 1970. The purpose of the study was to ascertain the adequacy of the bus service with respect to the University's needs. As the bus study results are very real and tie-in closely with questionnaire results, the field study lends credibility to the overall study's usefulness to orderly planning.

SECTION I

UNIVERSITY POPULATION AND TRANSPORTATION TRENDS

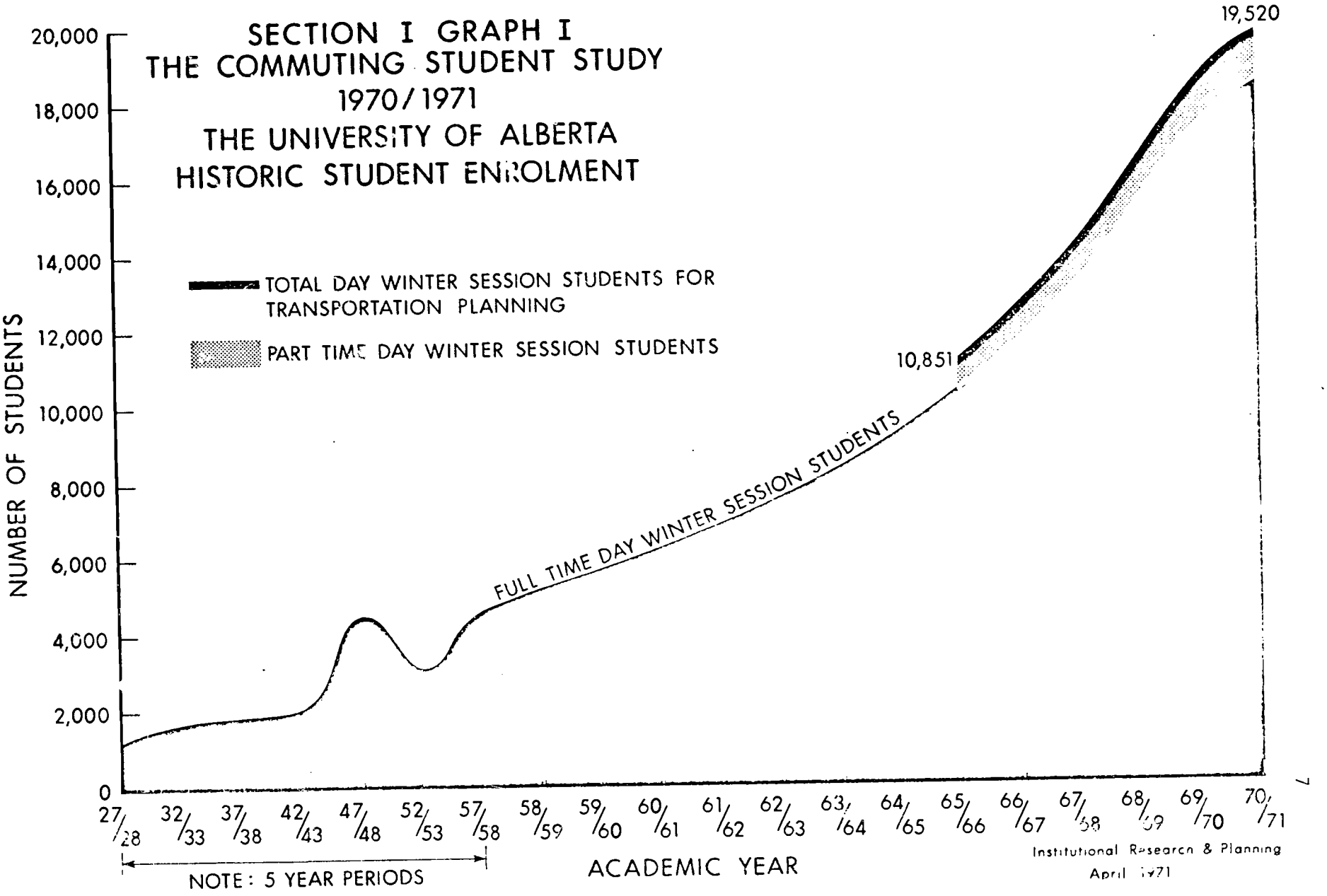
The purpose of this section of the report is to bring together the student and staff transportation survey results of past and present years in order to highlight transportation patterns and trends. As such, this portion of the report will deal with historical and projected University of Alberta student enrolment, staff employment, and city population areas of residence; student and staff transportation modes with 1970-71 city distribution for car and bus users, travel time and historic parking stock and auto registrations. As much of the information to be presented in this section of the report is an accurate record of the past, and as full-time day winter session student projections represent the official University of Alberta guidelines; the trends herein presented will be most relevant for future campus planning.

I. HISTORY

1. Student Enrolment

Graph I, historic student enrolment depicts the very rapid growth of the University of Alberta student body since the late 1950's. When it is recalled that the realistic enrolment limit was once to have been 6,000 students, the growth that has occurred is truly phenomenal.

From a handful of the original campus buildings situated in a suburban location prior to the second war, the University has grown to an


SECTION I GRAPH I
THE COMMUTING STUDENT STUDY
1970/1971
THE UNIVERSITY OF ALBERTA
HISTORIC STUDENT ENROLMENT
TOTAL DAY WINTER SESSION STUDENTS FOR TRANSPORTATION PLANNING
PART TIME DAY WINTER SESSION STUDENTS
FULL TIME DAY WINTER SESSION STUDENTS
10,851
19,520
NUMBER OF STUDENTS
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
27/28 32/33 37/38 42/43 47/48 52/53 57/58 58/59 59/60 60/61 61/62 62/63 63/64 64/65 65/66 66/67 67/68 68/69 69/70 70/71
NOTE: 5 YEAR PERIODS
ACADEMIC YEAR
Institutional Research & Planning
April 1971

urban multi-versity like a city within a city consisting of over fifty-five major buildings containing 4,000,000 net usable square feet of space. The result has been that the University of Alberta generates as much traffic and movement of people as did downtown Edmonton in the late 1950's. It therefore follows that Graph I, in a sense, represents the growth of the University's student body as the prime contributer to a changing, extensive and complex city development. Please note that the student enrolment from 1965-66 on Graph I also shows the part-time day winter session students who also make daily use of the University facilities. These students, and the demand they make on University facilities must also be acknowledged in transportation planning. It is interesting to note the "ripple" in the growth created by the return of World War II veterans in the 1945 to 1952 period.

2. Staff Employment

In a compatible manner to Graph I, Graph II, historic staff employment, shows the corresponding increase in University of Alberta staff that was necessary to keep pace with the academic and supportive staff services rendered the students. By way of clarification, staff for 1970-71 includes over 2,000 academic teaching and non-teaching staff distributed over 12 faculties, 5 schools and the administration and over 3,700 non-academic staff supporting the above 18 units and entering into every possible phase of the overall operation from running the plant twenty-four hours a day to housing and catering.

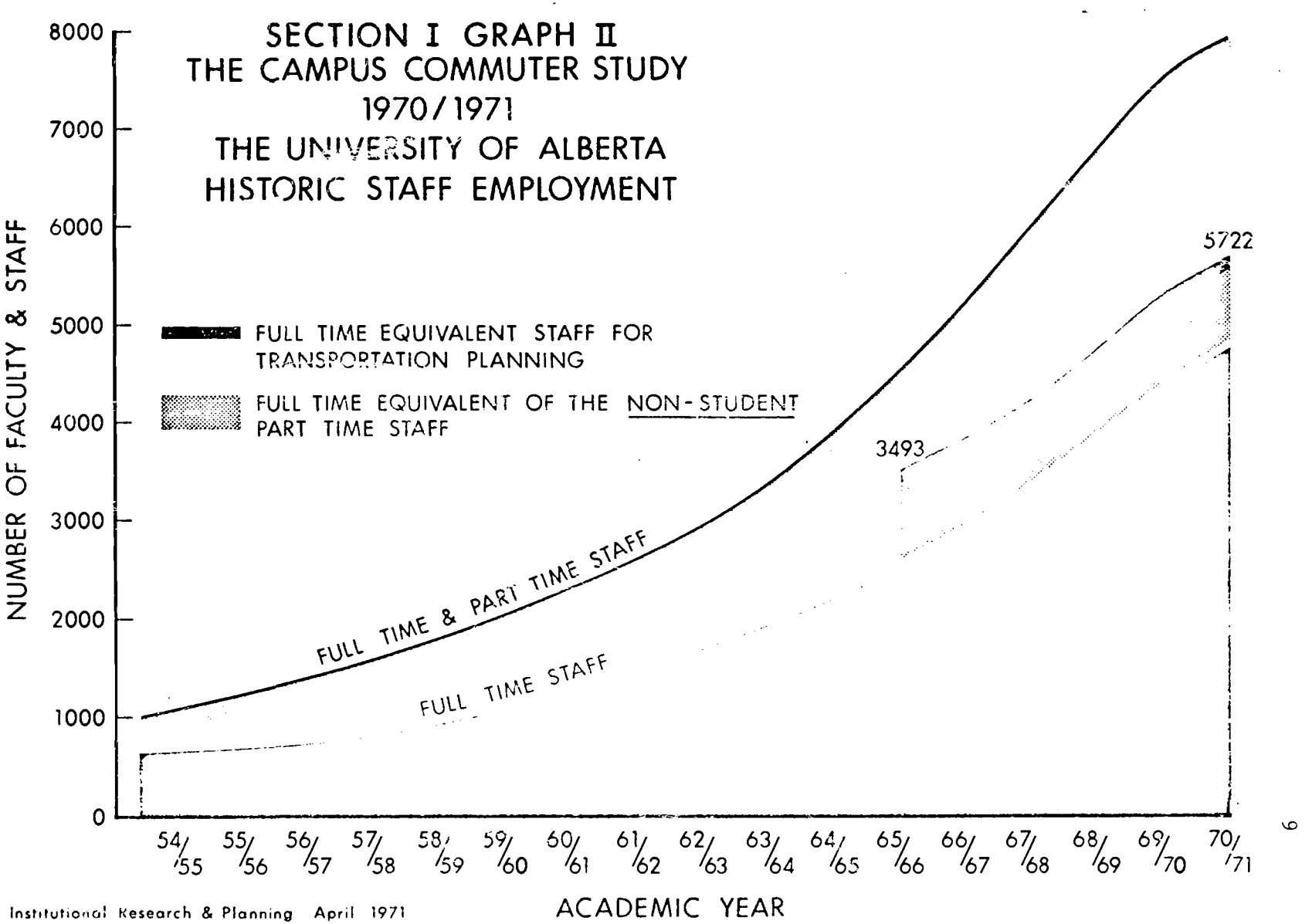

SECTION I GRAPH II
THE CAMPUS COMMUTER STUDY
1970/1971
THE UNIVERSITY OF ALBERTA
HISTORIC STAFF EMPLOYMENT
NUMBER OF FACULTY & STAFF
8000
7000
6000
5000
4000
3000
2000
1000
0
FULL TIME EQUIVALENT STAFF FOR TRANSPORTATION PLANNING
FULL TIME EQUIVALENT OF THE NON-STUDENT PART TIME STAFF
5722
3493
FULL TIME & PART TIME STAFF
FULL TIME STAFF
54/55
55/56
56/57
57/58
58/59
59/60
60/61
61/62
62/63
63/64
64/65
65/66
66/67
67/68
68/69
69/70
70/71
ACADEMIC YEAR
Institutional Research & Planning April 1971

TABLE I

COMMUTER SURVEY 1970-1971
RECORD OF UNIVERSITY OF ALBERTA
STAFF FOR TRANSPORTATION PLANNING

ACADEMIC YEAR	FULL-TIME STAFF	PART-TIME STAFF (FTE)*	TOTAL FTE* STAFF
1965-1966	2,497	996	3,493
1966-1967	2,915	885	3,800
1967-1968	3,346	881	4,227
1968-1969	3,880	929	4,809
1969-1970	4,484	1,110	5,594
1970-1971	4,778	944	5,722

*Please Note: All students have been eliminated from the Full-Time Equivalent (FTE) of the part-time staff to avoid any duplication.

Because students are employed as graduate assistants or other part-time help their full-time equivalent of the non-student part-time staff has been identified to avoid duplication in planning. Table I summarizes the recent full-time and part-time staff members for transportation planning.

II. ORIGINS OF STUDENTS AND STAFF

1. City Population Areas

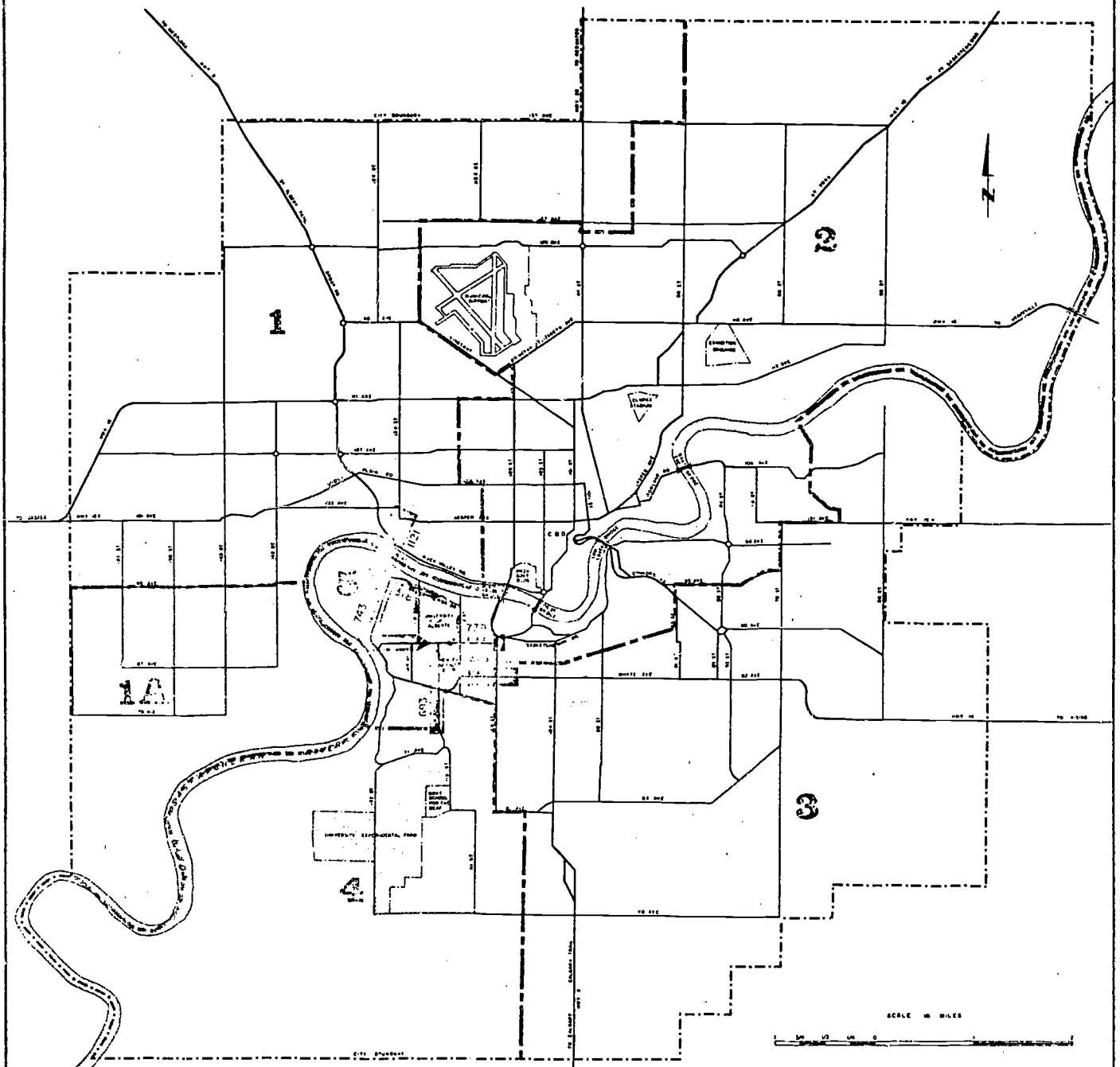
For the purpose of campus transportation planning the city of Edmonton has been divided into six population areas. These areas were defined by Associated Engineering Services Limited in the University of Alberta Traffic and Parking Study completed in September, 1966. Their figure 6, which follows, best shows the population area definition.

2. Population Distributions

Current students and staff have been assigned to a city population area according to their residence address in order to correspond with past campus transportation studies. And from historic and projected student enrolment and staff employment, estimates have been made of future residences of University people.

Prior to commenting upon the population estimates shown in Tables II, III, and IV, several points of clarification are in order.

Firstly, the full-time student population distribution and the total column figures appearing for 1965 to 1970 inclusive are actual,



LEGEND

652 — SHOWS THE NUMBER OF VEHICLES DURING THE PEAK HOUR DESTINED TO THE UNIVERSITY. NUMBERS INDICATE STUDENT, STAFF, FACULTY AND VISITOR VEHICLES ONLY. DATA BASED UPON 1965/66 O-D SURVEY.

BOUNDARY BETWEEN TRAFFIC ORIGIN AND ASSIGNMENT AREAS

AESL Consulting Engineers | ASSOCIATED ENGINEERING SERVICES LTD. VANCOUVER EDMONTON REGINA

UNIVERSITY OF ALBERTA TRAFFIC AND PARKING STUDY

1966 PEAK HOUR TRAFFIC TO UNIVERSITY

6

TABLE II

FULL TIME STUDENT POPULATION DISTRIBUTION

YEAR	AREA						
	1	1A	2	3	4	5	TOTAL
65	1522	401	1722	1833	1247	3508	10233
66	1798	540	2124	2111	1431	3461	11465
67	2026	643	2513	2522	1713	3574	12991
68	2443	791	2995	2965	1919	3833	14946
69	2771	922	3433	3369	2150	3987	16632
70	3114	1052	3866	3775	2362	4168	18337
71	3371	1167	4241	4109	2569	4222	19679
72	3606	1266	4563	4401	2730	4269	20835
73	3784	1344	4810	4622	2848	4260	21668
74	3967	1423	5062	4848	2971	4269	22540
75	4037	1460	5169	4937	3011	4173	22787
76	4119	1501	5290	5041	3061	4105	23117
77	4167	1528	5366	5102	3086	4017	23266
78	4314	1591	5566	5282	3185	4032	23970
79	4412	1635	5705	5405	3249	4011	24417
80	4502	1676	5832	5517	3307	3988	24822

PART TIME DAY WINTER SESSION STUDENTS

61	119	71	1270
62	354	72	1377
63	447	73	1484
64	554	74	1590
65	618	75	1697
66	740	76	1804
67	884	77	1911
68	926	78	2017
69	1002	79	2124
70	1183	80	2231

UNIVERSITY STUDENT POPULATION DISTRIBUTION

YEAR	AREA						
	1	1A	2	3	4	5	TOTAL
65	1614	425	1826	1944	1322	3720	10851
66	1914	575	2261	2247	1523	3684	12204
67	2164	687	2694	2694	1830	3817	13876
68	2595	840	3181	3149	2038	4071	15874
69	2938	978	3640	3572	2279	4227	17634
70	3315	1120	4115	4019	2514	4437	19520
71	3588	1243	4514	4375	2735	4494	20949
72	3845	1350	4864	4692	2910	4551	22212
73	4043	1436	5139	4938	3043	4552	23151
74	4246	1523	5419	5190	3181	4570	24129
75	4337	1569	5554	5305	3235	4483	24483
76	4441	1619	5703	5434	3300	4425	24922
77	4510	1654	5807	5521	3340	4347	25179
78	4677	1724	6034	5727	3453	4372	25987
79	4796	1777	6202	5875	3532	4360	26542
80	4907	1827	6356	6013	3605	4346	27054

TABLE III

UNIVERSITY STAFF POPULATION DISTRIBUTION

YEAR	*AREA*						
	1	1A	2	3	4	5	*TOTAL*
65	573	149	636	740	730	665	3493
66	656	167	824	806	763	584	3800
67	740	205	833	952	959	649	4338
68	824	236	906	1069	1097	662	4794
69	907	267	979	1187	1235	675	5250
70	991	299	1039	1310	1384	699	5722
71	1102	336	1153	1458	1548	720	6317
72	1191	369	1232	1583	1695	736	6806
73	1281	402	1311	1709	1842	751	7296
74	1371	435	1390	1834	1989	766	7785
75	1460	468	1468	1960	2136	781	8273
76	1550	501	1546	2086	2283	796	8762
77	1639	535	1625	2211	2431	811	9252
78	1729	567	1703	2337	2578	826	9740
79	1819	600	1782	2463	2725	841	10230
80	1908	633	1860	2589	2872	855	10717

TABLE IV

UNIVERSITY TOTAL POPULATION DISTRIBUTION AREA

YEAR	1	1A	2	3	4	5	TOTAL
1965	2,187	574	2,462	2,684	2,052	4,385	14,344
1966	2,570	742	3,085	3,053	2,286	4,268	16,004
1967	2,904	892	3,517	3,646	2,789	4,466	18,214
1968	3,419	1,076	4,087	4,218	3,135	4,733	20,668
1969	3,845	1,245	4,619	4,759	3,514	4,902	22,884
1970	4,306	1,419	5,154	5,329	3,898	5,136	25,242
1971	4,690	1,579	5,667	5,833	4,283	5,214	27,266
1972	5,036	1,719	6,096	6,275	4,605	5,287	29,018
1973	5,324	1,838	6,450	6,647	4,885	5,303	30,447
1974	5,617	1,958	6,809	7,024	5,170	5,336	31,914
1975	5,797	2,037	7,022	7,265	5,371	5,264	32,756
1976	5,991	2,120	7,249	7,520	5,583	5,221	33,684
1977	6,149	2,189	7,432	7,732	5,771	5,158	34,431
1978	6,406	2,291	7,737	8,064	6,031	5,198	35,727
1979	6,615	2,377	7,984	8,338	6,257	5,201	36,772
1980	6,815	2,460	8,216	8,602	6,477	5,201	37,771

while the 1971 to 1980 figures were taken from Institutional Research and Planning study "Preliminary Enrolment Projection to the Year 1976-1977" dated February 19, 1971. These University enrolment totals have then been prorated into the aforementioned population zones. The part-time day winter session student projection is new, however, and has also been prorated in the same manner as the full-time student population distribution to obtain the University student population distribution.

Staff population has been distributed in a somewhat similar manner to full-time student population distribution with one major difference. Although totals for 1965 to 1970 inclusive are actual, the 1971 to 1980 projection is simply a linear regression projection of historical data. Again total staff have been distributed into population areas in keeping with information from previous transportation studies.

Turning again to the University population distribution Tables II, III, and IV the following trends and observations are presented.

First, with respect to the full-time student population distribution areas 1 through 5 have grown 105%, 162%, 125%, 106%, 89% and 19% respectively during the period 1965-66 to 1970-71, as recorded by Institutional Research and Planning. Based upon this growth record figures have been projected to 1980 by least-squares analysis. One oddity in this method of approximation is that student numbers in population areas 1, 1A, 2, 3, and 4 are growing much faster than the campus population area 5, which after 1974 shows a population decline. This one result may appear erroneous to some degree, yet recorded growth

in area 5 from 1965-66 to 1970-71 has not been spectacular.

Quite obviously there are many imponderables inherent in the projections that only time will answer. The effect of University of Alberta housing policy and South Garneau high-rise intensification (affecting population area 5), the proposed new Mill Woods city development (affecting population area 3), and Athabasca University (affecting all population areas) are just three variables which challenge the effectiveness of this particular prediction. By way of clarification on the University of Alberta housing situation, campus housing will increase in 1972 by 1,000 student places with the completion of the 112th Street Students' Union Housing project (affecting population area 5). Moreover, as soon as money is available a start will be made at Michener Park to increase married student housing by 730 student places (affecting population area 4).

Nevertheless the trend clearly demonstrates that student accommodation has largely been satisfied in population areas other than in the immediate campus population area 5. This naturally has resulted in more commuting students.

The staff population distribution staff in population areas 1 through 5 have increased 73%, 101%, 63%, 77%, 90% and 5% respectively as recorded by Institutional Research and Planning from 1965-66 to 1970-71. On the basis of this record growth will likely be as shown in Table III with the obvious exceptions of major new developments which are impossible to predict.

In a fashion similar to the student population result the population areas other than the immediate campus (population area 5) show the greatest growth in staff numbers, again resulting in increased staff commuting. In the case of both students and staff, population distribution projections are considerably changed from those projected in past campus transportation studies.

III. TRAVEL MODES

From the past growth of University students and staff, and from population projections, it is possible to see where the future University users will come from; subject to obvious assumptions. Moreover, when the population trends are compared to the five-year travel mode trends, Tables V and VI, it is possible to predict not only where University people will come from, but by what mode of transportation.

Naturally the introduction of a major new alternate mode could substantially change the picture.

1. Students

Table V, Student Travel Modes, shows a five-year percentage use decline in auto driver, car pool and walk modes of travel. Conversely, it shows a very significant percentage increase in bus mode of travel. In every case, because student enrolment at the University of Alberta has almost doubled from 1965 to 1970, the absolute numbers of student users of all modes has increased.

TABLE V

STUDENT TRAVEL MODES

P.W SURVEY DATA

Transport Mode	No. Of People Percentage	SURVEY YEAR			
		1965-1966	1966-1967	1967-1968	1970-1971
Auto Driver	No. of People	3,271	3,210	3,458	4,959
	Percentage	32.03%	27.72%	27.07%	26.71%
Car Pool	No. of People	689	710	843	1,111
	Percentage	6.75%	6.13%	6.60%	5.98%
Passenger Drop-off	No. of People	Not a Question	610	711	833
	Percentage	in this Year	5.27%	5.57%	4.48%
Bus	No. of People	2,131	2,848	3,468	5,758
	Percentage	20.87%	24.60%	27.15%	31.01%
Walk	No. of People	3,997	4,123	4,222	5,581
	Percentage	39.13%	35.60%	33.05%	30.06%
Other	No. of People	125	79	71	327
	Percentage	1.22%	0.68%	0.56%	1.76%
TOTAL STUDENTS IN SURVEY		10,213	11,580	12,772	18,569
TOTAL SURVEY		100%	100%	100%	100%
TOTAL STUDENT ENROLMENT THIS YEAR FULL-TIME AND PART-TIME DAY		10,851	12,204	13,876	19,520

Institutional Research and Planning
March, 1971

2. Staff

Table VI, Faculty and Staff Travel Modes, shows that the auto driver five-year trend is to a decreased percentage share of overall staff transport. However, car pool is increasing. Passenger drop-off which decreased in 1966-67 from an initial high in 1965-66 has now reversed the trend and is again on the increase. The bus mode shows consistent increase since 1965-66, and the mode "other" (such as bicycle) has increased slightly. The walk mode, which decreased in 1966-67 from an initial high in 1965-66 has now reversed the percentage trend and has regained its original importance.

In all cases, because staff has increased in numbers by 64% from 1965 to 1970, absolute numbers of staff users of all modes has increased.

Concluding staff transportation mode use trends, Table VII shows that when a 100% staff universe is inferred from the 1970-71 questionnaire results (a 61.6% return was experienced) that the auto driver mode decreases its share of overall staff transportation by 2.3% while bus increases by 1.7%. Car pool and drop-off would each have a 0.4% and a 0.5% increase respectively. These additional results are quite significant as a further clarification of bus and car use trends for planning purposes.

3. Student and Staff Auto Driver and Bus Origins 1970-71

Drawing Number I (Reference Page 24) shows the current city

TABLE VI

FACULTY AND STAFF TRAVEL MODES

RAW SURVEY DATA

Transport Mode	No. of People Percentage	SURVEY YEAR		
		1965-1966	1966-1967	1970-1971
Auto Driver	No. of People	1,404	1,599	1,978
	Percentage	65.24%	63.73%	54.84%
Car Pool	No. of People	52	151	269
	Percentage	2.42%	6.02%	7.46%
Passenger Drop-off	No. of People	135	93	214
	Percentage	6.27%	3.71%	5.93%
Bus	No. of People	234	340	561
	Percentage	10.87%	13.55%	15.55%
Walk	No. of People	315	308	527
	Percentage	14.64%	12.27%	14.61%
Other	No. of People	12	18	58
	Percentage	0.56%	0.72%	1.61%
TOTAL STAFF IN SURVEY		2,152	2,509	3,607
TOTAL SURVEY		100%	100%	100%
TOTAL STAFF THIS YEAR		3,493	3,800	5,722

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TABLE VII

FACULTY AND STAFF TRAVEL MODES 1970-1971

EXTENDED PROPORTIONATELY TO 100% EMPLOYMENT

TYPE OF STAFF	TRANSPORTATION MODE						TOTAL
	Auto Driver	Bus	Walk	Car Pool	Drop Off	Other	
FULL-TIME ACADEMIC							
Number	1,105	76	357	45	45	40	1,668
Percentage	66.2	4.6	21.4	2.7	2.7	2.4	100.0
PART-TIME ACADEMIC							
Number	234	55	44	36	29	7	405
Percentage	57.7	13.5	10.8	9.0	7.2	1.8	100.0
TOTAL ACADEMIC STAFF							
Number	1,339	131	401	81	74	47	2,073
Percentage	64.6	6.3	19.3	3.9	3.6	2.3	100.0
FULL-TIME NON-ACADEMIC							
Number	1,528	652	311	320	233	31	3,075
Percentage	49.7	21.2	10.1	10.4	7.6	1.0	100.0
PART-TIME NON-ACADEMIC							
Number	179	216	123	56	66	9	649
Percentage	27.5	33.3	18.9	8.7	10.1	1.5	100.0
TOTAL NON-ACADEMIC STAFF							
Number	1,707	868	434	376	299	40	3,724
Percentage	45.8	23.3	11.7	10.1	8.0	1.1	100.0
TOTAL STAFF							
Number	3,046	999	835	457	373	87	5,797
Percentage	52.5	17.2	14.4	7.9	6.5	1.5	100.0

distribution of student and staff bus and auto driver mode users. This information has been gleaned from the transportation survey 1970-71 in a manner compatible with previous studies and is known to be reliable information.

Because of the bimodal nature of many student and staff transport patterns, however, seasonal or daily weather changes, dual purpose trips (e.g., shopping trips), combined with a university trip or other situations can precipitate mode use shifts. Many of the thousands of University people not currently represented on the drawing, such as walkers, may in fact have occasion to use the bus or auto driver transport modes. For this reason increased or decreased bus or auto driver users from any METS zone is possible and the drawing therefore should be viewed as the normal base transportation pattern for planning purposes 1970-71.

In keeping with the previous population distribution, Tables II and III, the drawing shows medium to high mode use densities in certain METS zones well removed from the campus.

St. Albert and Sherwood Park are examples of outlying subdivisions which are becoming increasingly important to the University of Alberta students and staff. The medium to high densities on the north side of the river also have come to represent lengthy trips to the University.

One point generally evident from the drawing is that in outlying city areas car use often exceeds bus use. However, in many city areas close to bus routes, bus use is very substantial, even in METS zones quite distant to the University.

4. City Transit Routes

Drawing Number II, the November, 1970, Edmonton Transit System Bus routes plan is included in order that Drawing I University bus and car densities can be compared to it. Essentially such a comparison shows how bus population densities relate to bus routes in order that factors influencing mode choice can be ascertained.

In short, an examination of the two drawings shows that a west-end bus to the University via Quesnell Bridge may have merit. Also that more direct bus service to the University from southwest Edmonton seems to have comparable merit. And lastly, that a bus route from 118th Avenue and 127th Street utilizing 116th Street and Victoria Park Road to the University of Alberta may have merit.

IV. TRAVEL TIME

Table VIII, Residence to Campus Travel Time, displays the questionnaire results on car and bus travel time to campus for both students and staff. You will note in examining the Table that figures are cumulative adjusted frequency given in per cent. Thus, for example, 61.8% of the University of Alberta staff in the survey answering the travel time question say they take fifteen minutes or less to come to campus from their residence by car.

From the figures for the car mode of travel it is noted that for the first five minutes of travel time (presumably for those whose residence is close to campus) proportionately more students than staff report commuting.

TABLE VIII

TRANSPORTATION SURVEY 1970-1971

RESIDENCE TO CAMPUS TRAVEL TIME (QUESTIONNAIRE RESULTS)

TRAVEL TIME (MINUTES)	BY CAR CUMULATIVE ADJUSTED FREQUENCY PER CENT		TRAVEL TIME (MINUTES)	BY BUS CUMULATIVE ADJUSTED FREQUENCY PER CENT	
	Students	Staff		Students	Staff
5	14.7	8.9	5	4.8	1.6
10	34.8	33.1	10	11.0	4.6
15	56.6	61.8	15	19.0	9.6
20	75.9	82.6	20	28.6	17.8
25	79.5	88.0	25	32.5	23.2
30	92.7	96.8	30	47.7	39.7
35	93.5	97.4	35	50.1	43.7
40	95.1	98.3	40	54.7	51.0
45	97.7	99.4	45	64.7	63.9
50	98.0	99.6	50	67.0	66.5
55	98.0	99.6	55	67.3	67.3
60	99.2	99.9	60	83.9	82.8
			65	84.1	83.1
			70	85.4	85.0
			75	88.5	88.7
			80	89.6	89.9
			85	89.7	90.0
			90	96.2	96.9
Mean Time (Minutes)	19.1	16.6		44.3	45.6

Regarding the bus mode of travel, when travel time is one-third of an hour or less ($\leq$20 minutes) proportionately more students than staff report commuting. This suggests three possible causes. First, that students reside closer to campus than the staff. Second, that students may reside closer to actual bus routes; or third that the portion of the University of Alberta freshman students from out of town who as of September, 1970, had little or no bus riding experience tended to underestimate travel time.

For the time between one-third and two-thirds of an hour (between 21 and 40 minutes) bus travel time is proportionately more for staff than students. This suggests staff tend to live further away and/or students may reside some distance from the actual bus routes and possibly require a bus transfer on their journey to campus. And, for the final one-third of an hour (between 41 and 60 minutes) both student and staff are proportionately equal with respect to travel time.

However, of quite some significance is that the survey shows 35.3% of the students and 36.1% of the staff using bus travel estimate times in excess of forty-five minutes one way, which implies a time expenditure of one and one-half hours per day or seven and one-half hours per five-day week. Obviously this represents a large consumption of the time available to students and staff.

With regard to the average travel times from survey results student mean car travel time was 19.1 minutes while staff was 16.6 minutes. In the case of bus, however, closer agreement was obtained

with students and staff reporting a mean travel time to campus of 44.3 and 45.6 minutes respectively.

In conclusion, from a travel time point of view car requires less reported travel time expenditure than bus. The transportation survey information, however, shows that on such a technical point as travel time, much further study would be required for concrete results.

V. CAMPUS PARKING

1. Parking Stock

Table IX shows the historic record of the University of Alberta parking stock of stalls, and shows that there has been only a 23.8% increase in stalls from August, 1965, to March, 1971. This is largely due to a very extensive building construction program using up the parking space. There has, however, been a considerable upgrading of stall quality in this time, particularly with the addition of Car Parks 1 and 2. It is anticipated that the full occupancy of Car Park 2, in June or July, 1971, adding 600 stalls (250 stalls are already in use and included in the March, 1971, stall count of 5,162) will more than offset anticipated losses of stalls through construction of new buildings. Parking stock should number 5,500 stalls by September, 1971.

2. Auto Registrations

Table X shows historic auto registrations (1958 to 1965) and

TABLE IX

UNIVERSITY OF ALBERTA - RECENT PARKING STOCK (STALLS)

DATE	FACULTY AND STAFF STALLS	STUDENT STALLS	VISITOR PARKING PLACES	MAINTENANCE AND OTHER SERVICE STALLS	TOTAL STALLS
August, 1965	1,325	1,636	139	[General Faculty And Staff Parking] 1,070**	4,170
November, 1966	1,821	1,814	159	119	3,913
August, 1967	2,089	1,057	159	179	3,484
October, 1967*					4,177
December, 1968*					4,172
October, 1969*					4,997
March, 1970	2,218	2,053	320	130	4,726
March, 1971	2,481	2,314	202	165	5,162

*Note data on stalls by type not available.
**233 lot plus 837 curb stalls excluding north and south Garneau streets.

parking permit holders (1967 to 1970). Prior to and including 1965-66 students completed an automobile registration card at the time of registration and as such there were in 1965-66, for example, 5,300 automobiles for potential student use. However, only 4,000 students actually presented themselves to the parking office staff to fully register legally owned vehicles and obtained a parking permit.

Then in 1968-69 the parking charges and system of permitting changed at the University which reduced student parking permit holders. In 1970-71 there were 3,872 student applicants for parking permits, with 2,570 permits issued. As is more fully discussed in Section II of this report, however, student parking stalls at $36.00 per year at Corbett Hall were available all academic year with no buyers.

With reference to the utilization of parking stock, please note that in 1971, 5,325 parking permit holders used 4,795 parking stalls (Reference Table IX, 2,481 + 2,314 = 4,795 stalls) representing an oversell of 10%.

TABLE X

UNIVERSITY OF ALBERTA HISTORIC AUTO REGISTRATIONS

ACADEMIC YEAR	FACULTY AND STAFF	STUDENTS	TOTAL
1958 - 1959	650	1,150	1,800
1959 - 1960	800	1,350	2,150
1960 - 1961	1,180	1,700	2,880
1961 - 1962	1,300	2,225	3,525
1962 - 1963	1,500	3,200	4,700
1963 - 1964	1,737	4,800	6,537
1964 - 1965	2,300	5,200	7,500
1965 - 1966	2,544	5,300	7,844
NOTE: From this point on figures are reported as parking permit holders.			
1967 - 1968			4,641
1968 - 1969			4,636
1969 - 1970	2,464	2,287	4,751
1970 - 1971	2,755	2,570	5,325

SECTION II

STUDENT TRANSPORTATION QUESTIONNAIRE RESULTS

The purpose of this section of the report is to summarize the results of the September, 1970, Student Transportation Questionnaire. As such, the student transportation situation as well as responsibility levels and the student time picture will be presented.

I. COMMUTING DISTANCES

The Commuting Student Study 1970-71, when compared to transportation studies of previous years, has proven conclusively that the increased growth of the student body and of metropolitan Edmonton has greatly increased commuting distances to the University for many students. For example, from 1965-66 to the present time, the number of students coming to the University from outside the city of Edmonton proper (Rural Route 1 through 8, all provincial highways into the city, Sherwood Park, and St. Albert) has increased by 225 per cent for car transportation and 400 per cent for bus transportation. In the same period of time, further development of new city peripheral neighborhoods (e.g., Aspen Gardens, Lansdowne, Petrolia, Duggan, Steele Heights, Dickensfield, etc.) which are now generating University students has increased commuting distances.

Commensurate with the increases mentioned above, long established neighborhoods in the city of Edmonton continue to generate or contain

large numbers of commuting students. It is safe, therefore, to conclude commuting distances have increased, and in keeping with increased city traffic flows, have significantly increased the amount of time a student must travel to and from home to University each day.

Please note that Drawing I of Section I of this report shows the student and staff auto driver and bus mode distribution throughout the city.

II. SUMMARY OF FIRST RUN QUESTIONNAIRE RESULTS

Since the results from Questions 3, 5, 7, 9, 10 and 11 from the Transportation Questionnaire lend themselves to straight forward reporting, this section of the report summarizes them. In the discussions which follow reference will be made to these results.

III. TIMES OF TRAVEL

With respect to student time of travel, Tables I, II and Graph I depict the student time plans as given in the transportation questionnaire. Generally campus arrivals and departures are geared to University lecture and laboratory schedules with the morning arrivals representing the greater peak hour transport demand. Week-day student departures from campus which occur from noon on indicate early completion of classes by students many of whom then journey to a part-time job. Friday afternoon indicates the slightly different departure pattern once again because of student part-time jobs and weekend plans.

II. SUMMARY OF FIRST RUN QUESTIONNAIRE RESULTS

QUESTION 3

Is your Edmonton area address your parent's or guardian's address?

Yes --	6,298	students or	33.8%
No --	11,989	students or	64.4%
No Answer --	334	students or	1.8%
TOTAL SURVEY	18,621	students or	100.0%

QUESTION 5

Do you own a car?

Yes --	7,119	students or	38.2%
No --	11,137	students or	59.8%
No Answer --	365	students or	2.0%
TOTAL SURVEY	18,621	students or	100.0%

QUESTION 7

How often will you return to campus in the evenings?

			Relative Frequency %
1.	Less than once a month	1,341 Students	7.2%
2.	Less than once a week	1,629 Students	8.7%
3.	About once a week	3,778 Students	20.3%
4.	Twice a week	3,893 Students	20.9%
5.	Three times a week	2,915 Students	15.7%
6.	More than three times a week	3,944 Students	21.2%
7.	No answer given	1,121 Students	6.0%
		18,621	100.0%

QUESTION 9

Do you (or will you) have a job in addition to attending University?

Yes --	4,746	students or	25.5%
No --	8,775	students or	47.1%
Don't Know Yet --	5,057	students or	27.2%
No Answer --	43	students or	0.2%
TOTAL SURVEY	18,621	students or	100.0%

QUESTION 10 (b)

Is your job located on or off campus?

On Campus --	1,246	students or	23.1%
Off Campus --	4,096	students or	75.9%
Both On and Off Campus (Chiefly Taxi Drivers) --	51	students or	1.0%
TOTAL SURVEY	5,393	students or	100.0%

QUESTION 10 (c)

The geographical areas off campus where students work?

1.	Central Business District (downtown)	1,074	students or	26.5%
2.	North side Edmonton except downtown	1,207	students or	29.8%
3.	South side Edmonton	1,256	students or	31.0%
4.	Outside of Metro Edmonton	345	students or	8.5%
5.	In many areas (chiefly taxi drivers)	169	students or	4.2%
	TOTAL SURVEY	4,051	students or	100.0%

QUESTION 11 (a)

Do you have children?

No --	16,305	students or	87.6%
1 child --	1,055	students or	5.7%
2 children --	660	students or	3.5%
3 children --	340	students or	1.8%
4 or more children --	261	students or	1.4%
TOTAL SURVEY	18,621	students or	100.0%

QUESTION 11 (b)

If you have pre-school children who takes care of them?

1.	A paid babysitter	512 students or	32.1%
2.	A Day Care Center	87 students or	5.5%
3.	A Play or Nursing School	75 students or	4.7%
4.	A friend or relative	118 students or	7.4%
5.	Wife or husband	780 students or	49.0%
6.	Other	21 students or	1.3%
	TOTAL SURVEY	1,593 students or	100.0%

DESCRIPTION OF THOSE STUDENTS WHO USE MORE THAN ONE METHOD OF CHILD CARE

TYPE OF CHILD CARE	CARE 1	CARE 2	CARE 3	CARE 4
1. A Paid Babysitter	512	1		
2. A Day Care Center	87	5		
3. A Play or Nursery School	75	25		
4. A Friend or Relative	118	14	1	
5. Wife or Husband	780	66	10	1
6. Other	21	3	1	1
TOTAL SURVEY	1,593	114	12	2

Care 2 + 3 + 4 as a Percentage of Care 1 = 8.04%

TABLE I

THE COMMUTING STUDENT STUDY 1970-1971

WEEK DAY STUDENT ARRIVALS ON CAMPUS

VIA ALL MODES OF TRANSPORTATION*

DAY	MEAN TIME	MODE TIME	MODE VALUE NO. OF STUDENTS	CUMULATIVE STUDENT ARRIVALS	
				Hour	Percentage at Campus
Monday	8:45 a.m.	8:00 a.m.	5,808	To 8:00 a.m. 9:00 10:0 11:0 12:00 a.m.	52.4% 81.4% 90.2% 93.8% 96.2%
Tuesday	8:51 a.m.	8:00 a.m.	6,078	To 8:00 a.m. 9:30 a.m. 11:00 a.m. 12:00 a.m. 12:30 p.m.	55.5% 83.1% 92.2% 94.7% 96.4%
Wednesday	8:43 a.m.	8:00 a.m.	5,916	To 8:00 a.m. 9:00 a.m. 10:00 a.m. 11:00 a.m. 12:00 a.m.	53.5% 82.5% 90.9% 94.3% 96.4%
Thursday	8:52 a.m.	8:00 a.m.	6,001	To 8:00 a.m. 9:30 a.m. 11:00 a.m. 12:00 a.m. 12:30 p.m.	54.8% 82.5% 92.3% 94.7% 96.4%
Friday	8:45 a.m.	8:00 a.m.	5,726	To 8:00 a.m. 9:00 a.m. 10:00 a.m. 11:00 a.m. 12:00 a.m.	52.4% 81.5% 90.4% 93.9% 96.2%

*Questionnaire Results.

TABLE II

THE COMMUTING STUDENT STUDY 1970-1971

WEEK DAY STUDENT DEPARTURES FROM CAMPUS

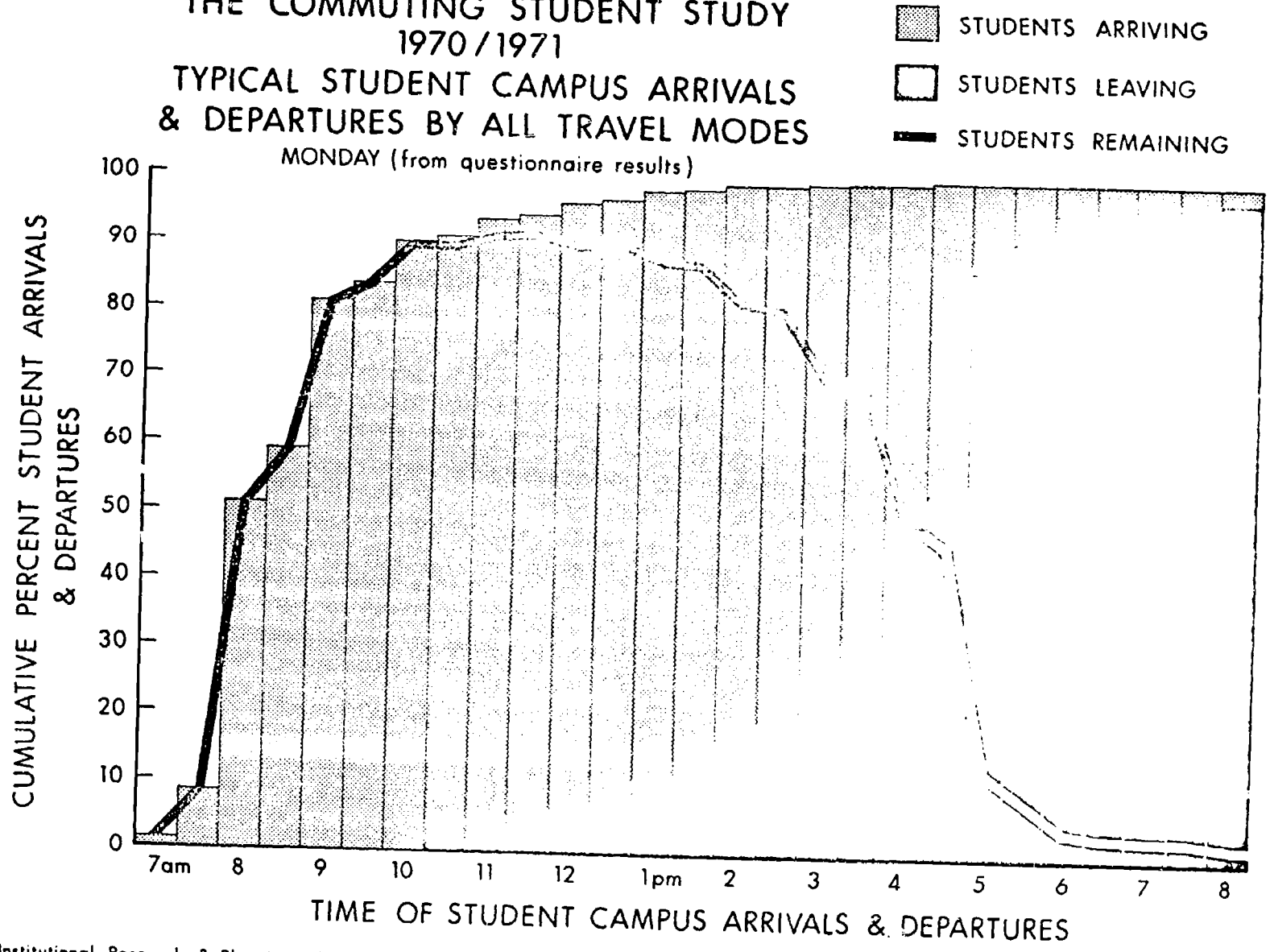
VIA ALL MODES OF TRANSPORTATION*

DAY	MEAN TIME	MODE TIME	MODE VALUE NO. OF STUDENTS	CUMULATIVE STUDENT DEPARTURES	
				Hour	Percentage Having Left Campus
Monday	4:02 p.m.	5 p.m.	5,258	To 2:00 p.m. 3:00 p.m. 4:00 p.m. 5:00 p.m. 6:00 p.m.	17.3% 28.4% 49.0% 86.8% 95.8%
Tuesday	4:02 p.m.	5 p.m.	5,481	To 2:00 p.m. 3:30 p.m. 5:00 p.m. 6:00 p.m.	17.4% 32.8% 87.0% 95.6%
Wednesday	4:04 p.m.	5 p.m.	5,285	To 2:00 p.m. 3:00 p.m. 4:00 p.m. 5:00 p.m. 6:00 p.m.	16.8% 27.8% 48.1% 86.0% 95.7%
Thursday	3:59 p.m.	5 p.m.	5,364	To 2:00 p.m. 3:30 p.m. 5:00 p.m. 6:00 p.m.	18.6% 34.2% 87.6% 95.9%
Friday	3:40 p.m.	5 p.m.	4,535	To 2:00 p.m. 3:00 p.m. 4:00 p.m. 5:00 p.m. 6:00 p.m.	24.7% 36.5% 56.3% 89.5% 96.6%

*Questionnaire Results.

SECTION II GRAPH I
THE COMMUTING STUDENT STUDY
1970/1971
TYPICAL STUDENT CAMPUS ARRIVALS & DEPARTURES BY ALL TRAVEL MODES

MONDAY (from questionnaire results)



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IV. TRAVEL MODES

Table III summarizes the questionnaire results for student travel mode use. It is also a summary of the student travel mode use histograms which follow giving a picture of what the use pattern of a given mode of transportation is like. Thus, for example, although the auto driver histogram shows 999 students using the mode 50% of the time, as actually reported by the students, Table III shows this as the equivalent of 500 students using the mode all the time. Of particular note, Table III shows that 76% of student surveyed use their respective mode 100% of the time thus leaving only 24% using a combination of modes of transportation to the University. Car pools, drop-off and such others as bicycles and hitch-hiking appear to be the students' second or third choice in transport mode. The walk modal time is the firmest mode with respect to the 100% usage factor and reflects the 2,000 plus students living in university residences. Walking, however, does have a unique constraint at the Edmonton campus du much of the year since winter temperatures render walking impractical. This constraint appears to be about a one mile walk, with the exception of a few hardy students who are known to walk over the high level bridge even on cold winter days. Note, the geographical area from which students walk is indicated on Drawing I, Section I. Clearly the continued availability of convenient student rooming housing and increased university residence and high rise apartment developments will influence the number of students who choose to walk. It is, in fact, university residence and high rise

TABLE III

THE COMMUTING STUDENT STUDY 1970-1971

STUDENT TRAVEL MODE USE SUMMARY

(Units: Full-Time Equivalent Students)

MODE	PERCENTAGE MODE USE										TOTAL STUDENTS
	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%	
Automobile Driver	3,880	113	162	44	59	500	39	9	44	26	4,959
Bus	4,357	157	318	87	69	522	64	118	38	28	5,758
Walk	4,850	115	136	46	47	266	30	53	20	18	5,581
Car Pool	583	25	88	31	21	280	20	38	15	10	1,111
Drop-Off	380	23	61	22	24	226	13	48	21	15	833
Other	97	8	12	6	10	98	28	36	19	13	327
Proportion of Students Surveyed falling into % Use Categories by:											
(A) Number (FTE)	14,147	441	777	236	230	1,892	194	385	157	110	18,569
(B) Percentages	76.19%	2.37%	4.18%	1.27%	1.24%	10.19%	1.05%	2.07%	.85%	.59%	100%

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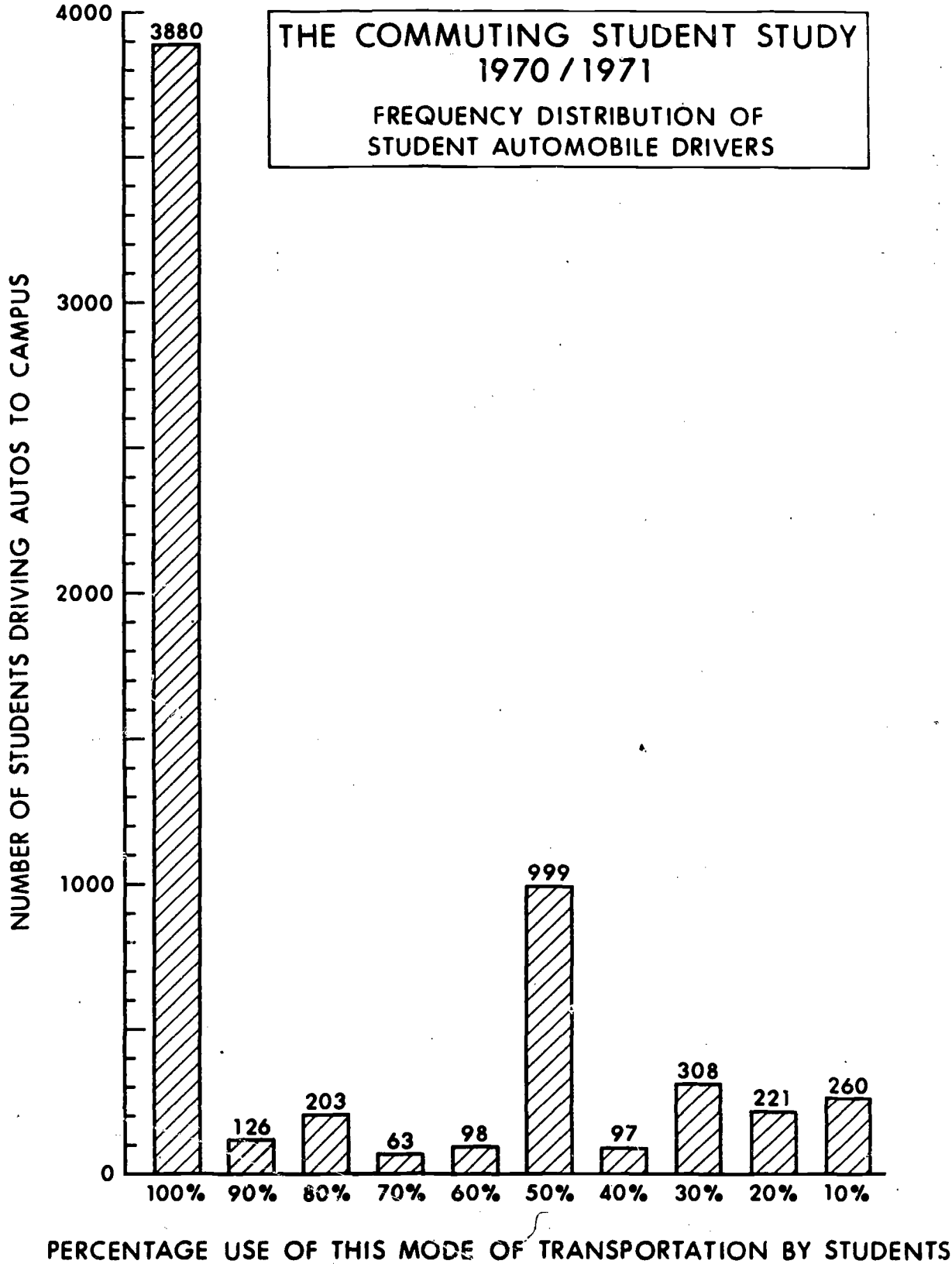
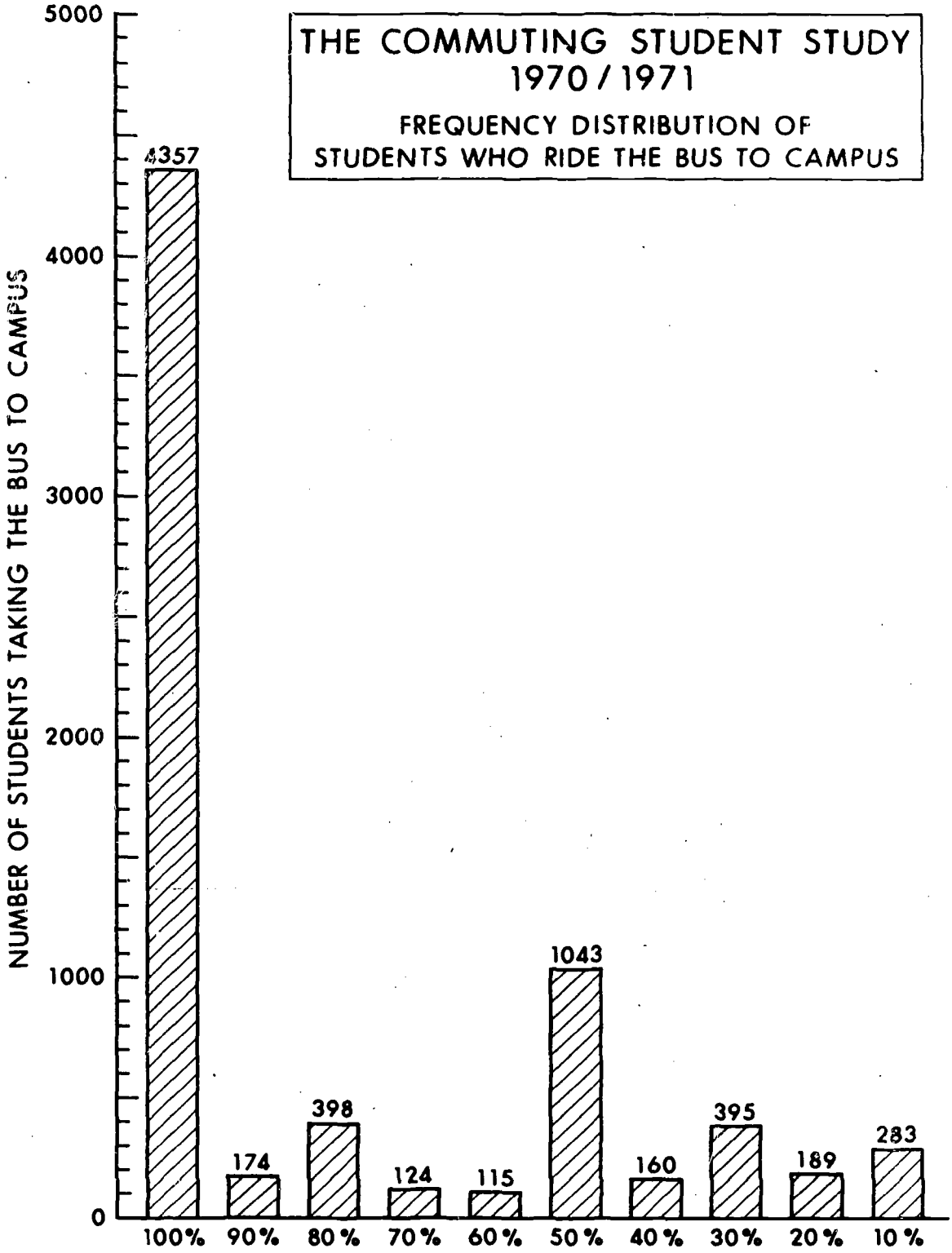
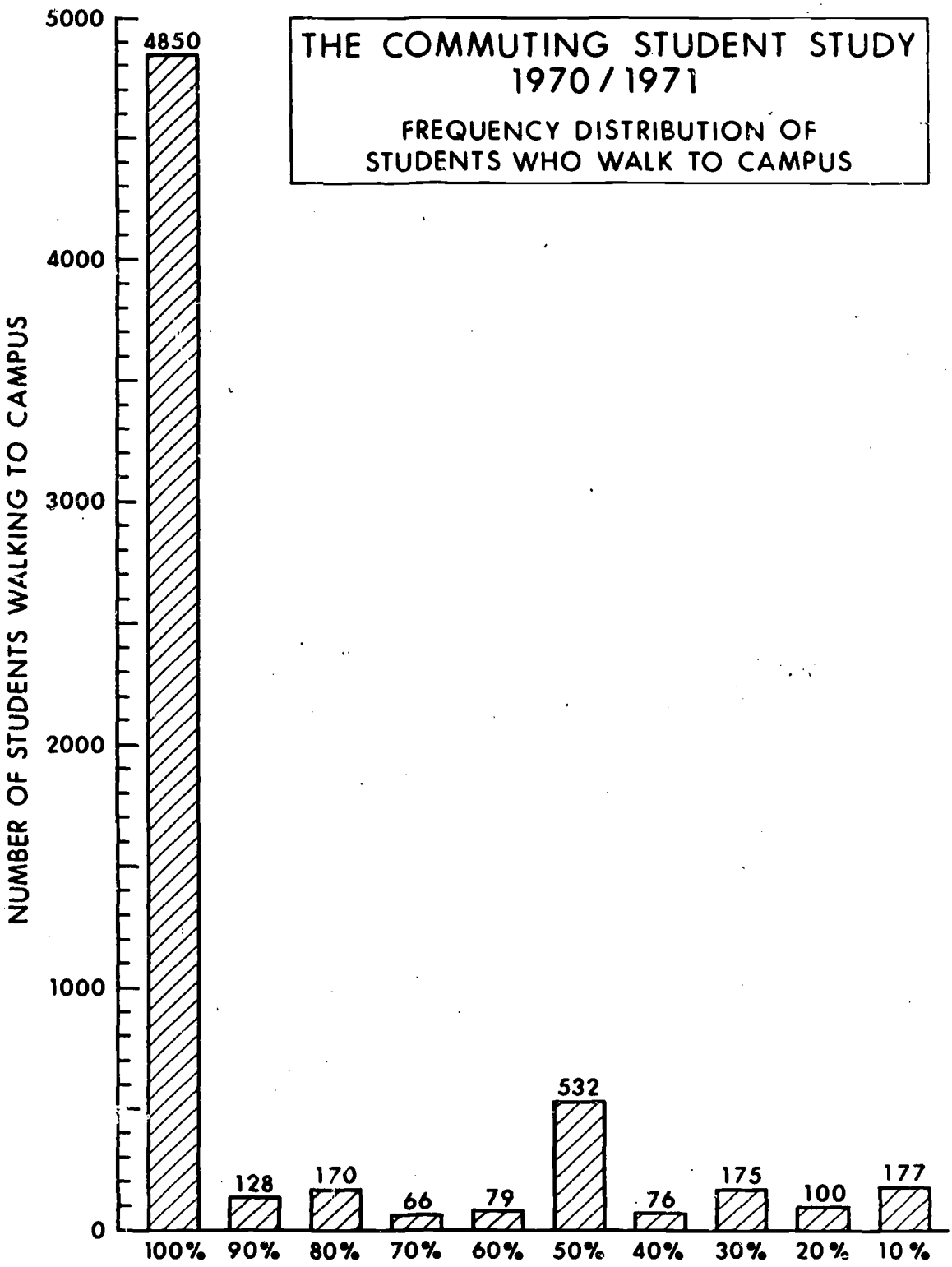

THE COMMUTING STUDENT STUDY
1970 / 1971
FREQUENCY DISTRIBUTION OF
STUDENT AUTOMOBILE DRIVERS
NUMBER OF STUDENTS DRIVING AUTOS TO CAMPUS
4000
3000
2000
1000
0
3880
126
203
63
98
999
97
308
221
260
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
PERCENTAGE USE OF THIS MODE OF TRANSPORTATION BY STUDENTS
INSTITUTIONAL RESEARCH & PLANNING MARCH 1971

GRAPH II-A

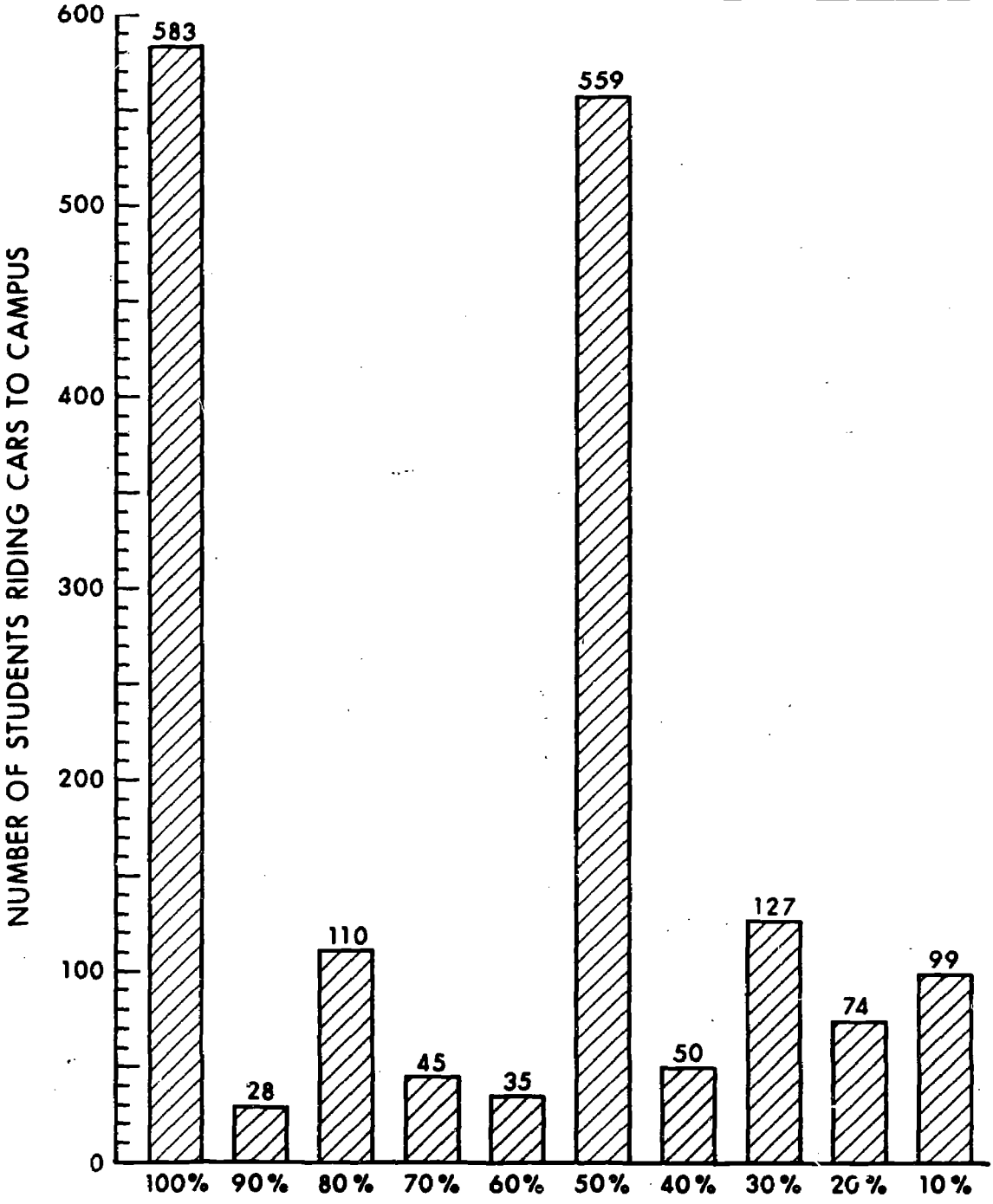

THE COMMUTING STUDENT STUDY
1970 / 1971
FREQUENCY DISTRIBUTION OF
STUDENTS WHO RIDE THE BUS TO CAMPUS
NUMBER OF STUDENTS TAKING THE BUS TO CAMPUS
5000
4000
3000
2000
1000
0
4357
174
398
124
115
1043
160
395
189
283
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
PERCENTAGE USE OF THIS MODE OF TRANSPORTATION BY STUDENTS
INSTITUTIONAL RESEARCH & PLANNING MARCH 1971

GRAPH II-B


THE COMMUTING STUDENT STUDY
1970 / 1971
FREQUENCY DISTRIBUTION OF
STUDENTS WHO WALK TO CAMPUS
NUMBER OF STUDENTS WALKING TO CAMPUS
5000
4000
3000
2000
1000
0
4850
128
170
66
79
532
76
175
100
177
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
PERCENTAGE USE OF THIS MODE OF TRANSPORTATION BY STUDENTS
INSTITUTIONAL RESEARCH & PLANNING MARCH 1971

GRAPH II-C

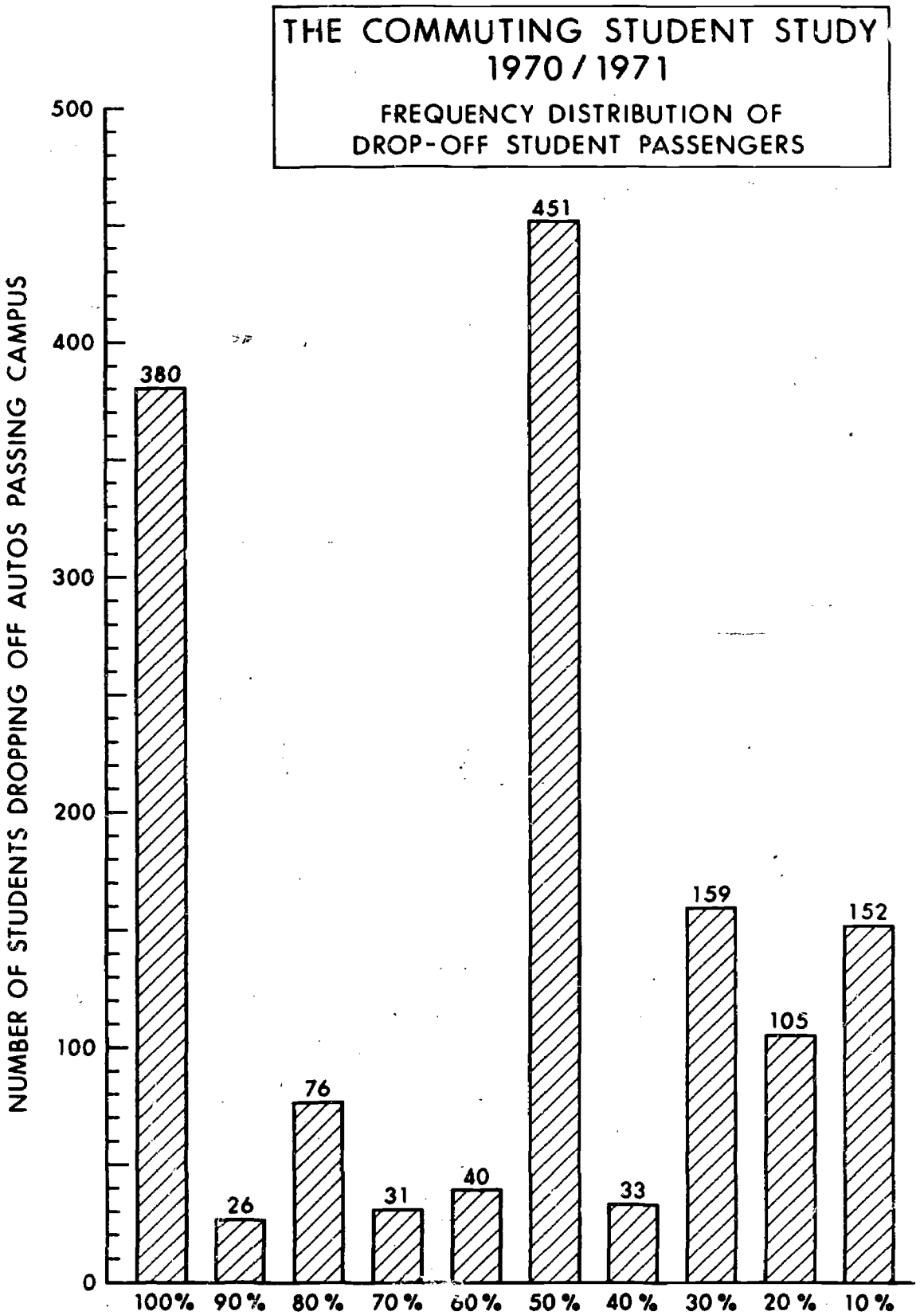
THE COMMUTING STUDENT STUDY
1970 / 1971
FREQUENCY DISTRIBUTION OF CAR POOL RIDERS



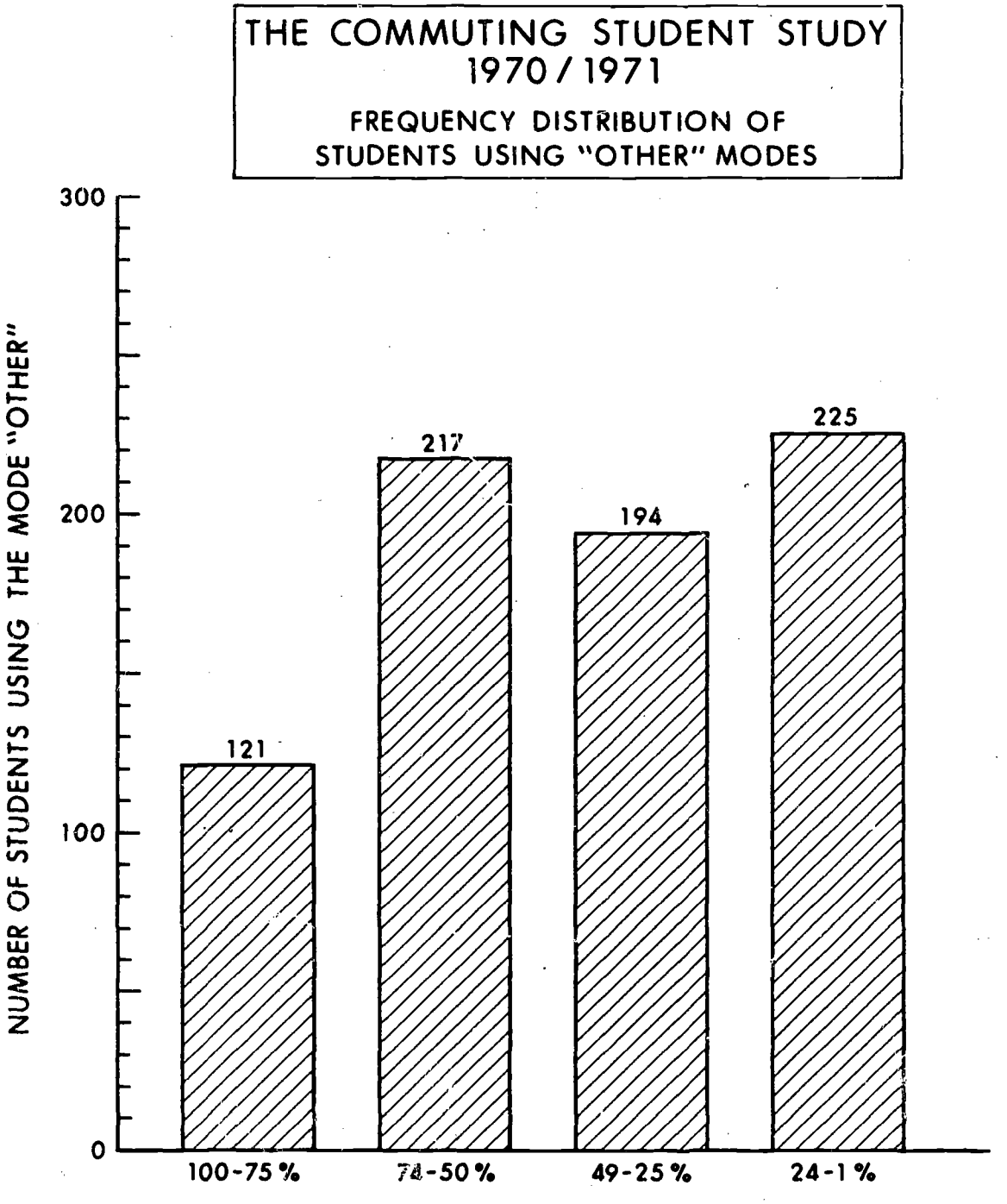
PERCENTAGE USE OF THIS MODE OF TRANSPORTATION BY STUDENTS

INSTITUTIONAL RESEACH & PLANNING MARCH 1971

GRAPH II-D


THE COMMUTING STUDENT STUDY
1970 / 1971
FREQUENCY DISTRIBUTION OF
DROP-OFF STUDENT PASSENGERS
NUMBER OF STUDENTS DROPPING OFF AUTOS PASSING CAMPUS
500
400
300
200
100
0
380
26
76
31
40
451
33
159
105
152
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
PERCENTAGE USE OF THIS MODE OF TRANSPORTATION BY STUDENTS
INSTITUTIONAL RESEARCH & PLANNING MARCH 1971

GRAPH II-E


THE COMMUTING STUDENT STUDY
1970 / 1971
FREQUENCY DISTRIBUTION OF
STUDENTS USING "OTHER" MODES
NUMBER OF STUDENTS USING THE MODE "OTHER"
300
200
100
0
121
217
194
225
100-75 %
74-50 %
49-25 %
24-1 %
PERCENTAGE USE OF THIS MODE OF TRANSPORTATION BY STUDENTS
INSTITUTIONAL RESEARCH & PLANNING MARCH 1971

GRAPH II-F

development which has offset the loss of over 500 student accommodation places in North Garneau.

With regard to auto drivers, although 7,119 students indicated they own autos only 6,255 students reported they drive to campus, made up of 3,880 and 2,375 students full-time and part-time respectively. The full-time equivalent auto driver mode use is 4,959 students. These figures, coupled with the fact that many students borrow or use friends' or relatives' cars, tend to indicate that there are considerations in addition to parking such as traffic congestion and economics that are influencing auto use.

This argument is further strengthened by an incident in the fall of 1970. Subsequent to the first and major allocation of student parking stalls, a letter was sent to 1,200 unsuccessful student parking permit applicants offering stalls at the south power plant and Corbett Hall. This offer generated a response of only 50 individuals. Clearly the campus geographic location, coupled with the parking charge, did not appeal to the above applicants. Further, in the spring of 1971, Corbett Hall parking stalls were still available to students.

It is of interest to note that the average year and estimated value of student owned automobiles is 1965 and $1,343 respectively. Although the modal year was 1969 with 808 student-owned vehicles reported. Additionally, mode reported value of student vehicles was $2,000 with 524 student responses thus indicating that the student owned car fleet is generally quite modern.

Finally, student automobile use and ownership has increased from

4,793 vehicles to 7,119 vehicles from 1967-68 to 1970-71: an increase which is 8% greater than the comparable increase in the day student body.

Bus transportation has an increasingly important role in student and general University transportation. This study indicates that while the automobile share of student transportation is declining, bus transportation is increasing, both of which show increased numbers of commuters. Table III shows that there are a full-time equivalent of 5,758 student bus riders which on a given day could theoretically peak to the maximum of 7,238 as shown on the bus histogram. In the severe cold of winter when student automobiles will not start an increase in bus riders does in fact happen.

Although car pool student users have increased in numbers the percentage share of student transportation of this mode of travel is dropping at a time when the availability of student cars is high. The problem lies in the difficulty students encounter in making up reliable car pools at the time of increasing complexity in university class offerings and time schedules. This mode of transportation which has the potential of increasing car rider occupancy and decreasing parking demands appears as area ripe for promotional ideas.

The number of students who are dropped off show a slight increase although a decreasing proportion of all students use this means of transportation. Possible reasons for this phenomenon may be due to the limited numbers of friends or relatives passing campus on their way downtown, etc., and to increased traffic (delays) and construction in the University area.

The student mode "other" is increasing and is believed to be increased use of push and power bicycles and hitch-hiking.

Before concluding the discussion on student transportation questionnaire results a subsequent development is presented which is pertinent to the results.

It has long been the concern of the planners that changes in student living patterns, after completing the Transportation Questionnaire at fall registration, might adversely affect planning.

Thus, in the current study, a December 1st and December 30th, 1970, address check was performed on 500 randomly selected student questionnaires to ascertain the degree of change following student registration. All changes to addresses that were found amounted to 6% of the sample; however, with respect to changes considered of major importance to transportation planning, the figure is reduced to 3.6%. In this regard some evidence exists that students who do move from one METS zone to another may be offset by others moving oppositely. It has, therefore, been concluded that a September Questionnaire for transportation planning is quite valid. Oddly enough, regarding the above mentioned random check on changes, 55% of address changes involved students who reported bus as their main mode of transportation, with auto driver mode at 33%.

Further to information regarding changes, a second completed Transportation Questionnaire has been obtained from 1,300 students by means of its inclusion with the second major Campus Facilities Questionnaire in the commuting student survey completed in March and

April, 1971. As a cursory examination of this additional data has been performed reference to it will be made where relevant. It is anticipated that prior to our fall, 1971, reporting of the Campus Facilities Questionnaire the second Transportation Questionnaire will be key punched, processed and analyzed for a definitive report on the exact nature of changes.

V. STUDENT RETURNS TO CAMPUS IN THE EVENING

Moving onto the socio-economic portion of the Transportation Questionnaire results for various reasons, commuting time, distance and expense being major considerations, 7.2% of those students surveyed return to campus in the evenings less than once per month, with another 8.7% returning less than once a week. Based upon these initial figures it is therefore reasonable to conclude that at least 7.2% (if not more) of our student body do not fully participate and benefit from the educational, social, cultural, recreational or athletic activities the University has to offer in the evenings, whether through choice or necessity, such as are enjoyed by the majority of the students.

With regard to information obtained from the second Transportation Questionnaire, however, a cursory examination of the data indicates a reduction (from the September reporting to March reporting) in the number of times students return to campus in the evenings. This will, no doubt, prove when analyzed that an even greater number of students than the 7.2% first indicated are unable to return to campus in the evenings.

VI. STUDENT EMPLOYMENT

Questionnaire results indicate that large measures of student time is given over to holding jobs for obvious financial reasons, there being 25.5% of those surveyed with jobs. Of the student job holders the mean weekly job time is 16.9 hours, while the mode time was 12 hours per week with 725 students falling into this category. Of particular significance is the fact that 87.9% of the students having jobs are full-time students carrying a full academic load (Reference Table IV).

Table V shows the number of full-time and part-time students falling into their specified hours of work situations. Also of particular note is the fact that 75.9% of student held jobs are located off campus, often on the north side of Edmonton (Reference page 36), thus indicating a second journey to work trip on certain days for certain individuals and therefore, additional travel time expenditure.

Also regarding student jobs, 47.1% of those student survey reported no job and 27.2% reported they didn't know yet. In this regard a preliminary examination of the data from the second Transportation Questionnaire indicates a shift from those who don't know yet to a definite yes or no. Again a detailed analysis is anticipated by fall reporting.

Despite the high level of student employment student assistance records 1970-71 academic year show an overall increase in applicants for student assistance (undergraduate plus graduate students) of 6.8% over 1969-70, and 26% on volume of dollar assistance. In short,

TABLE IV

THE COMMUTING STUDENT STUDY 1970-1971

DESCRIPTION OF STUDENTS AND THEIR JOBS

JOB LOCATION	FULL-TIME STUDENTS	PART-TIME STUDENTS	TOTAL STUDENTS IN SURVEY HAVING JOBS	STUDENTS WITH JOBS AS A PERCENTAGE OF UNIVERSITY OF ALBERTA TOTAL DAY STUDENT ENROLMENT
ON CAMPUS				
Number of Students	917	200	1,117	$\frac{1,117}{19,520} \times 100\% = 5.7\%$
Percentage	82.1	17.9	100.0	
% of Total Full-Time or Part-Time	22.5	35.5		
% of Total Jobs	19.8	4.3		
OFF CAMPUS				
Number of Students	3,161	363	3,524	$\frac{3,524}{19,520} \times 100\% = 18.1\%$
Percentage	89.7	10.3	100.0	
% of Total Full-Time or Part-Time	77.5	64.5		
% of Total Jobs	68.1	7.8		
TOTAL JOBS (ON AND OFF CAMPUS)				
Number of Students	4,078	563	4,641	$\frac{4,641}{19,520} \times 100\% = 23.8\%$
Percentage	87.9	12.1	100.0	

TABLE V

THE COMMUTING STUDENT STUDY 1970-1971

TIME DISTRIBUTION OF STUDENT JOBS

WEEKLY JOB HOURS	FULL-TIME STUDENTS	PART-TIME STUDENTS	TOTAL STUDENTS
1 - 6	446	9	455
7 - 12	1,878	53	1,931
13 - 18	1,053	26	1,079
19 - 24	587	38	625
25 - 30	184	40	224
31 - 36	52	90	142
37 - 42	154	235	389
(43 - 98)	32	67	99
TOTAL			
Number	4,386	558	4,944*
Percentage	88.7%	11.3%	100.0%

*Please note this Table includes students who reported job hours in excess of the 4,746 students who indicated they had jobs.

approximately one out of every two students in 1970-71 received government financial assistance in the form of loans or loans and grant.

On the basis of the above it seems reasonable to conclude that as the job supply in the economy picks up student held jobs during the academic year will likely increase.

VII. STUDENT CHILDREN AND CHILD CARE

Questionnaire results show that 2,316 students in the commuting student survey have children, complete with the inherent responsibilities. Furthermore, this amounts to 12.4% of the student body in the study with over half (i.e., 6.7%) of the students reporting children, having two or more.

With regard to child care, questionnaire results show that 1,593 students have pre-school children, with at least 42.3% of them employing child care methods which call for capital outlay. Regarding student time, many of the child care methods employed will result in side trips on the way to University to drop off the children at the appropriate place of child care.

VIII. STUDENT TIME PICTURE

Table VI shows the students time and responsibility situation as deduced from the Student Transportation Questionnaire. The selection of the student time use categories has been done in a specific manner as follows. From the Student Transportation Questionnaire it was determined that the mean of the means on student week-day campus arrivals and departures was 8:47 a.m. and 3:57 p.m. respectively, thus

TABLE VI

STUDENT TIME AND RESPONSIBILITY DISTRIBUTION

(Questionnaire Results)

STUDENT TIME USE	STUDENTS WITHOUT CHILDREN AND THEIR JOB SITUATION			STUDENTS WITH CHILDREN AND THEIR JOB SITUATION			TOTAL STUDENTS
	Yes Have Job	No	Don't Know Yet	Yes Have Job	No	Don't Know Yet	
41 Hours Per Week And Less	877	4,338	2,806	211	643	202	9,077
42 To 56 Hours Per Week	1,642	2,667	1,540	281	438	126	6,694
57 Hours Per Week And More	1,467	583	346	268	104	35	2,803
TOTAL STUDENTS	3,986	7,588	4,692	760	1,185	363	18,574

generating a mean stay on campus of approximately 36¼ hours per week. Furthermore, the mean student auto and bus journey to campus was 19.1 minutes and 44.2 minutes respectively, which averages out to approximately 5 hours per week total travel time for commuter students assuming about half use bus and half use car (which is close to the true situation for those using mechanized means of transportation). These two time elements therefore add up to 41¼ hours per week which led to the adoption of the 41-42 hour boundary condition.

In the case of full-time students with jobs, however, the mean weekly job hours were found to be 14 3/4 hours which when added to the previous 41¼ yields the other time division of 56 hours per week.

In keeping with the above definition, therefore, the computers were programmed to calculate and add together the appropriate blocks of time which all students entered on their questionnaire, thus arriving at the student distribution as shown in Table VI. Quite obviously students who walk to campus and students using the mode "other" were included in the Table even though they were given zero for their travel time component. Students who use car pool and drop-off mode were, however, given an automobile travel time component according to their own travel time estimates. In conclusion, as the whole of Table VI is based on Monday to Friday travel time, on-campus time and weekly part-time job time only it is possible, therefore, to begin to appreciate the time life style of the University of Alberta day student body when all other normal human activities are imagined.

IX. SUMMARY OF LETTERS TO THE PARKING OFFICE

Although this section was not part of the Student Transportation Questionnaire, letters received by the University Parking Office in September-October, 1970, appear relevant to the Commuting Student study. Essentially these letters represent those students who have complained to the Parking Office for not having received a parking permit for 1970-71, or for having received unsuitable parking stalls.

It is significant to note from the summary of letters that student jobs and family responsibilities rate very high on the list of problems. Also of note is the west end Edmonton transportation problem which may be solved as early as the autumn of 1971 through a new bus service.

LETTERS TO PARKING OFFICE - SUMMARY

1. Total Letters: 63

2. Type:

Dentistry - 6
Medicine - 3
Law - 11
Graduates 6
Faculty Members - 2
Undergraduate students - 8
Unknown - 27

3. Area:

West end	Campus	Rural	Southwest	South	Southeast	Northwest
16	1	1	5	3	4	4

North	Northeast	Unknown
10	1	18

4. Common Complaints:

Buses are bad - 28
I have a difficult program - 23
Give me specific lot - 20
Need car for job - 15
I have family responsibilities - 14
Must drive wife to work - 10
Medical reasons - 9
I had permit before - 9
Present lot inconvenient - 8
Happy with any lot I can get - 8
Other are depending on me - 8
Must drive kid to babysitter - 4
Need car for pool - 4
Other have stickers -- why not me? - 4
Changed my address - 3
Somebody over there made a mistake - 2

SECTION III

STAFF TRANSPORTATION QUESTIONNAIRE RESULTS

The Faculty and Staff (hereinafter referred to as staff) Transportation Study 1970-71 has brought out many new points of use and interest to campus transportation planning. The essential points gained from the questionnaire survey are the distance between staff residence and the University; travel time; staff travel modes and staff differences in mode use; reported car ownership versus car use; evening returns to campus and staff campus week-day arrivals and departures. These points will be discussed in some detail highlighting the staff transportation patterns.

I. COMMUTING DISTANCES

The Faculty and Staff Transportation Study 1970-71 similar to the Commuting Student Study, has shown that staff commuting distances have greatly increased since the 1965-66 transportation survey. For example, those staff in the survey commuting to the University from outside Edmonton city proper (rural routes 1 through 8, all provincial highways leading into the city, Sherwood Park and St. Albert) have tripled from 1965-66 to 1970-71.

In addition, as staff employment at the University has substantially increased from 1965-70, established Edmonton neighborhoods are generating increased numbers of staff. As a further example of growth, the area in the southwest bounded by White Mud Creek, 111th

Street and 62nd Avenue, and the city limits shows a solid 366% staff increase in commuting. This area lies within the well defined northeast-southwest Edmonton transportation corridor.

Please note that Drawing I, Section I, shows the city distribution of staff and student auto drivers and bus use travel modes from which one can ascertain the distances involved.

II. STAFF QUESTIONNAIRE RETURN SUCCESS RATIOS

Table I depicts the Transportation Questionnaire completion and return success experienced by the Institutional Research and Planning Office. As is shown there were 5,797 questionnaires mailed out to the staff, from which 3,569 were returned fully completed for a 61.6% overall return.

It should be noted that full-time staff, both academic and non-academic, averaged a response rate of 70% while their part-time counterparts averaged 23%.

III. TRAVEL MODES

The staff transportation survey results are based on a 61.6% questionnaire return as shown in Table I. These results, however, should be compared with Tables II and III to obtain the necessary overall staff travel picture before use of travel modes can be accurately discussed. Essentially since 34.6% of the full-time non-academic staff are missing from the survey and as they are amongst the heaviest staff

TABLE I

STAFF QUESTIONNAIRE RETURN SUCCESS RATIOS

	FULL-TIME STAFF	PART-TIME STAFF	TOTAL STAFF
ACADEMIC STAFF			
Number Returned	1,310	111	1,421
Number Mailed Out	1,668	405	2,073
Percentage Return	78.5	27.4	68.6
NON-ACADEMIC STAFF			
Number Returned	2,010	138	2,148
Number Mailed Out	3,075	649	3,724
Percentage Return	65.4	21.3	57.7
TOTAL FACULTY AND STAFF			
Number Returned	3,320	249	3,569
Number Mailed Out	4,743	1,054	5,797
Percentage Return	70.0	23.6	61.6

users of bus, this use exceeds the 21.5% of full-time academic staff missing and their heavier use of car. The net result of inferring a 100% return in keeping with the actual 61.6% return is that the auto driver mode decreases 2.7% and the bus mode increases by 1.9%. Bearing the above important corrective factor in mind several comments are in order to highlight staff travel modes.

Table II shows clearly that academic full-time staff use auto driver and walk modes while the non-academic full-time staff use auto driver and bus travel modes. Of further interest is that the latter group also use the modes walk, car pool, and drop-off fairly extensively. With regard to part-time staff, the academic group prefer auto driver while the non-academic prefer bus, with auto driver and walk being of quite high importance.

The mail questionnaire numbers very closely approximate the true number of non-student staff employed at the University of Alberta and show that the non-academic staff are nearly twice as large in number as the academic staff.

Similar to the student transportation use pattern the survey results show that 78% of all staff stay with one mode of travel 100% of the time (Reference Table IV).

Please note the small difference in total staff number results from obtaining useful data from a small number of incomplete questionnaires.

IV. AUTOMOBILE OWNERSHIP

The following survey results for car ownership show that 2,725

TABLE II

TRANSPORTATION QUESTIONNAIRE RESULTS OF

FACULTY AND STAFF TRAVEL MODES 1970-1971

TYPE OF STAFF	TRANSPORTATION MODE						TOTAL
	Auto Driver	Bus	Walk	Car Pool	Drop Off	Other	
FULL-TIME ACADEMIC							
Number	868	60	280	35	35	32	1,310
Percentage	66.2	4.6	21.4	2.7	2.7	2.4	100.0
PART-TIME ACADEMIC							
Number	64	15	12	10	8	2	111
Percentage	57.7	13.5	10.8	9.0	7.2	1.8	100.0
TOTAL ACADEMIC STAFF							
Number	932	75	292	45	43	34	1,421
Percentage	65.6	5.3	20.5	3.2	3.0	2.4	100.0
FULL-TIME NON-ACADEMIC							
Number	999	426	203	209	152	21	2,010
Percentage	49.7	21.2	10.1	10.4	7.6	1.0	100.0
PART-TIME NON-ACADEMIC							
Number	38	46	26	12	14	2	138
Percentage	27.5	33.3	18.9	8.7	10.1	1.5	100.0
TOTAL NON-ACADEMIC STAFF							
Number	1,037	472	229	221	166	23	2,148
Percentage	48.3	21.6	10.7	10.5	7.8	1.1	100.0
TOTAL STAFF							
Number	1,969	547	521	266	209	57	3,569
Percentage	55.2	15.3	14.6	7.4	5.9	1.6	100.0

TABLE III

FACULTY AND STAFF TRAVEL MODES 1970-1971

EXTENDED PROPORTIONATELY TO 100% EMPLOYMENT

TYPE OF STAFF	TRANSPORTATION MODE						TOTAL
	Auto Driver	Bus	Walk	Car Pool	Drop Off	Other	
FULL-TIME ACADEMIC							
Number	1,105	76	357	45	45	40	1,668
Percentage	66.2	4.6	21.4	2.7	2.7	2.4	100.0
PART-TIME ACADEMIC							
Number	234	55	44	36	29	7	405
Percentage	57.7	13.5	10.8	9.0	7.2	1.8	100.0
TOTAL ACADEMIC STAFF							
Number	1,339	131	401	81	74	47	2,073
Percentage	64.6	6.3	19.3	3.9	3.6	2.3	100.0
FULL-TIME NON-ACADEMIC							
Number	1,528	652	311	320	233	31	3,075
Percentage	49.7	21.2	10.1	10.4	7.6	1.0	100.0
PART-TIME NON-ACADEMIC							
Number	179	216	123	56	66	9	649
Percentage	27.5	33.3	18.9	8.7	10.1	1.5	100.0
TOTAL NON-ACADEMIC STAFF							
Number	1,707	868	434	376	299	40	3,724
Percentage	45.8	23.3	11.7	10.1	8.0	1.1	100.0
TOTAL STAFF							
Number	3,046	999	835	457	373	87	5,797
Percentage	52.5	17.2	14.4	7.9	6.5	1.5	100.0

TABLE IV

FACULTY AND STAFF TRANSPORTATION STUDY 1970-1971

SUMMARY OF TRAVEL MODE USE

(Units: Full-Time Equivalent Staff)

MODE	PERCENTAGE MODE USE										TOTAL FTE STAFF
	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%	
Automobile Driver	1,739	41	46	19	12	94	9	9	4	5	1,978
Bus	402	16	26	6	6	69	5	15	7	9	561
Walk	386	24	25	11	5	49	8	10	4	5	527
Car Pool	169	6	14	2	4	64	2	5	2	1	269
Passenger Drop-off	110	14	11	2	3	55	3	7	4	5	214
Other	7	4	3	4	4	18	4	8	4	2	
Proportion of Staff Surveyed Falling Into % Use Categories By:											
(A) Number (FTE)	2,813	105	125	44	34	349	31	54	25	27	3,607
(B) Percentages	77.98%	2.91%	3.47%	1.22%	0.94%	9.68%	0.86%	1.49%	0.70%	0.75%	100%

Institutional Research and Planning
March, 1971

staff or 75.8% reported they owned a car. However, of these only 2,205 were used, with 1,739 and 466 used full-time and part-time respectively; for a full-time equivalent use of 1,978 auto drivers. This indicates a significant number of vehicles are not brought to campus every day. Concluding car ownership, Table V indicates that car ownership differs with employment at the University.

V. STAFF RETURNS TO CAMPUS IN THE EVENINGS

The following are the results obtained on staff evening returns to campus.

QUESTION 6:

How often will you return to campus in the evenings?

1.	Less than once a month	1,163 staff or	32.6%
2.	Less than once a week	443 staff or	12.3%
3.	About once a week	648 staff or	18.0%
4.	Twice a week	492 staff or	13.7%
5.	Three times a week	258 staff or	7.2%
6.	More than three times a week	321 staff or	8.9%
7.	No Answer	258 staff or	7.2%
	TOTAL SURVEY	3,593 staff or	100.0%

Regarding questionnaire results for return to campus in the evenings, Table VI clarifies the overall staff return rates. Of particular note here is that the academic staff definitely return more often in the evenings than the non-academic staff; with 46.2% of the latter group returning less than once per month.

TABLE V

FACULTY AND STAFF TRANSPORTATION STUDY 1970/1971

TRANSPORTATION QUESTIONNAIRE RESULTS--CAR OWNERSHIP

QUESTION: Do you own a car?

GROUP DESCRIPTION	STAFF RESPONSE			
	Yes	No	No Response	Total People
FULL-TIME ACADEMIC				
Number	1,191	109	10	1,310
Percentage	90.9	8.3	0.8	100%
PART-TIME ACADEMIC				
Number	90	20	1	111
Percentage	81.1	18.0	0.9	100%
FULL-TIME NON-ACADEMIC				
Number	1,365	594	51	2,010
Percentage	67.9	29.6	2.5	100%
PART-TIME NON-ACADEMIC				
Number	66	68	4	138
Percentage	47.8	49.3	2.9	100%

TABLE VI

FACULTY AND STAFF TRANSPORTATION STUDY 1970/1971

TRANSPORTATION QUESTIONNAIRE RESULTS

QUESTION: How often will you return to campus in the evenings?

GROUP DESCRIPTION	FREQUENCY OF THOSE RETURNING TO CAMPUS IN THE EVENINGS							
	Less Than Once A Month	Less Than Once A Week	Once A Week	Twice A Week	Three Times A Week	More Than Three Times A Week	No Response	Total Staff
FULL-TIME ACADEMIC								
Number	154	174	344	302	167	155	14	1,310
Percentage	11.8	13.3	26.3	23.1	12.7	11.8	1.0	100%
PART-TIME ACADEMIC								
Number	35	19	21	12	9	14	1	111
Percentage	31.5	17.2	18.9	10.8	8.1	12.6	.9	100%
FULL-TIME NON-ACADEMIC								
Number	931	243	267	156	74	124	215	2,010
Percentage	46.2	12.1	13.3	7.8	3.7	6.2	10.7	100%
PART-TIME NON-ACADEMIC								
Number	46	5	12	21	5	24	25	138
Percentage	33.4	3.6	8.7	15.2	3.6	17.4	18.1	100%

VI. STAFF TIMES OF TRAVEL

Concluding staff questionnaire results, Tables VII and VIII show the staff arrivals and departure times generally coinciding with 8:00 a.m. lectures and 8:30 - 4:30 University office hours.

Quite naturally, percentage staff arrivals and departures do not reach 100% for any day shown because subsequent shifts of University staff, such as librarians, researchers, and caretakers do not arrive or leave at peak times.

TABLE VII

THE CAMPUS COMMUTER STUDY 1970-1971

STAFF WEEK DAY ARRIVALS ON CAMPUS

VIA ALL MODES OF TRANSPORTATION*

DAY	MEAN TIME	MODE TIME	MODE VALUE NO. OF STAFF	CUMULATIVE STAFF ARRIVALS	
				Hour	Percentage at Campus
Monday	8:54 a.m.	8:30 a.m.	943	To 8:00 a.m. 8:30 a.m. 9:00 a.m.	33.1% 75.0% 88.4%
Tuesday	8:55 a.m.	8:30 a.m.	928	To 8:00 a.m. 8:30 a.m. 9:00 a.m. 9:30 a.m.	32.7% 73.8% 87.8% 90.7%
Wednesday	8:54 a.m.	8:30 a.m.	939	To 8:00 a.m. 8:30 a.m. 9:00 a.m.	33.5% 75.1% 88.4%
Thursday	8:54 a.m.	8:30 a.m.	945	To 8:00 a.m. 8:30 a.m. 9:00 a.m. 9:30 a.m.	32.5% 74.4% 88.1% 91.0%
Friday	8:47 a.m.	8:30 a.m.	938	To 8:00 a.m. 8:30 a.m. 9:00 a.m.	33.1% 75.3% 89.2%

*Questionnaire results.

TABLE VIII

THE CAMPUS COMMUTER STUDY 1970-1971

STAFF WEEK DAY DEPARTURES FROM CAMPUS

VIA ALL MODES OF TRANSPORTATION*

DAY	MEAN TIME	MODE TIME	MODE VALUE NO. OF STAFF	CUMULATIVE STAFF DEPARTURES	
				Hour	Percentage Having Left Campus
Monday	4:44 p.m.	4:30 p.m.	1,079	To 4:00 p.m. 4:30 p.m. 5:00 p.m. 6:00 p.m.	18.4% 52.1% 74.0% 92.3%
Tuesday	4:44 p.m.	4:30 p.m.	1,065	To 4:00 p.m. 4:30 p.m. 5:00 p.m. 6:00 p.m.	18.6% 51.7% 73.6% 91.9%
Wednesday	4:42 p.m.	4:30 p.m.	1,084	To 4:00 p.m. 4:30 p.m. 5:00 p.m. 6:00 p.m.	18.7% 52.3% 74.5% 92.7%
Thursday	4:43 p.m.	4:30 p.m.	1,083	To 4:00 p.m. 4:30 p.m. 5:00 p.m. 6:00 p.m.	18.6% 52.2% 74.0% 92.1%
Friday	4:41 p.m.	4:30 p.m.	1,106	To 4:00 p.m. 4:30 p.m. 5:00 p.m. 6:00 p.m.	20.0% 54.7% 76.7% 93.8%

*Questionnaire results.

SECTION IV

CITY - UNIVERSITY JOINT BUS STUDY AND TRANSIT TRENDS

This section of the report describes an actual field study of bus passengers conducted in the fall of 1970 at the University of Alberta in addition, to pointing up a few relevant transit trends on campus.

This portion of the report will, therefore, cover field study organization, bus study results, relationship to Transportation Questionnaire results, and historical bus service and student transit pass sales.

In essence, the importance of this section of the report in addition to showing an increasingly important campus service, is to lend credibility to questionnaire results which bear close correlation with actual bus passenger counts.

I. FIELD STUDY DESCRIPTION

1. Organization

In the fall, 1970, it was agreed between the city and University to share in a badly needed campus bus study for the purpose of ascertaining adequacy (i.e., the extent to which transit service is meeting University travel demands) of the current campus bus service.

A small planning team was established between the city transit planning office and the University of Alberta, Office of Institutional Research and Planning and the various duties and details were split up equally.

As the idea was to count all bus passengers going into and coming out of the entire University of Alberta area for a week (a cordon count of University area transit patronage), five counting stations (being parked University of Alberta trucks) were established as next described, and fourteen student helpers were hired to do the counting. In this regard the transit planners provided bus inspectors to instruct the students in counting bus passengers and in uniform recording of data prior to the study week.

The five counting stations established were Station A in front of the Jubilee Auditorium on 87th Avenue, Station B east of Campus Towers on 87th Avenue, Station C in front of the Nurses Residence on 114th Street, Station D on the east edge of the University of Alberta Hospital parking lot facing 112th Street, and Station E on 83rd Avenue in front of the main south entrance to the University of Alberta Hospital. From these stations the necessary counts were taken on a continuous basis from 6:00 a.m. until midnight on Monday, November 23, and from 7:00 a.m. until 8:00 p.m. Tuesday through to Friday, November 27, 1970, inclusive. Through passengers not getting off at the University were clearly identified and eliminated from the results.

The data sheets emanating from the study were then analyzed by the City Transit Planners who then supplied the University of Alberta with the study results.

Of particular note, an attempt to fully isolate the University of Alberta Hospital bus patronage from the University of Alberta, partially failed and thus results do include a small number of Hospital

bus passengers. This is further clarified in the city letter found further on in this section of the report.

2. Weather Conditions

To set the study week into perspective the prevailing weather should be described. First of all, this week represented the first real cold snap of the 1970-71 winter when on Friday, November 27th, the high-low for day and night reached 9°F below zero and 19°F below zero. From the point of view of University trip generation this likely explains the relatively low traffic on a pay-day Friday. The following data tells the weather story with the exception of the fa there was already close to a foot of settled snow on the ground.

DATE	DAILY TEMPERATURES		AVERAGE TEMPERATURE OVER THE YEARS		WINDS DIRECTION & SPEED (MPH) NISKU AIRPORT @ 5:00 a.m.	PRECIPITATION
	Day High	Night Low	Day	Night		
Nov. 23 1970	17°F	0°F	30°F	13°F	--	--
Nov. 24 1970	13	3	29	14	NW 12	Snow
Nov. 25 1970	4	-12	28	12	WNW 13	Snow
Nov. 26 1970	-5	-14	27	11	S 4	Snow
Nov. 27 1970	-9	-19	27	12	NE 6	--

II. STUDY RESULTS

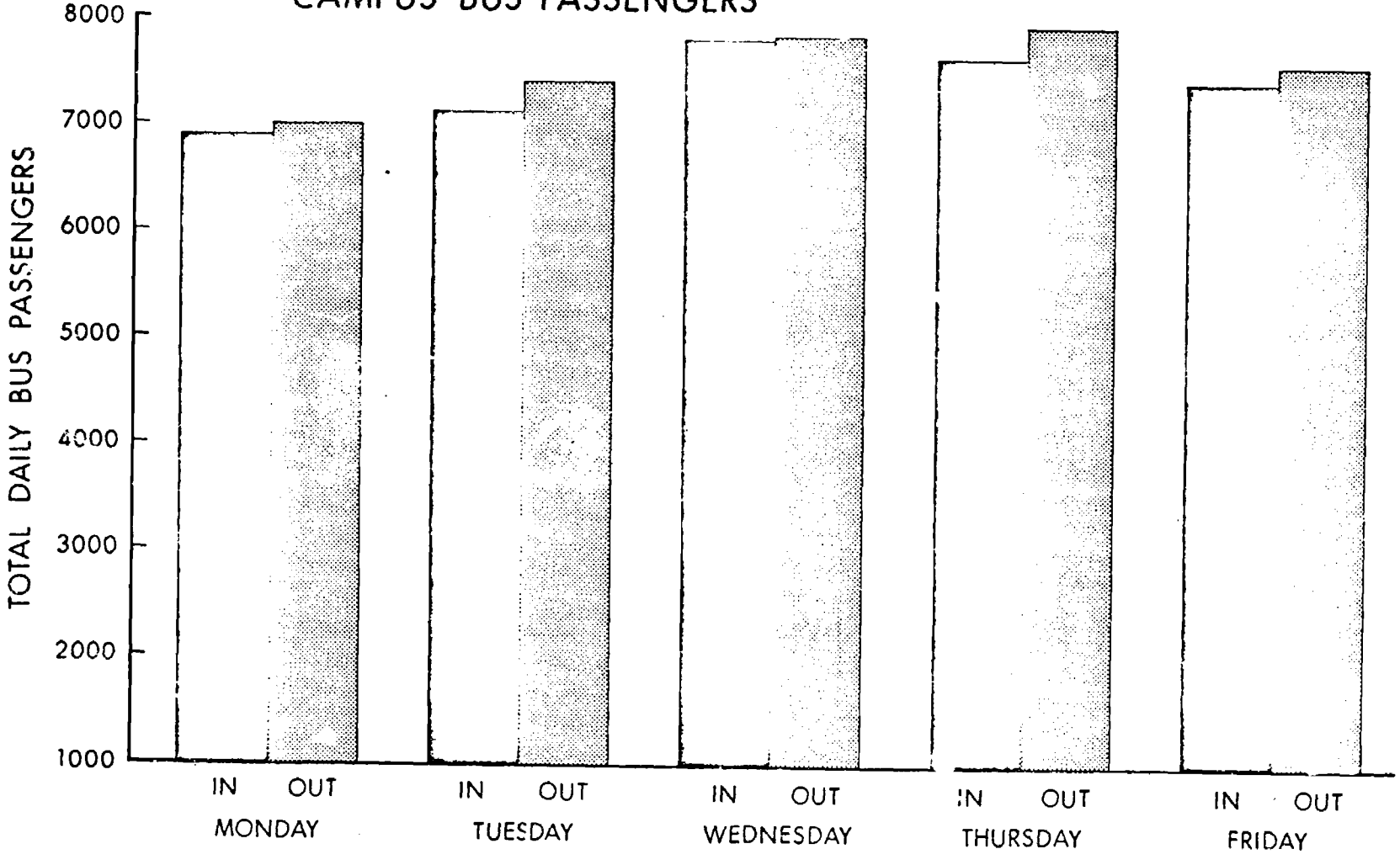
1. Graphical Results

Graph I shows all inbound and outbound campus bus passengers to and from the greater campus area from 7:00 a.m. to 7:00 p.m. Monday to Friday inclusive. The results of the bus passenger counts showing up to 7,500 University bus passengers per day inbound and outbound is a result remarkably close to the University of Alberta Transportation Questionnaire results which indicate a bus usage of 7,052 students and staff per day. (Assuming a 100% universe of students and staff; 6,053 students plus 999 staff = 7,052 full-time equivalent people.)

The difference in the general scale of the numbers no doubt are the 400 or so University of Alberta Hospital bus passengers which could not be identified and separated from the total head count. Note, however, that as 7,052 number is a full-time equivalent making up the equivalent of 100% bus passengers from a considerably higher number of part-time bus users; the number is a very good base planning number, which can of course be exceeded on any week-day. Because of the bimodal travelling habits of a portion of the University of Alberta population outbound bus passengers slightly exceed inbound bus passengers. Thus, it can be assumed that certain automobile passengers or drop-off mode people, walkers or others, change mode of transport and go home by the bus at their convenience.

Graphs II and III show peak inbound and outbound campus bus passengers and now prove there is a three-hour peak rather than a single

SECTION IV GRAPH I
CITY - UNIVERSITY JOINT BUS STUDY
NOVEMBER 23 - 27, 1970
TOTAL WEEKDAY INBOUND AND OUTBOUND CAMPUS BUS PASSENGERS



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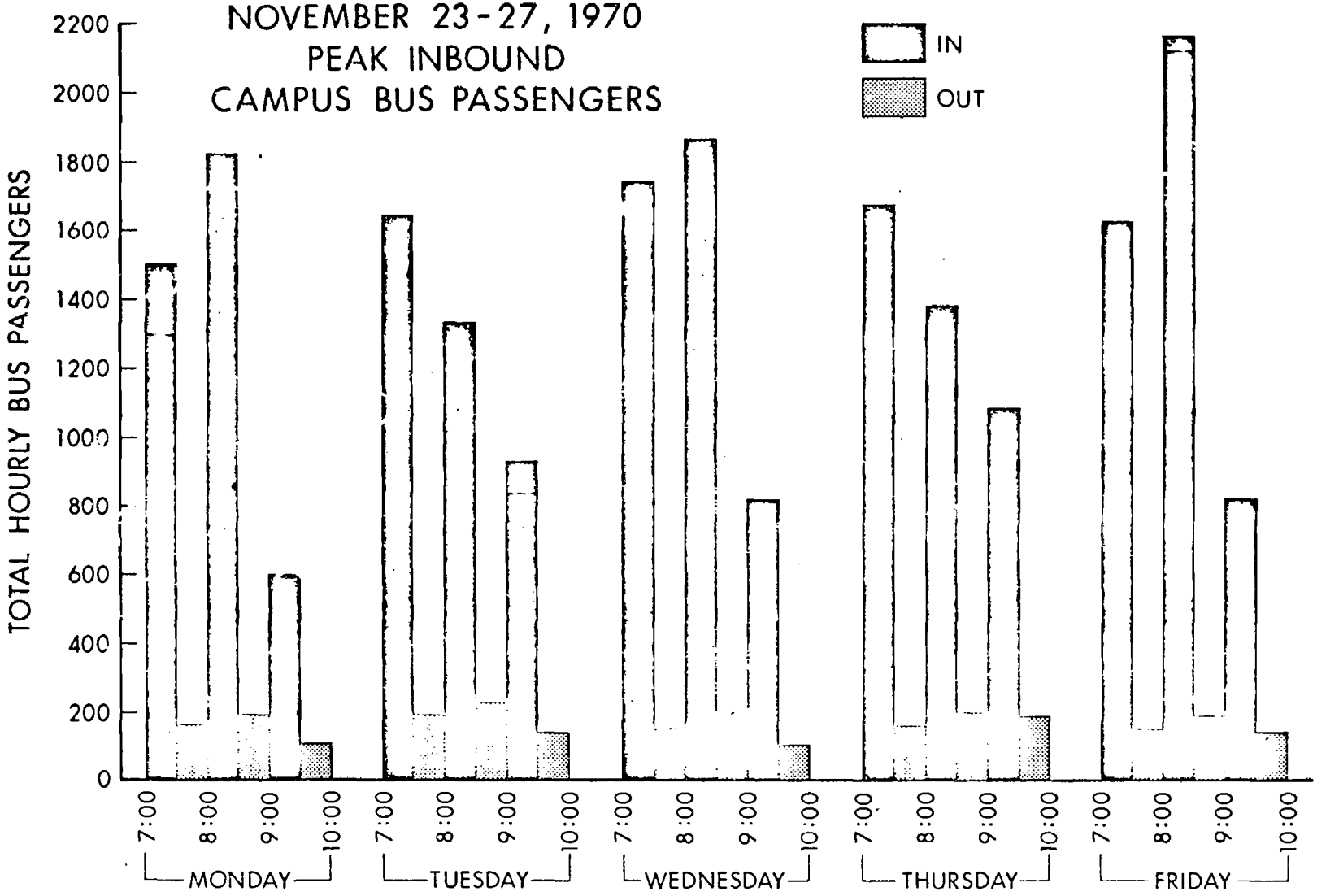
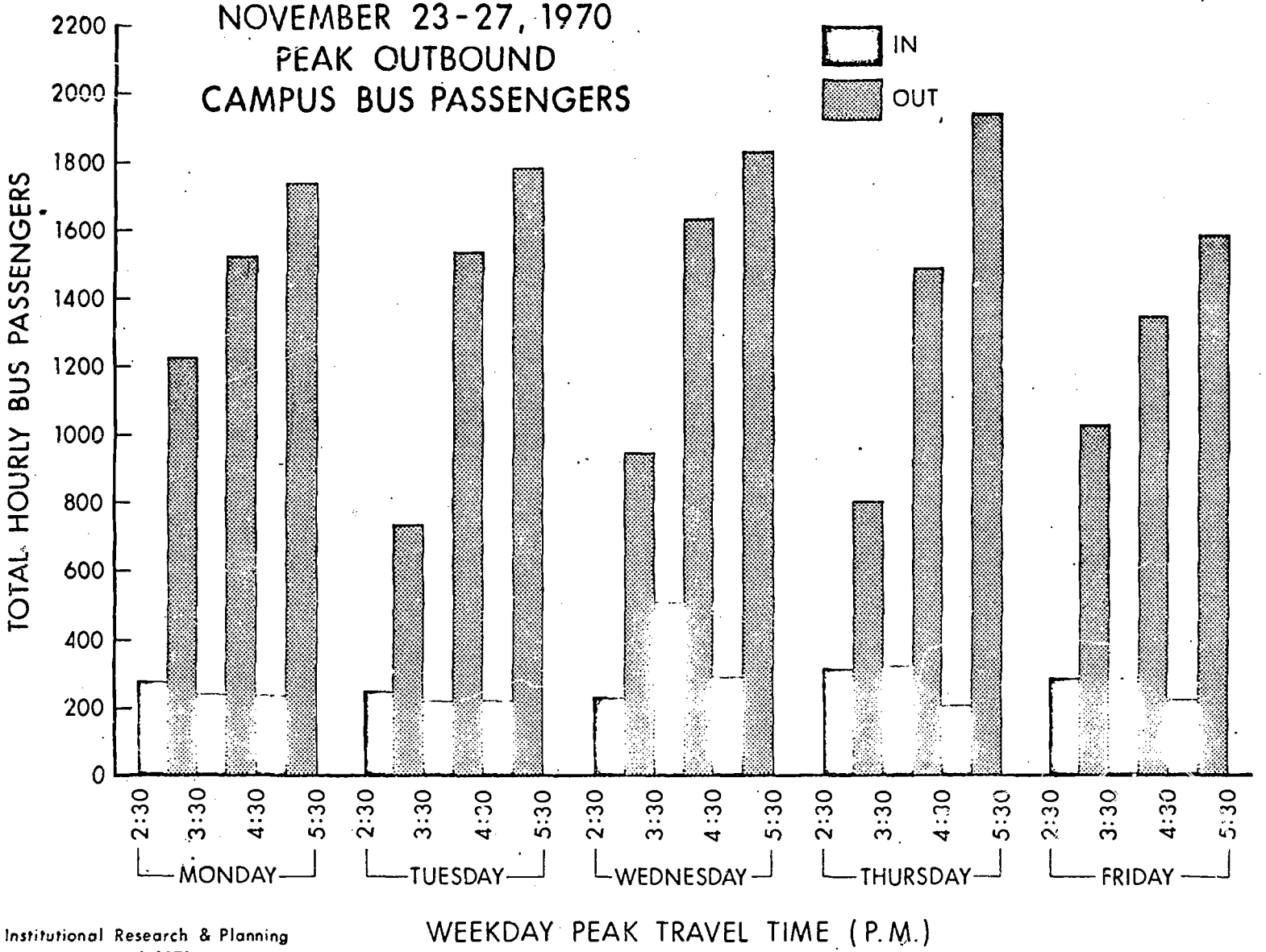
April 1971

SECTION IV GRAPH II
CITY-UNIVERSITY JOINT BUS STUDY
NOVEMBER 23-27, 1970
PEAK INBOUND
CAMPUS BUS PASSENGERS



Institutional Research & Planning
April 1971

SECTION IV GRAPH III
CITY-UNIVERSITY JOINT BUS STUDY
NOVEMBER 23-27, 1970
PEAK OUTBOUND
CAMPUS BUS PASSENGERS



Institutional Research & Planning
April 1971

peak hour as previously thought.

2. Tabular Results and Transit Planner Notes

The following Tables I through V generated by the City Transit Planning Office cover in detail the results of the Bus Study. Please note that the Transit Planners notes, which follow, set these data into perspective in addition to conveying several important technical points emanating from the study.

Of particular note from the Tables is the heavy use of the R_1 and R_2 and U_2 bus service and the lighter use of the U_5 and U_6 bus service. These results were also alluded to University questionnaire returns and actually is shown in Drawing I, Section I, of this report. Because, however, there are good University population densities in the south and west of the city it should be possible to attract them to transit use.

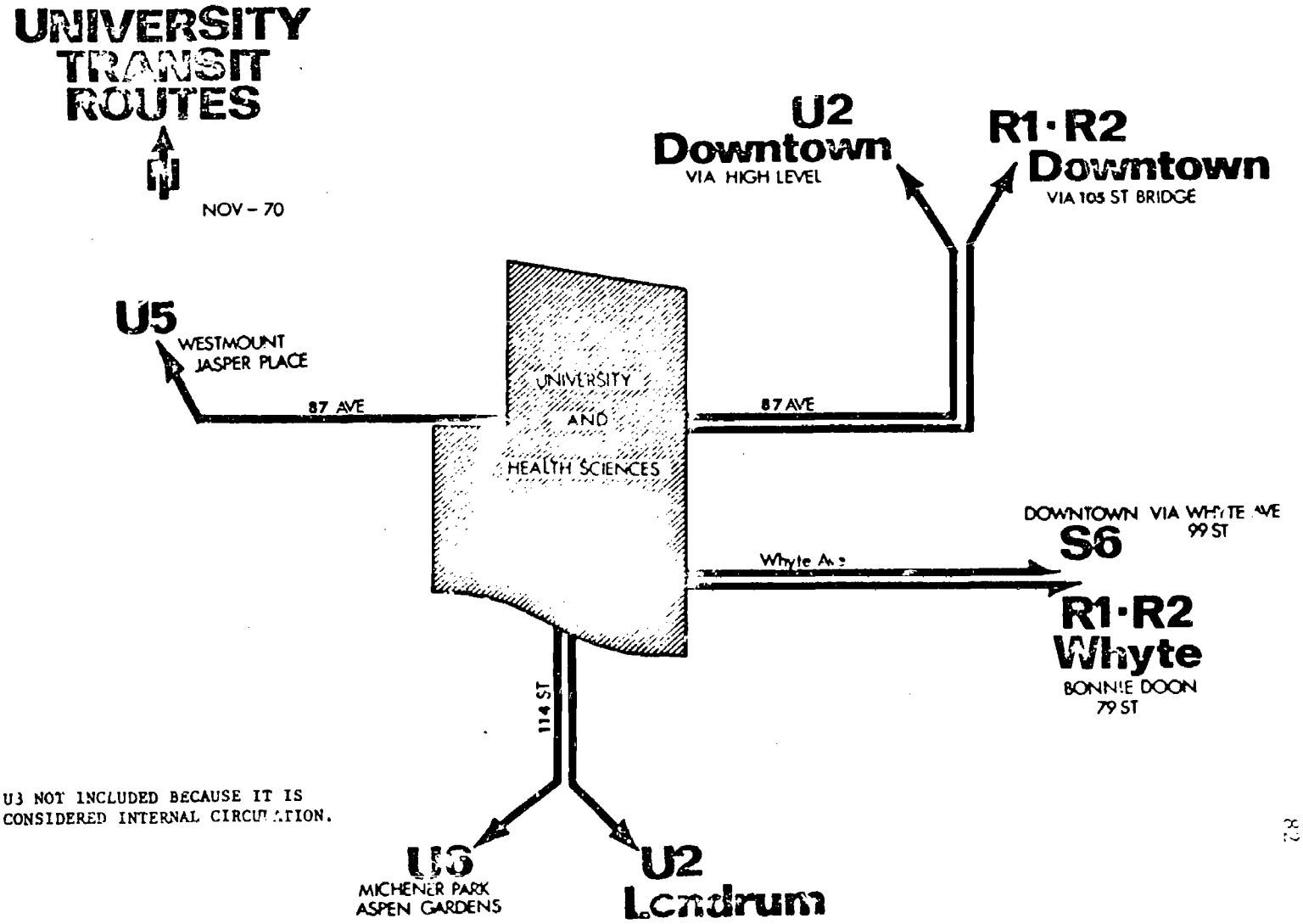
3. Edmonton Transit System Letter

Please note Mr. MacDonald's Bus Study summary letter enclosed.

III. HISTORICAL CAMPUS BUS SERVICE

Historical notes about the bus service indicate that since 1961 when only 77 buses per day passed through the University of Alberta, the comparable number has now risen to approximately 325 buses per day (Reference Table III). Truly this growth in service is remarkable, and the future for transit appears to be very favorable.

DRAWING I



U3 NOT INCLUDED BECAUSE IT IS CONSIDERED INTERNAL CIRCULATION.

TABLE 1.

TRANSIT PASSENGERS ARRIVING AND LEAVING

UNIVERSITY - HEALTH SCIENCES AREA 7 A. M. - 8 P. M.

Week of November 2[illegible]-1970.

ROUTE	MONDAY*		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY	
	INBOUND	OUTBOUND	INBOUND	OUTBOUND	INBOUND	OUTBOUND	INBOUND	OUTBOUND	INBOUND	OUTBOUND
U2 DOWNTOWN	1,324	1,225	1,262	1,058	1,436	1,133	1,454	1,285	1,584	1,530
U2 LENDRUM	581	743	642	697	769	788	677	723	716	710
R1-R2 DOWNTOWN	1,940	2,001	1,603	2,005	1,724	2,255	1,888	2,285	1,790	2,241
R1-R2 WHYTE	1,196	1,042	1,276	1,024	1,418	1,004	1,442	1,044	1,346	992
S6	822	1,002	874	998	985	1,131	877	997	827	1,122
U6	405	362	407	403	398	414	421	449	377	416
U5	501	499	478	379	633	509	514	450	468	497
UNASSIGNED TO A ROUTE	295	392	362	593	278	347	151	399	336	97
TOTAL	7,064	7,266	6,904	7,157	7,641	7,586	7,424	7,233	7,445	7,605

* Counter at one check-point
asleep 9:30 - 10:00 A.M.

TABLE 2

TOTAL TRANSIT PASSENGERS ARRIVING AND LEAVING

UNIVERSITY - HEALTH SCIENCES AREA

EARLY MORNING (6 A.M. - 7 A.M.) AND

LATE EVENING (8 P.M. - 12 MIDNIGHT) OF

A TYPICAL DAY

(MONDAY, November 23, 1970)

TIME PERIOD	TOTAL TRANSIT PASSENGERS TO AND FROM UNIVERSITY - HEALTH SCIENCES AREA.	
	INBOUND	OUTBOUND
EARLY MORNING 6 A. M. - 7 A. M.	310	19
LATE EVENING 8 P. M. - 12 MIDNIGHT	287	765

TABLE 3.

TRANSIT BUSES TO AND FROM UNIVERSITY-HEALTH SCIENCES AREA

BY ROUTE 7 A.M. - 8 P.M.

Week of November 23-27, 1970.

ROUTE	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY	
	INBOUND	OUTBOUND	INBOUND	OUTBOUND	INBOUND	OUTBOUND	INBOUND	OUTBOUND	INBOUND	OUTBOUND
U2 DOWNTOWN	56	51	51	44	54	49	55	50	59	52
U2 LENDRUM	48	52	48	50	52	54	52	55	51	51
R1-R2 DOWNTOWN	56	57	58	50	54	52	58	58	56	55
R1-R2 WHYTE	53	54	55	58	54	54	55	58	54	55
S6	66	65	65	68	67	68	61	68	58	62
U6	27	26	27	27	26	29	26	27	27	28
U5	16	14	14	14	19	19	15	16	14	17

TABLE 4.

A. M. PEAK TRANSIT BUSES TO AND FROM

UNIVERSITY - HEALTH SCIENCES AREA 7 A. M. - 10 A. M.

Week of November 23-27, 1970

ROUTE	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY	
	INBOUND	OUTBOUND	INBOUND	OUTBOUND	INBOUND	OUTBOUND	INBOUND	OUTBOUND	INBOUND	OUTBOUND
U2 DOWNTOWN	15	11	14	11	15	12	16	13	18	12
U2 LENDRUM	13	12	14	14	16	14	15	16	14	12
R1-R2 DOWNTOWN	20	13	18	13	15	14	16	16	16	13
R1-R2 WHYTE	1[illegible]	14	17	18	17	17	18	17	16	14
S6	18	19	19	21	17	16	15	19	17	18
U6	7	5	7	6	6	7	6	5	8	5
U5	7	4	5	4	7	7	7	5	7	6

TABLE 5.

P. M. PEAK TRANSIT BUSES TO AND FROM

UNIVERSITY - HEALTH SCIENCES AREA 2:30 P. M. - 5:30 P. M.

Week of November 23-27, 1970

ROUTE	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY	
	INBOUND	OUTBOUND	INBOUND	OUTBOUND	INBOUND	OUTBOUND	INBOUND	OUTBOUND	INBOUND	OUTBOUND
U2 DOWNTOWN	15	11	12	11	13	13	13	14	14	16
U2 LENDRUM	12	14	11	12	13	13	14	13	13	13
R1-R2 DOWNTOWN	15	18	15	13	14	16	17	18	15	17
R1-R2 WHYTE	13	14	14	12	14	14	17	14	12	15
S6	15	16	16	16	17	17	17	17	14	15
U3	6	6	6	6	6	6	6	6	6	6
U5	3	6	4	4	5	6	3	6	4	5

NOTES CONCERNING THE TABLES AND FIGURES.

In regard to the tables, the passenger figures should be quite accurate. The other three tables concerning buses probably do not have the same degree of accuracy. The reason is that the various student surveyors treated empty "deadhead" buses going to the garage in different manners. Some of them did not mark these buses down; others did To further compound this difficulty, some of the deadhead buses which were marked down were ignored in tabulation of the figures, and others were not. Nevertheless, the general magnitude of buses on each route and in each time period can probably be compared.

RESULTS OF STUDY

To date, almost all of the effort which the Transit System has put into the survey ahs gone into compilation of data. Little effort has yet gone into analysis. It is thus difficult to make conclusions at this time. What conclusions we have drawn are contained in the covering letter from Mr. MacDonald. Further work should e done in analyzing past peak period University transit data and University parking policy over the years, and it is likely that such work would reinforce statements made in the covering letter.

Some findings are immediately apparent, however. These follow:

1) The total number of transit passengers to the University - Health Sciences area is greater than had been thought. Transit planning staff thought the total daily volume was approximately 6,000 passengers in each direction. It appears now that the total volume is about 7,300 passengers in each direction.

2) It had previously been thought in the transit planning and City planning offices that 60% of the total transit passengers to the University arrived during the peak hour. The survey showed this belief was not correct. The peak period is not a peak hour, but a peak two to three hours. It appears that 58 to 59% of the total patronage to the University area arrives during the peak three hours in the morning (7 a.m. - 10 a.m.) and leaves during the peak three hours in the afternoon (2:30 p.m. - 5:30 p.m.).

3) Furthermore, the percentage of total transit riders arriving during the peak periods varies among the several transit routes entering the University area. "Peaking" is most pronounced on the U5 (80%), U2 Lendrum (70%), R1-R2 Whyte (62%), and U6 (60%). It is slightly less pronounced on the S6 (57%), and much less pronounced on the U2 Downtown (46%), and the R1-R2 Downtown (46%) (although peak period loads are extremely heavy on these last two lines). Percentages are derived from Wednesday a.m. peak period loads as a percentage of total Wednesday loads -- these figures just represent loadings into and out of the University area and not those found on other parts of the lines.

4) The nature of the peak periods is slightly different for a Monday - Wednesday - Friday type day than it is for a Tuesday - Thursday type day. On a Monday - Wednesday - Friday type day, the morning peak starts around 7:30 and ends around 9:00 a.m. On a Tuesday - Thursday, it starts around 7:15 a.m. and ends around 9:30 a.m., being longer and not quite as high as for a Monday - Wednesday - Friday. The reason for this difference is probably that classes for Monday - Wednesday - Friday, are one hour in length, while those for Tuesday - Thursday are one and a half hours in length.

...2

4 continued)

Another difference occurs during the afternoon peak. On Tuesday - Thursday the number of people descending upon the buses during the 15 minute period between 5:00 and 5:15 p.m. is much larger than any other 15 minute period of the afternoon peak (and the entire day for both inbound and outbound passengers). This dramatic "peak within the peak" is absent on Monday - Wednesday - Friday. This difference may be attributed to the scheduling of labs ending at 5 p.m. on Tuesday - Thursday (these labs do not occur on Monday - Wednesday - Friday). Students leaving the labs probably join staff members leaving their jobs at 5 p.m. to create the massive transit flows at 5 p.m. on Tuesday - Thursday.

5) An attempt was made to separate transit passengers destined to the University Hospital and Health Sciences area from those destined to the University proper. Because of an error in establishing check points (and a temporary re-routing of the U6), the U6 and southbound U2 buses were not included in counts of Health Sciences passengers, so that this attempt was not completely successful. Furthermore, most of the Health Sciences Transit Patrons which were identified were found to be coming from or going to Whyte Avenue points (via the S6 or R1-R2 Whyte). Buses coming from or going to the downtown dropped or picked up few passengers at Health Sciences stops. It seems unlikely that downtown routes would be carrying fewer Health Sciences bound passengers than Whyte Avenue routes. It thus seems apparent that Health Sciences - bound transit patrons coming from northern points alighted at central University stops and walk from there. It is not a very long walk.

The net result of this discussion is that attempts to separate Health Sciences transit patrons from University transit patrons failed. As it was, the following Health Sciences transit patrons were identified for Monday:

	Inb. und	Outbound
6 a.m. - 7 a.m.	116	7
7 a.m. - 8 p.m.	593	527
8 p.m - 12 Midnight	63	58
Total 6 a.m. - 12 Midnight	772	592

These figures are probably greatly underestimated.

6) The survey does not take into account transit passengers coming to the University via 109th Street transit lines (S1-S2 trolleys, S9 and S12 Express buses from downtown), andwalking from 109 Street. Probably this figure is not of a high magnitude, but nevertheless, significant. Thus, total transit passengers to and from the University - Health Sciences area are probably greater than indicated in the tables.

G. L. Thompson,
Transportation Planner,
EDMONTON TRANSIT SYSTEM.

EDMONTON
TRANSIT SYSTEM
10330 - 84 AVE.

EDMONTON 60,
ALBERTA

The City of Edmonton

"THE HEART OF CANADA'S GREAT NORTH WEST"

Our File No. 200.05.

May 18th, 1971.

Mr. W. J. Williamson,
Institutional Research and Planning,
Room 111 University Hall,
UNIVERSITY OF ALBERTA,
EDMONTON, Alberta.

Dear Mr. Williamson:

The joint University - Edmonton Transit System cordon count of University Area transit patronage has provided valuable information to the Transit System, and we appreciate the University's cooperation. Although the Transit System had kept records of peak period transit trips to and from the University area in the past, no all day counts had been attempted before. It was not clear what role transit was playing in meeting University - generated travel demands. One of the Purposes of the joint University - Transit cordon count was to find this out.

Analysis of the cordon counts has shown that transit is in fact playing a much larger role in satisfying University travel demands than anyone had believed. Although no one knew before the cordon counts exactly what impact transit service had on University travel patterns, there was a general, implicit assumption that transit provided only a marginal service which was not worthy of more than token planning consideration. The results of the survey proved this assumption to be incorrect.

The University currently has a day time population of approximately 25,000 people. Approximately 7,500 people, or one third of the University day-time population, travel to the University area each day, and approximately 7,500 people leave the University area each day by transit (probably the same people), resulting in 15,000 transit trips a day to and from the University area. When the number of University oriented people living within walking distance of the University area are subtracted from the day-time University area population, it would be indicated by this survey that approximately 50% of the remaining people travelling to the campus come by public transit. This is a very high mode split for transit.

However, it must be pointed out that the Edmonton Transit System is carrying 7,500 people into the University area each day in the absence of any explicit planning provisions for transit service in the University area . The

...2

University has assumed that most people would come to the University area by car, and elaborate preparations have been made for auto circulation and parking in the University area, as well as for outside auto connection. There has been no similar work done for transit, and the question now is, how many more people could transit be carrying with proper planning?

University planning for transit should occur in several particular areas. These include the implementation of separate two-way lanes for buses to increase passenger appeal, cut operating costs and delays, and expedite mass movement of people. They should also include the formal requests of City Council for transit funds for improved University transit service. Such funds could be applied to two basic areas:

1. Increasing the capacity on existing routes where capacity is now severely taxed (e.g. reducing headway on the R1-R2 from 15 minutes to 10 or 7½ minutes between the University and downtown -- this improvement would reduce crowding and increase patronage and could enable the U2 route to better serve the Oliver high density residential area).

2. Extending direct transit service for the University into areas where direct transit service does not now exist.

Such planning would increase the number of passengers using transit to reach the University area, reducing traffic in this area and the surrounding residential neighborhoods and making the construction of costly parking structures unnecessary.

In conclusion, the joint University - Transit cordon count and study of transit traffic to the University area has proved highly valuable in focusing attention upon the major job transit is now accomplishing in handling University travel demands. It also reveals opportunities which can be made for the use of transit in the future as the University increases in size.

I would now hope that the University and the Transit System will extend this cooperation to implementing the improvements indicated and take advantage of these opportunities to ease the transportation situation around the University.

Yours truly,

D. L. MacDonald,
General Manager,
EDMONTON TRANSIT SYSTEM.

GLT:DLM/dg

HISTORICAL CAMPUS BUS SERVICE

NOTES OF CLARIFICATION

1961	77 buses per day passed through the University. An additional 118 S6 buses passed the University of Alberta Hospital as follows: west on 82 Avenue, north on 114th Street, east on 83 Avenue, south on 112th Street and east on 82 Avenue.
1962	196 buses per day passed through the University. As above an additional 128 S6 buses passed the University of Alberta Hospital. 1962 witnessed a considerable improvement in bus service to the University.
1963	In this year bus service to the University of Alberta was further improved by routing the S6 bus northward to include the University along 87th Avenue.
1965	328 buses per day passed through the University. Peak Hour (morning) - 30 buses.
1970-1971	350 buses per day passed through the University. Peak Hour (7:30 - 8:30 a.m.) - 48 buses.

TABLE VI

NUMBER OF BUSES THROUGH THE UNIVERSITY

ROUTE	7:00 - 9:00 a.m.	9:00 a.m. - 4:00 p.m.	4:00 - 6:00 p.m.	6:00 p.m. - 12 Midnight
1961				
S6	14	52	16	36
3	12	42	12	-
23	2	7	2	-
TOTAL	28	101	30	36
1962				
R1	8	15	8	15
R2	8	15	8	15
S6	14	56	16	42
U2	8	28	8	2
U3	8	28	8	0
U4	3	8	2	1
TOTAL	49	150	50	75
1965				
S6	11	27	12	21
U2	14	56	16	17
U6	4	14	4	2
R1	8	28	8	12
R2	8	28	8	12
U4	4	-	1	-
U5	4	7	3	-
TOTAL	53	160	51	64

IV. HISTORICAL RECORD OF STUDENT BUS PASSES

The following information shows the historical sales record of bus passes to students. Of particular note regarding this record is the steady increase in sales since the inception of the bus pass sales, and moreover the big first term jump in sales in 1970-71.

TABLE VII

THE COMMUTING STUDENT STUDY

RECORD OF EDMONTON TRANSIT SYSTEM BUS PASSES SOLD TO UNIVERSITY OF ALBERTA STUDENTS

ACADEMIC YEAR	1ST TERM PASSES	2ND TERM PASSES	COST OF PASSES	
			1st Term	2nd Term
1962/1963*	602	678	$20	$25
1963/1964	986	920	$20	$25
1964/1965	1,264	1,115	$20	$25
1965/1966	1,361	1,181	$20	$25
1966/1967	1,486	1,295	$20	$25
1967/1968	1,960	1,649	$30	$32
1968/1969	1,924	1,455	$30	$35
1969/1970	1,915	1,799	$30	$35
1970/1971	2,314	1,832	$30	$35

*This year in which the sale first commenced.

APPENDIX

TRANSPORTATION CARD (1970-1971 ACADEMIC TERM)

2 5 [redacted]

Edmonton Area Address: .....

8 13 Identification No.

14 Surname

Is the above address your parent's/guardian's address? (1) Yes 18 (2) No

Please check your principal means of transportation to campus, or if more than one means often used, indicate by percentage.

19
1. Auto Driver
20
2. Bus
21
3. Walk
22
4. Passenger of car that stays on campus
23
5. Passenger of car that does not stay on campus
24
6. Other, such as bicycle, motorcycle, etc.

Do you own a car? 25 1. Yes 2. No

26 Year 28 Estimated Value

Make/Model .....

In the appropriate blanks, please print the hour of day you would likely arrive and leave campus: (please use the 24 hour clock to nearest ¼ hour. e.g.: 1:30 p.m. = 1330 hours)

33 50

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Arrive on campus						
Leave campus						

51 68

How often will you return to campus in the evenings? (please check)

69
1. Less than once a month
2. Less than once a week
3. About once a week
4. Twice a week
5. Three times a week
6. More than three times a week

8. Please answer both A and B regarding travel time to University each week day.

(A) If you were to travel from your residence to campus by car, what would the travel time be?

70 Hrs. Mins.

(B) If you were to travel from your residence to campus by bus, what would your travel time be?

74 Hrs. Mins.

(a) Do you (or will you) have a job in addition to attending university? 18 1. Yes 2. No 3. Don't know yet

(a) If the answer to question 9 is "Yes" how many hours per week are you likely to work on your job? 19 Hrs.

(b) Is your job located on or off campus? 23 1. On campus 2. Off campus

(c) If your job is located off-campus, please check the geographical area where you work.

24
1. Central Business District (downtown)
2. South side of river
3. North side of river (except downtown)
4. Outside of Metro Edmonton

(a) Do you have children? 25 0. No child 1. 1 child 2. 2 children

Please check one: 3. 3 children 4. more than 3 children

(b) If you have pre-school children please indicate who takes care of them.

26
1. A paid babysitter
2. A day care centre
3. A play school/nursing school
4. A friend/relative
5. Wife/husband
6. Other

FACULTY AND STAFF TRANSPORTATION FORM 1970-71

Edmonton Area Address: .....

3. Please indicate with a check in the appropriate square the nature of your employment with the University of Alberta

	Full-time Staff	Part-time Staff
Academic Staff	☐	☐
Non-Academic Staff	☐	☐

4. Please check your principal means of transportation to campus, or if more than one means often used, indicate by percentage.

1. ☐ Auto Driver
2. ☐ Bus
3. ☐ Walk
4. ☐ Passenger of car that stays on campus—(car pool)
5. ☐ Passenger of car that does not stay on campus
6. ☐ Other, such as bicycle, motorcycle, etc

5. Do you own a car? 1. ☐ Yes 2. ☐ No

6. How often will you return to campus in the evenings? (please check)

- ☐ 1. Less than once a month
- ☐ 2. Less than once a week
- ☐ 3. About once a week
- ☐ 4. Twice a week
- ☐ 5. Three times a week
- ☐ 6. More than three times a week

7. **Please answer both A and B regarding travel time to University each week day.**

(A) If you were to travel from your residence to campus by car, what would the travel time be?

☐☐ Hrs. ☐☐ Mins.

(B) If you were to travel from your residence to campus by bus, what would your travel time be?

☐☐ Hrs. ☐☐ Mins.

8. In the appropriate blanks, please print the hour of day you would likely arrive and leave campus: (please use the 24 hour clock to nearest ¼ hour. e.g.: 1:30 p.m. = 1330 hours)

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Arrive on campus						
Leave campus						