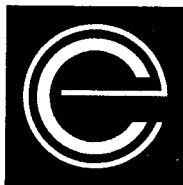


FINAL REPORT ON BOARD TRANSIT SURVEY

Prepared for:

Greater Cleveland Regional Transit Authority

Prepared by:



euclid
CONSULTANTS

A Joint Venture

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- Barton-Aschman Associates, Inc.
- Parsons De Leuw, Inc.
- Robert B. Madison International, Inc.

JULY, 1994

**GREATER CLEVELAND
REGIONAL TRANSIT AUTHORITY**

FINAL REPORT

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April 1994

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1.

Introduction

In order to meet the data requirements for a new travel demand model an on-board transit survey was conducted. The model will be used by GCRTA to prepare patronage forecasts for the Dual Hub Corridor. This survey included the surface street fixed bus route system, the Blue and Green line and Red Line rail facilities. The survey data was collected in the late fall of 1993.

There were two basic objectives underlying this survey:

- **Primary**
Provide transit passenger data adequate to calibrate mode split model to be used to estimate patronage.
- **Secondary**
To ensure that the collection method and data collected would provide a useful adjunct to the route review/analysis process

This report documents the procedures used in the survey and presents initial findings. The major chapters are Executive Summary, Survey Design, Conduct Survey, and Results. A Manual of Instruction and a Manual of Entry and Coding Procedures are included as Appendices.

Content (Continued)

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2. Executive Summary

A. Survey Design

The sample design for the on-board transit survey was a two stage sample of weekday bus service and blue, green, and red line rail service. The first stage was a sample of bus trips and rail trips stratified by route branch and direction. The bus and rail trips were sequenced by departure time within block (all trips for a vehicle for a 24 hour period) and clusters of trips from a block were selected as samples. The effect of ranking trips by departure time was in effect to stratify by time of day.

The second stage of the design was a *defacto* sample of boarding passengers. Each boarding passenger was given a questionnaire (but each issued questionnaire was not returned completed).

The red line was surveyed by counting all passengers entering each station on the red line by hour of the day. A questionnaire was handed to a sample of these entering passengers.

The questionnaire utilized in the on-board surveys was of a self enumeration type with self coding features. The questionnaire and questions are presented in detail in Chapter 3.

During the conduct of the survey two estimates of boarding passengers for a sampled bus trip were made; (1) an enumerator on board the bus tallied the number of boarding passengers by black and non-black and (2) a questionnaire was handed to each boarding passenger. The number of questionnaires distributed can be estimated from the serial number of the first and last questionnaire handed out. The two estimates of the number of boarding passengers should basically be the same. For purposes of estimation of total boardings, however, the estimate based upon distributed questionnaires was used.

The total number of bus trips on the streets on a typical weekday was 6,501 trips. The number of sampled bus trips was 1,272 or a sample of almost 20%. The sampling process first ranked the bus routes in descending order of estimated patronage. The top ranked 44 routes, which are estimated

carry over 92% of the bus patrons, were sampled individually. The design called for two bus trips in each of the six time periods in a day for each direction. The number of trips sampled (1,272) are presented by Hastus Route number (see Table 3.3 in Chapter 3).

The questionnaires were each given a unique serial number. For each sample trip, a separate document, the trip log, was maintained by the survey enumerator riding the sampled bus trip. The enumerator recorded the serial number of the first questionnaire distributed on the trip and the serial number of the questionnaire following the last distributed questionnaire on that trip. In addition the route name, number, departure time, arrival time, boarding tables, and so on were also recorded on the log. These serial numbers tie the individual questionnaires to the bus trip to which the responses refer.

B. Summary Results of the On-Board Survey

This section briefly summarizes the results of the on board survey question by question. The actual questionnaires are presented in Figures 1, bus survey and Figure 2; rail survey. They are essentially the same.

Question 1 Have you previously completed a form on another bus/rapid trip?

This question was intended to let the passenger on a sampled transit trip understand that even if he had previously received a questionnaire, it was desired that he complete the questionnaire just received. It is also a measure of how many passengers have received two or more questionnaires. Even if the entire survey were completed in a single day, it would be possible to be sampled twice or even more often, depending upon the number of buses ridden. Overall, 92% of the passengers completing questionnaires indicated that this was the first questionnaire received. Bus passengers indicated the same while the figure for light rail was 94% and for the Red Line 89% (see Table 5-3 in Chapter 5).

Question 2 Where did you get on this bus?

This question requests the intersecting streets of the bus stop at which the passenger boarded the sampled bus trip.

Question 3 Where did you come from before you got on the bus/rapid?

The responses to this question regarding the purpose at the origin of the trip is presented in Table 5-4 for bus and rail. Responses to this question were high; 99.76% overall, and 99.78%, 100% and 99.37% for bus, light rail and Red Line respectively.

Trips originating from home amounted to 54% with light rail somewhat higher at 61% and Red Line lower at 48%. Some 26% of transit passengers originated at work with 24%, 30% and 36% respectively for bus, light rail and heavy rail.

Shopping trip origins amounted to 3% of all trips by transit with bus passengers being the predominant shoppers. Bus and heavy rail serves the student population with school trips amounting to 10% overall with bus and heavy rail at 10% and 8% respectively. Medical/Dental origins were less than 2% overall and only .24% for heavy rail. Visiting/recreational origins came to 4% overall with light rail at 3% and heavy rail at 2%. Practically nobody riding transit originates at hotels; less than one quarter of one percent overall. Airline related is a niche use of the Red Line with 1.66% of its origins being airline related compared to .02% and .46% respectively for bus and light rail.

Bus passengers amounted to 84% of all transit trips with 7.5% and 8.6% carried by light rail and heavy rail respectively.

Question 4 What is the address of that place?

The question requests the origin location of the traveller. An address, an intersection, or a unique place name was an acceptable response. A tabulation of the origins and destinations by District is presented in Appendix D.

Question 5 How did you get to this bus/rapid?

The responses to this question are presented in Table 5-5 for the three types of service. The response to this question was very high with 99.89% responding. The predominant mode of access is walking with 77% of the responding listing that mode. However, walking as a submode of access is predominantly associated with buses at 81.46%. Walk to light rail is 60.11% and to heavy rail 48.64%. Arrived by automobile is a very important mode of access for transit with almost 7% of all transit trips arriving by auto. However, the auto serves light rail and heavy rail with 20% of arrivals to rail compared to only 4% for bus. About two out of three auto arrivals to rail are drivers while for buses, the drivers are about one in three. The other major mode of access is transfer from another bus/rapid. Overall 16% of passengers access the bus by transferring. Heavy rail has almost twice that rate at 31% with light rail at 19% and bus at 14%.

Question 5-1 If you walked to the bus/rapid how many minutes did your walk trip take?

The response to this question was very high as shown in Table 5-6; 19 out of 127,204 responses, or only .01% did not respond. The median walk time overall was 3.4 minutes. A distinct tendency to round to the nearest 5 minutes is apparent. The median time walked for heavy rail, light rail, and bus was 5.35 minutes, 5.21 minutes, and 3.26 minutes respectively. Overall, 98.5% of all walk trips were 15 minutes or less.

Question 6 What method of payment did you use to board this bus?

Paid cash was the response of 36% of the passengers with 36%, 34% and 32% respectively the response for bus, light rail and heavy rail. For light rail the next most frequent forms of fare payment were express ticket, 18.98%; express weekly, 15.3%; express monthly, 9.3%; and transfer 10.57%. The remaining 12% for light rail was spread over local, student, senior/disabled, and ticket. Heavy rail fare categories by size were express weekly, 16.8%, express ticket, 14.1%, transfer, 17.1% and express monthly of 8.3% for a total including cash of 32.14% of 88.45%. Buses had 2/3 of their fares in the transfer, cash, and express categories. Fully 34% of the bus fares were allocated to the local fares, senior/disabled, student and 50¢ tickets (see Table 5-7).

Question 7 Where will you get off the bus?

This question requests the bus stop of alighting.

Question 8 Where will you go after you get off the bus/rapid?

This question is concerned with the purpose of the trip maker at the destination (see Table 5-8). The major purpose is home for 41% of the respondents. This is the same response percentage as bus passengers. Light rail, at 37%, is slightly lower and heavy rail at 46%, is higher. Work is the next major purpose at 34%. Bus, light rail and heavy rail respectively reported 33%, 45%, and 39%. School/college and visiting/recreation with 7.8% and 6.8% are next in magnitude. For both of these purposes bus is highest of the three modes with 8% and 7% respectively. Light rail riders reported 7.8% for school and college and 4.2% for visiting/recreation. Heavy rail riders report 5.3% for school/college and 4.1% for visiting/recreation.

Question 9 What is the address of the place that you are going to?

This question request the destination location of the destination location of the sampled bus traveler. Acceptable responses were address, intersection or place name. A summary of destinations by purpose by district can be found in Appendix D.

Question 10 How will you get from this bus or rapid to the place to which you are going?

The bulk of the responses to this question were walk with a percentage of 78.87% (see Table 5-10). The percents mode of egress for bus, light rail and heavy rail are 82%, 64% and 52% respectively. Transfer is the next largest mode of egress at 16.64%. The transfer percentage for bus, light rail and heavy rail respectively are 14%, 24% and 36%. Drove auto is highest for heavy rail at 7.7% with light rail and bus following at 6.8% and 1.4% respectively. Because rail serves the central area of Cleveland from the east, both egress and access submodes of travel are

better understood when analyzed by direction. A separate technical memo discusses this for light rail.

Question 10-1 If you walked from the bus/rapid, how many minutes did your walk trip take?

The median time for walk egress overall was 3.5. For buses, walk egress was 3.3. Light rail walk egress is 5.2 minutes and heavy rail egress is 5.4 minutes (see Table 5-11).

Question 11 How many transfers to another bus/rapid did you make during this trip?

The responses to this question are presented in Table 5-12. Bus passengers report transferring the most frequently. Some 39% report one transfer and an additional 9% report two or more transfers. Heavy rail passengers reported transferring two or more times for almost 12% of their responses and 30% reported one transfer. For light rail passengers, 22% reported one transfer and 7% report two or more transfers.

Question 12 How many motor vehicles in running condition are available for use by household members?

Overall, 37.25% of the respondents indicated that no cars were available (see Table 5-13). Bus passengers reported origination from zero car households for 39% of the cases, 27.4% of heavy rail passengers reported zero cars available at their household and 24% of light rail passengers reported zero car availability at the household. One car households ranged between 32% and 34% of all passengers. Two car households were reported by 35% of light rail passengers with 26.5% reported by heavy rail. Bus passengers reported 19.4% of their households were two car households. Three or more car households were reported by 11.6%, 8.1% and 6.7% by heavy rail, light rail, and bus passengers respectively. Another way to assess car availability is to calculate the number of cars per household by mode of transit travel as shown below:

<u>Transit Mode</u>	<u>Cars Available Per Household</u>
Bus	.93
Light Rail	1.25
Heavy Rail	1.23

Rail passengers obviously come from households with higher car ownership than bus passengers.

Question 13 Did you have a car available for the trip?

Two thirds of the passengers reported that no car was available to them to make the trip for which transit was used. However 71% of bus passengers reported no

car available, compared to 53.6% and 47.3% respectively for heavy and light rail (see Table 5-14).

Question 14 Are you male or female?

For the whole system 62% of the passengers are female and 37% male (1% did not respond, see Table 5-15). Even more females ride the bus system at 63.6%. However for the rail passengers the female ridership was 51% and 52% respectively for light and heavy rail.

Question 15 What is your age group?

The distribution of age group responses by sub-mode of transit used is presented in Table 5-16. The median age by submode of transit is shown below.

<u>Submode</u>	<u>Median Age</u>
Bus	35.0
Light Rail	35.0
Heavy Rail	35.6
Total	35.0

The median age does not vary by submode of transit used. However, under age 17 and over age 65, bus is more frequently used than is rail.

Question 16 Employment Status

Employment status by submode of transit is presented in Table 5-17. Full-time and part-time employees represent 73% of the ridership. Students are 13% followed by retirees, 4%, unemployed, 4%, and homemakers, 3%. This accounts for 97% of the ridership. Full-time employees represent 73% of the use of rail transit while for buses that figure is 54%. The difference is comprised of higher proportions of homemakers, students, retirees and unemployed using the bus systems.

Question 17 The combined annual income of all members of my household is:

Respondents were reluctant to provide these data. Some 11% refused to provide income data (see Table 5-18). The median income by submode of transit is shown below:

<u>Submode</u>	<u>Median Income</u>
Bus	\$ 18,947
Light Rail	\$ 35,021
Heavy Rail	\$ 26,398
Total	\$ 20,493

Overall, the median income for all passengers was \$20,493. Bus passengers' median income was \$ 18,947 and the median income for responding heavy rail passengers was \$20,398. Median income for light rail users was substantially higher at \$35,021.

Question 18 What is your ethnicity?

Five ethnicity categories were presented to the passengers and their responses are shown below (also see Table 5-19):

<u>Ethnicity</u>	<u>Passenger Response</u>
Black	53.94%
Hispanic	2.75%
Oriental	81.0%
White	39.11%
<u>Other</u>	<u>3.05%</u>
Sub Total	99.66%
Non-Response	.33%
Total	99.99%

The predominant ethnic groups are white and black and together they constitute 93% of the ridership. The major difference in submode of transit is between heavy rail which has a higher white than black percentage of ridership.

Selected cross tabulations of the survey responses are presented in Section V Survey Results.

3. Survey Design—Buses

A. Sample Size

Two Stage Sample Design

The sample design for the on-board bus survey was a two stage sample of weekday bus service. The first stage was a cluster of bus trips stratified by hastus (branch of route), by direction. Since trips were sequenced by departure time, this effectively acted as stratification by time of day.

The second stage of the sample was a defacto sample of boarding bus passengers on a sampled bus. Each boarding passenger was issued a questionnaire, but not every issued questionnaire was completed and returned. Thus the defacto sampling rate was the ratio of returned completed questionnaires to issued questionnaires. The issued number of questionnaires constitutes a count of boarding passengers. In addition, the on-board surveyor tallied the boarding passengers on his sampled bus route by two categories; black and non-black. The sum of those two tallies should generally correspond to the number of questionnaires issued although an exact correspondence is not expected. The use of the black and non-black counts could be used to estimate the split of boardings on a sampled bus trip. It was hoped that this stratification might correct for biases (if any) in the response rates of these two groups.

The Universe of Weekday Service

The estimated ridership of the GCRTA bus system in 1992 is presented in Table 3-1. This table presents annual passengers, cumulative ridership and cumulative percent of total ridership in thousands, by line. The lines have been ranked by volume of 1992 boarding passengers.

Table 3-1
Estimated 1992 Annual Passengers by parent Route in Sequence by
Boarding Passenger Volume

CLEVELAND SYSTEM			
Parent Route	Annual Passengers (1000's)	Cumulative Annual Passengers (1000's)	Cumulative Percent of Total Passengers
6	4424	4424	9%
10	2376	6800	14%
1	2332	9132	19%
14	2240	11372	24%
3	2131	13503	28%
15	2036	15539	33%
22	1821	17360	36%
20	1754	19114	40%
26	1697	20811	44%
47	1442	22253	47%
28	1378	23631	50%
9	1293	24924	52%
55	1264	26188	55%
40	1140	27328	57%
48	1019	28347	60%
41	944	29291	61%
19	939	30230	63%
79	912	31142	65%
75	832	31974	67%
32	805	32779	69%
51	738	33517	70%
39	717	34234	72%
35	639	34873	73%
30	594	35467	74%
16	553	36020	76%
23	546	36566	77%
50	539	37105	78%
81	522	37627	79%
25	512	38139	80%
12	468	38607	81%
7	440	39047	82%
86	440	39487	83%
4	429	39916	84%
76	420	40336	85%
90	416	40752	86%
11	395	41147	86%
37	392	41539	87%
77	365	41904	88%
24	347	42251	89%
2	345	42596	89%
34	341	42937	90%
8	340	43277	91%
38	336	43613	92%
82	332	43945	92%

Table 3-1 (Continued)
Estimated 1992 Annual Passengers by parent Route in Sequence by
Boarding Passenger Volume

CLEVELAND SYSTEM			
Parent Route	Annual Passengers (1000's)	Cumulative Annual Passengers (1000's)	Cumulative Percent of Total Passengers
78	280	44511	93%
83	262	44773	94%
91	252	45025	95%
70	236	45261	95%
5	201	45462	95%
97	177	45639	96%
88	169	45808	96%
43	148	45956	96%
36	126	46082	97%
68	126	46208	97%
18	123	46331	97%
65	101	46432	97%
87	101	46533	98%
45	100	46633	98%
33	97	46730	98%
46	92	46822	98%
31	85	46907	98%
84	80	46987	99%
44	78	47065	99%
69	75	47140	99%
98	62	47202	99%
94	57	47259	99%
96	52	47311	99%
73	51	47362	99%
49	49	47411	100%
64	48	47459	100%
71	39	47498	100%
92	35	47533	100%
62	31	47564	100%
54	30	47594	100%
53	23	47617	100%
42	9	47626	100%
89	9	47635	100%
Total	47635	47635	100%

Line 6 is at the head of the list because it had the highest volume of boarding passengers, 4,424,000 passengers in 1992. Lines 42 and 89 fall at the bottom of the table because they had an estimated annual boarding volume of 9000 in 1992 or about 30 passengers per average weekday. Total ridership was estimated to be 47,635,000.

Selection of Buses

The bus routes were ranked in descending sequence of total annual ridership from high to low based on the 1992 annual route performance evaluation, as shown in Table 3-1. The top 20 routes representing 25.6% of all routes carried 69% of the patrons. The next 20 routes carried 30% of the patronage. The remaining 38 routes (almost half of the total routes) carried only 11% of the patronage.

The top ranked 44 routes, which carried over 92% of the patronage and represented 56% of the routes, were sampled individually. Every third route of the remaining 34 routes, carrying less than 8% of the total patronage in 1992, was sampled.

A route is further subdivided into route branches. Each of the branches of the major routes (the first 44 in patronage) was sampled.

To ensure representation by time of day and direction, the routes and route branches were summarized by time of day, by direction, block within route and garage. For a route, a block(s) or block subdivision(s) was selected so as to ensure that two trips for each direction and time period would be included among that routes sample. However, service was not always sufficient to meet this criterion, and in some cases the criterion was relaxed to drop direction for very early AM, mid day, and evening trips.

Parent Vs Hastus Route Number

The total weekday bus service by GCRTA is presented in summary form by time of day, direction and route in Appendix A, Table A-1 and A-2. Table A-1 presents the data by parent bus route numbers in the GCRTA system and Table A-2 presents the same data except organized by hastus route. Each hastus route is a branch or variation of the parent route. Altogether there are 6501 bus trips on a typical weekday.

The summary distribution by weekday trips by time of day is presented in Table 3-2.

The data in Table 3-2 indicates an east west orientation of service that is about 70% greater than the north south, at least in terms of trips. The time of day stratification indicates an early morning bus (before 7AM) service of almost 12% and an owl service (between 11PM and 5:00 AM) of about 5% . The biggest time period is mid day; this service over the seven hours of service comes to about 5.4% per hour. The AM peak is 7.4% per hour and the PM peak is 8.1% per hour.

Sampled Bus Trips

The actual sampling of the bus trips involved the examination of each bus block in hastus route sequence, but proceeding from major parent to minor route, as shown in Table 3-1. For each route or hastus route to be sampled, a block(s) was selected to cover both the full hours of operation and both directions of travel. In general, the selection was comprised of consecutive trips in one block or block section for an 8 or 9 hour period beginning in the AM and a group of

Table 3-2
Summary of Weekday Bus Service by Time of Day and Direction

Direction	Time of Day						TOTAL	PERCENT
	5:00 6:59	7:00 8:59	9:00 15:59	16:00 17:59	18:00 12:59	23:00 4:59		
N	174	190	411	145	188	44	1152	17.7%
S	125	150	419	220	199	50	1163	17.9%
E	230	289	770	340	282	107	2018	31.0%
W	227	299	775	319	269	112	1981	30.5%
I	4	16	54	15	4	0	93	1.4%
O	9	16	53	15	1	0	94	1.5%
TOTAL	769	960	2462	1054	943	313	6501	100%
PERCENT	11.8%	14.8%	37.9%	16.2%	14.5%	4.8%	100%	

consecutive trips from a block to cover the afternoon and evening hours; i.e., two shifts normally would cover a route to be sampled. The goal was to obtain two trips per time period per direction for each route which will give a maximum of 24 trips. However, the minimum trips for five time periods, with directional splits in the two peak periods would require 7 trips.

The 1272 bus trips sampled are summarized by hastus route in Table 3-3.

Blue-Green Sample Trips

The sampled trips for the Blue and Green Lines was obtained by riding two blocks, numbers 6701 and 6703. The total daily trips for both lines was 132 trips in each direction or 264. Riding blocks 6701 and 6703 represented 33 trips in each direction or a sample rate of 25%.

Red Line Sample Trips

The Red line was sampled at each station along the Red Line. Counts were taken by hour, of passengers entering the station. A sample of entering passengers were given the rail questionnaire.

B. Questionnaire Design

The design of the questionnaire corresponded to the information desired from the survey and also to the survey method chosen. The survey method selected was:

does not match raw data.

Table 3-3
GCRTA On-Board Bus Survey—Sample Bus Trip Summaries

HASTUS NUMBER	NUMBER OF TRIPS	HASTUS NUMBER	NUMBER OF TRIPS	HASTUS NUMBER	NUMBER OF TRIPS
1	10	32	12	55AX	25
10	21	32A	9	55CX	20
11	18	32B	1	55NX	1
12	16	32S	4	55SX	15
13	6	32W	8	55X	17
14	32	32X	24	6	27
15	41	34	15	64	1
15A	11	35	16	69	2
15F	5	25F	6	6A	3
15TD	3	37	22	7	28
15X	3	38	32	75	13
16	22	39	19	76F	2
16A	1	39B	4	76X	7
16B	1	39F	11	77	17
18	17	3H	22	78	12
19	10	3T	12	79	37
19F	3	4	29	79A	5
19X	4	40	8	79C	6
2	27	41	20	79P	6
20	4	43B	4	7F	1
20A	28	45	16	7X	1
20B	33	47	8	8	31
22	17	47I	18	81	26
23	5	48	24	81T	2
23E	6	48A	37	82	18
25	17	5	26	86	15
28	39	50	35	86F	2
3	2	51	24	90	23
30	26	51F	7	90F	3
31	2	55	1	96F	2
				TOTAL	1272

- On board distribution of questionnaires to boarding passengers for self enumeration.
- Tally of white and non white boarding passengers on a sample transit trip, by the on-board surveyor.
- Use of serially numbered and sequenced questionnaires to tie boarding passengers to transit the trip (Trip Log Form).
- Recording of bus vehicle number to verify that the surveyor actually was on the assigned bus (or at least saw the vehicle).

The contents for the questionnaire was agreed upon in technical discussions among GCRTA staff and Consultant staff.

The questions and the questionnaire format are presented in Figures 1-2 for the bus survey.

The bus questionnaire was printed on buff and stock 11" x 12" folded to provide 4 pages each 5½" x 12".

Page 1 (left half of Figure 1) contained the letter from the General Manager to the RTA Customer explaining the purpose of the study and asking for the bus rider's assistance.

Page 2 (left half of Figure 2) contains questions 1-8. Page 3; (right half of Figure 2) contains questions 9-18. Finally, page 4 (right half of Figure 1) includes the Business Reply Mail First Class Mail Permit and the GCRTA address.

The questionnaires for the Red, Blue and Green Lines were printed on green card stock and were essentially the same as the bus survey questionnaire except that in general where a bus questionnaire question refers to bus, the rail form refers to "Rapid" (except question 11 which refers to both). The rail questionnaire is presented in Figures 3 and 4.

The forms make maximum use of self coding boxes. Questions 1,3,5,6,8, and 10-18 are largely self coding except for limited open ended responses for questions 3,5,6,8, and 10. Questions 2,4,7 and 9 are bus stop and geographic location questions which require the respondent to give a geographic location.


The data items basically refer to either *trip* characteristics:

- bus stop on and off location
- purpose at trip origin
- purpose at trip destination
- origin location
- destination location
- mode of access to sampled bus
- mode of egress from sampled bus to destination
- fare paid
- number of buses ridden

or *socio-economic/demographic characteristics*:

- motor vehicles available at household
- car availability for this trip
- sex of trip maker
- age of trip maker
- employment status of trip maker
- annual income of trip maker's household
- ethnicity of trip maker

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES




BUSINESS REPLY MAIL
FIRST CLASS MAIL PERMIT NO. 303 CLEVELAND OH

POSTAGE WILL BE PAID BY ADDRESSEE

GCRTA
PO BOX 14928
CLEVELAND OH 44114-9860

NO 044422



Dear RTA Customer:

Improvements to transportation services must be based upon accurate data about passengers' travel patterns and preferences. We need to learn more about your bus trip today in order to plan better services. Please take a moment to fill out this short survey during your ride today on the bus on which you received this questionnaire. If you previously have received a questionnaire, please check in the indicated box and continue filling out this form.

- All information obtained is strictly confidential and will be used for statistical purposes only.
- If you have any questions or need help, the surveyor on your bus will help you.
- Please place your completed questionnaire in the RETURN BOX as you exit the bus, or mail it to us. No postage is needed for mailing.

We appreciate your assistance.



 Ronald J. Iober
 General Manager
 Secretary-Treasurer

Figure 1
Bus Questionnaire

Dear Bus Rider:

Please complete this short survey during your transit ride today. This information will help the RTA plan for improved transit service. Your cooperation is appreciated.

Sincerely,

RTA

1. If you have ALREADY COMPLETED ONE of these forms on another bus/rapid trip, please CHECK HERE AND CONTINUE FILLING OUT this questionnaire. Thank you. ☐

2. WHERE did you get ON THE BUS? (Specify nearest intersection)
Corner of _____ and _____
(Street Name) (Intersecting Street Name)

3. Where did you COME FROM before you got on the bus? (check one only)
1 ☐ Home 4 ☐ School/College 7 ☐ Hotel
2 ☐ Work 5 ☐ Doctor/Dentist 8 ☐ Other _____ (Specify)
3 ☐ Shopping 6 ☐ Visiting/Recreation 9 ☐ Airline passenger or meet/escort passenger

4. What is the ADDRESS OF THAT PLACE? (Question 3)

Number Street (or intersection or place name) City Zip Code

5. How did you get to THIS BUS? (check one only)
1 ☐ Walked _____ minutes 4 ☐ As a passenger in a car parked at transit stop area
2 ☐ Drove my myself 5 ☐ I was dropped off
3 ☐ Transferred from the _____ bus/rapid (Route Number or Name) 6 ☐ Other _____ (Specify)

6. To GET ON (or GET OFF) this BUS I used (check one only)
0 ☐ A Transfer 2 ☐ Local Weekly Pass 6 ☐ Local Ticket
1 ☐ I Paid Cash of \$ _____ 3 ☐ Local Monthly Pass 7 ☐ Express Ticket
4 ☐ Express Weekly Pass 8 ☐ Senior/Disabled Ticket
5 ☐ Express Monthly Pass 9 ☐ Student Ticket
10 ☐ Fifty Cent Ticket

6. WHERE will you get OFF THE BUS? (Specify nearest intersection)
Corner of _____ and _____
(Street Name) (Intersecting Street Name)

8. Where are you GOING TO now? (check one only)
1 ☐ Home 4 ☐ School/College 7 ☐ Hotel
2 ☐ Work 5 ☐ Doctor/Dentist 8 ☐ Other _____ (Specify)
3 ☐ Shopping 6 ☐ Visiting/Recreation 9 ☐ Airline passenger or meet/escort passenger

9. What is the ADDRESS OF THE PLACE THAT YOU ARE GOING TO? (Question 8)

Number Street (or intersection or place name) City Zip Code

10. How will you get FROM THIS BUS TO the place that you are GOING TO? (check one only)
1 ☐ Walk _____ minutes 4 ☐ As a passenger in a car parked at transit stop area
2 ☐ Drive my myself 5 ☐ Have someone pick me up
3 ☐ Transfer to the _____ bus/rapid (Route Number or Name) 6 ☐ Other _____ (Specify)

11. Including this trip, how MANY BUSES AND/OR RAPIDS will you ride to get from where you CAME FROM (Question 2) to where you ARE GOING (Question 9)?
1 ☐ Only one bus/rapid 2 ☐ Two buses/rapids 3 ☐ Three or more buses/rapids

12. How many MOTOR VEHICLES (cars, trucks, vans) in running condition are available for use by members of your household? (check one only)
0 ☐ None 1 ☐ One 2 ☐ Two 3 ☐ Three or more

13. Did you have a CAR AVAILABLE to make this trip?
1 ☐ Yes 2 ☐ No

14. I AM
1 ☐ Male 2 ☐ Female

15. My Age Group is
1 ☐ 13 years or less 3 ☐ 18 - 22 years 5 ☐ 26 - 49 years
2 ☐ 14 - 17 years 4 ☐ 23 - 34 years 6 ☐ 50 - 64 years
7 ☐ 65 years or more

16. I AM
1 ☐ Employed full time 3 ☐ Homemaker 5 ☐ Retired
2 ☐ Employed part time 4 ☐ Student 6 ☐ Unemployed
7 ☐ Other

17. The combined TOTAL ANNUAL INCOME of all members of my household is:
1 ☐ Less than \$10,000 per year 4 ☐ \$30,000 - \$39,999 per year
2 ☐ \$10,000 - \$19,999 per year 5 ☐ \$40,000 - \$49,999 per year
3 ☐ \$20,000 - \$29,999 per year 6 ☐ More than \$50,000 per year

18. I AM
1 ☐ Black 2 ☐ Hispanic 3 ☐ Oriental 4 ☐ White 5 ☐ Other

PLEASE PLACE IN RETURN BOXES ON BUS
THANK YOU FOR YOUR PARTICIPATION

PLEASE CONTINUE

Figure 2
Bus Questionnaire

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

POSTAGE WILL BE PAID BY ADDRESSEE

BUSINESS REPLY MAIL
FIRST CLASS MAIL PERMIT NO. 505 CLEVELAND OH

GCRTA
PO BOX 14928
CLEVELAND OH 44114-9860

RTA

Nº 102886

Dear RTA Customer:

Improvements to transportation services must be based upon accurate data about passengers' travel patterns and preferences. We need to learn more about your rapid trip today in order to plan better services. Please take a moment to fill out this short survey during your ride today on the rapid on which you received this questionnaire. If you previously have received a questionnaire, please check in the indicated box and continue filling out this form.

- All information obtained is strictly confidential and will be used for statistical purposes only.
- If you have any questions or need help, the surveyor on your rapid will help you.
- Please place your completed questionnaire in the RETURN BOX as you exit the rapid, or mail it to us. No postage is needed for mailing.

We appreciate your assistance.

Ronald J. Tober
Ronald J. Tober
General Manager
Secretary-Treasurer

Figure 3

Dear Rapid Rider

Please complete this short survey during your transit ride today. This information will help the RTA plan for improved transit service. Your cooperation is appreciated.

Sincerely,

1. If you have ALREADY COMPLETED ONE of these forms on another bus/rapid trip, please CHECK HERE AND CONTINUE FILLING OUT this questionnaire. Thank you ☐

2. WHAT STOP did you get ON THIS RAPID? (Specify stop)

Name of Stop _____

3. Where did you COME FROM before you got on the rapid? (check one only)

1 ☐ Home 4 ☐ School/College 7 ☐ Hotel
 2 ☐ Work 5 ☐ Doctor/Dental 8 ☐ Other _____ (Specify)
 3 ☐ Shopping 6 ☐ Visiting/Recreation 9 ☐ Airline passenger or
 multi-passenger

4. What is the ADDRESS OF THAT PLACE? (Question 3)

Number _____ Street (or intersection or place name) _____ City _____ Zip Code _____

5. How did you get to THIS RAPID? (check one only)

1 ☐ Walked _____ minutes 4 ☐ As a passenger in a car parked at transit stop area
 2 ☐ Drove my myself 5 ☐ I was dropped off
 3 ☐ Transferred from the _____ bus/rapid 6 ☐ Other _____ (Specify)
 (Route Number or Name)

6. To GET ON (or GET OFF) this RAPID I used (check one only)

1 ☐ A Transfer 2 ☐ Local Weekly Pass 6 ☐ Local Ticket
 3 ☐ I Paid Cash at \$ _____ 4 ☐ Local Monthly Pass 7 ☐ Express Ticket
 5 ☐ Express Weekly Pass 8 ☐ Senior/Disabled Ticket
 9 ☐ Student Ticket
 10 ☐ Family Card Ticket

7. WHAT STOP will you get OFF THE RAPID? (Specify stop)

Name of Stop _____

8. Where are you GOING TO now? (check one only)

1 ☐ Home 4 ☐ School/College 7 ☐ Hotel
 2 ☐ Work 5 ☐ Doctor/Dental 8 ☐ Other _____ (Specify)
 3 ☐ Shopping 6 ☐ Visiting/Recreation 9 ☐ Airline passenger or
 multi-passenger

9. What is the ADDRESS OF THE PLACE THAT YOU ARE GOING TO? (Question 8)

Number _____ Street (or intersection or place name) _____ City _____ Zip Code _____

10. How will you get FROM THIS RAPID TO the place that you are GOING TO? (check one only)

1 ☐ I Walk _____ minutes 4 ☐ As a passenger in a car parked at transit stop area
 2 ☐ Drove my myself 5 ☐ Have someone pick me up
 3 ☐ Transfer to the _____ bus/rapid 6 ☐ Other _____ (Specify)
 (Route Number or Name)

11. Including this trip, how MANY BUSES AND/OR RAPIDS will you ride to get from where you CAME FROM (Question 4) to where you ARE GOING (Question 9)?

1 ☐ Only one bus/rapid 2 ☐ Two bus/rapids 3 ☐ Three or more bus/rapids

12. How many MOTOR VEHICLES (cars, trucks, vans) in running condition are available for use by members of your household? (check one only)

0 ☐ None 1 ☐ One 2 ☐ Two 3 ☐ Three or more

13. Did you have A CAR AVAILABLE to make this trip?

1 ☐ Yes 2 ☐ No

14. I AM:

1 ☐ Male 2 ☐ Female

15. My Age Group is:

1 ☐ 13 years or less 3 ☐ 18 - 22 years 5 ☐ 25 - 40 years
 2 ☐ 41 - 17 years 4 ☐ 23 - 34 years 6 ☐ 50 - 64 years
 7 ☐ 65 years or more

16. I AM:

1 ☐ Employed full-time 3 ☐ Homemaker 5 ☐ Retired
 2 ☐ Employed part-time 4 ☐ Student 6 ☐ Unemployed
 7 ☐ Other

17. The combined TOTAL ANNUAL INCOME of all members of my household is:

1 ☐ Less than \$10,000 per year 4 ☐ \$20,000 - \$29,999 per year
 2 ☐ \$10,000 - \$19,999 per year 5 ☐ \$40,000 - \$49,999 per year
 3 ☐ \$50,000 - \$59,999 per year 6 ☐ More than \$59,999 per year

18. I AM:

1 ☐ Black 2 ☐ Hispanic 3 ☐ Oriental 4 ☐ White 5 ☐ Other

PLEASE PLACE IN RETURN BOXES ON BUS
 THANK YOU FOR YOUR PARTICIPATION

Figure 4

C. Log Design

Next to the questionnaire, the trip log is the most important document utilized in the on-board survey. Separate trip logs were created for the bus, blue/green rapid, and red rapid surveys. Each of the trip logs is discussed and shown below.

Bus Trip Log. The bus trip log controls the recording of the first and last serial numbers of each deck of questionnaires, the start and stop time of the trip, the vehicle number of the sample bus, the start location of the sample trip, and the tally of boarding passengers. The serial numbers of the questionnaires distributed on-board the sample bus allows each individual return to be tied to a specific bus trip, route, direction, and time-of-day. The vehicle number is recorded as a check on the surveyor to ensure that the trip cannot be faked. The start location of the trip is recorded to confirm that the correct sample trip is surveyed. The tally of boarding passengers represents a redundancy since the total number of boardings is also equal to the difference between the last serial number and the first serial number of the questionnaires handed out on the trip. This redundancy is useful as a check on the tallies recorded by the surveyors. The Surveyor's Trip Log for Bus Trips is shown in Figure 5.

Blue/Green Rapid Trip Log. The blue/green rapid trip log is similar to the bus trip log. The document controls the recording of the first and last serial numbers of each deck of questionnaires, the start and stop time of the trip, the vehicle (car) number of the sample rapid, the start location of the sample trip, and the tally of boarding passengers. The main difference is the number of boarding passengers, as well as the number of questionnaires handed out was obtained for each stop during the trip on the rapid. A trip log was produced for each direction of the blue and green line to facilitate recording information. The Surveyor's Trip Logs for the Blue/Green Rapid are shown in Figures 6 through 9.

Red Rapid Trip Log. The red rapid trip log is quite different from the other logs. The number of questionnaires handed out and the number of passengers boarding the red line were kept on separate logs and taken every hour. The document controls the recording of the first and last serial numbers of each deck of questionnaires and the black and non-black counts for every hour of the day. A trip log was produced for an AM shift and PM shift for each count. An example of a Surveyor's questionnaire Distribution Form, (trip log), and the Passenger Count Form for the red rapid are shown in Figures 10 and 11.

D. Procedures

This section describes the overall procedures including field operations which guided the conduct of the on-board bus and rapid survey. The detailed procedures utilized in the on-board survey are presented in the document, *Manual of Instructions* which is reproduced as Appendix B.

1. Sampling

The sample was described in paragraph A of this section of the report.

SURVEYOR'S TRIP LOG

Route Number _____ Route Name _____
 Block Number _____ Assignment Number _____
 Departure Time _____ This Trip Number _____
 (circle one) AM PM
 Day of Week: _____ Total Trips in
 This Assignment: _____
 Driver's Name: _____ Surveyor Assigned: _____

Direction 1 - east 2 - west 3 - north 4 - south 5 - loop 8 - other

Beginning Questionnaire Number

--	--	--	--	--	--	--

1st deck

--	--	--	--	--	--	--

2nd deck

--	--	--	--	--	--	--

3rd deck

Ending Questionnaire Number:

--	--	--	--	--	--	--

--	--	--	--	--	--	--

--	--	--	--	--	--	--

Vehicle Number Painted on Bus

--	--	--	--	--

Start Location:							Tally of passenger boarding the bus	Black	Non-Black	
at								Begin Tally		
Serial Number:								End Tally		

Ending questionnaire number:

--	--	--	--	--	--

Ending Location:

at

Time Trip Ending: (circle one)

--	--	--	--

AM PM

OFFICE USE ONLY (below this line)

-Remarks

Prepared by: _____

Checked by: _____

Figure 5
Surveyor's Trip Log for Bus Trips

Greater Cleveland RTA Surveyor's Trip Log for Rapid

Route Number Green Line	<input type="text"/>			
Block Number	<input type="text"/>	Assignment Number	<input type="text"/>	
Depart Time	<input type="text"/>	AM/PM Trip Number	<input type="text"/>	
Day of Week	<input type="text"/>	Total Trips-Assignment	<input type="text"/>	
Date	<input type="text"/>	Surveyor Name	<input type="text"/>	
Direction Eastbound	<input type="text"/>	Vehicle (Car) Number	<input type="text"/>	
Beginning Questionnaire	<input type="text"/>	<input type="text"/>	<input type="text"/>	
	1st Deck	2nd Deck	3rd Deck	
Ending Questionnaire	<input type="text"/>	<input type="text"/>	<input type="text"/>	
Active Time	<input type="text"/>	Hours	Minutes	AM/PM

Stop Number	Stop Name	Clicker Reading		Serial Number of Next Questionnaire	Comments
		Black	Non-Black		
-	Beginning				
9	Tower City Public Square				
8	East 34 Campus	CLOSED			
7	East 55th				
19	East 79th				
20	Woodhall				
21	East 116th				
22	Shaker Square				
23	Coventry				
24	Southington				
25	South Park				
26	Lee				
27	Attleboro				
28	Easton				
29	Countland				
30	Warrensville				
31	Belvor				
32	West Green				

**Figure 6
Surveyor's Trip Log for the Green Rapid—Eastbound**

Greater Cleveland RTA Surveyor's Trip Log for Rapid

Route Number Blue Line

Block Number Assignment Number

Depart Time AM/PM Trip Number

Day of Week Total Trips-Assignment

Date Surveyor Name

Direction Eastbound Vehicle (Car) Number

Beginning Questionnaire

Ending Questionnaire

1st Deck 2nd Deck 3rd Deck

Arrive Time AM/PM
Hours Minutes

Stop Number	Stop Name	Clicker Reading		Serial Number of Next Questionnaire	Comments
		Black	Non-Black		
-	Beginning				
9	Tower City Public Square				
8	East 34 Campus	CLOSED			
7	East 55th				
19	East 79th				
20	Woodhall				
21	East 116th				
22	Shaker Square				
34	Dreamore				
35	South Woodland				
36	Southington				
37	Onaway				
38	Ashby				
39	Lee				
40	Avalon				
41	Kenmore				
42	Lynnfield				
43	Farmsleigh				
44	Warrensville				

Figure 7
Surveyor's Trip Log for the Green Rapid—Westbound

Greater Cleveland RTA Surveyor's Trip Log for Rapid

Route Number Blue Line

Block Number

Assignment Number

Depart Time

AM/PM Trip Number

Day of Week

Total Trips-Assignment

Date

Surveyor Name

Direction Westbound

Vehicle (Car) Number

Beginning Questionnaire

1st Deck

2nd Deck

3rd Deck

Ending Questionnaire

Arrive Time

AM/PM

Hours Minutes

Stop Number	Stop Name	Clicker Reading		Serial Number of Next Questionnaire	Comments
		Black	Non-Black		
-	Beginning				
44	Wartensville				
43	Farnsleigh				
42	Lynnfield				
41	Kenmore				
40	Avalon				
39	Lee				
38	Ashby				
37	Onaway				
36	Southington				
35	South Woodland				
34	Dresmore				
22	Shaver Square				
21	East 116th				
20	Woodhill				
19	East 79th				
7	East 55th				
6	East 34 Campus				
9	Tower City Public Square				

CLOSED

Figure 8

Surveyor's Trip Log for the Blue Rapid—Eastbound

Greater Cleveland RTA Surveyor's Trip Log for Rapid

Route Number Green Line

Block Number

Assignment Number

Depart Time

AM/PM Trip Number

Day of Week

Total Trips-Assignment

Date

Surveyor Name

Direction Westbound

Vehicle (Car) Number

Beginning Questionnaire

1st Deck

2nd Deck

3rd Deck

Ending Questionnaire

Active Time

AM/PM

Hours Minutes

Stop Number	Stop Name	Clicker Reading		Serial Number of Next Questionnaire	Comments
		Black	Non-Black		
	Beginning				
32	Green				
32	West Green				
31	Belvor				
30	Warrensville				
29	Courtland				
28	Eaton				
27	Atleboro				
26	Lee				
25	South Park				
24	Southington				
23	Coventry				
22	Shaker Square				
21	East 116th				
20	Woodball				
19	East 79th				
7	East 55th				
6	East 34 Campus	CLOSED			
9	Tower City Public Square				

**Figure 9
Surveyor's Trip Log for the Blue Rapid—Eastbound**

Question Distribution Form—Red Line

Station Name _____ Shift ☐ 1 ☐ 2 (Circle One)

Surveyors Name _____

Date _____

Instructions:

1. Record the serial number of the next questionnaire in your dispenser at the beginning of your shift (4 AM or 1 PM).
2. Record the serial number of the next questionnaire in your dispenser every hour in the corresponding space on this form; there must be 9 entries on your form.
3. Give every other person going to the platform a questionnaire. Try to avoid prolonged conversations as this will confuse your distribution duties. Tell them an explanation is on the form.

Questionnaire Serial Numbers

Time	Serial Number	Comments
2 PM		
3 PM		
4 PM		
5 PM		
6 PM		
7 PM		
8 PM		
9 PM		
10 PM		

Figure 10
Questionnaire Distribution Form—Red Line

Question Distribution Form—Red Line

Shift 1 2 (Circle Your Shift)

Station Name _____

Number of Counters _____

Surveyors Name _____

Date _____

Count/Turnstile Description _____

Instructions: Your responsibility is to make an accurate count of every person passing into the station. The count should be taken as the person passes thru the turnstile(s). If your station has another counter working with you, indicate which turnstile or turnstiles you count on this form. Be certain that you do not count the same turnstile or location that is being counted by the other counter.

1. On this form enter clicker readings for each clicker at the beginning of your shift.
2. Every hour on the hour enter on the space corresponding to the hour your clicker readings. **DO NOT RESET YOUR CLICKER COUNTER.**

Questionnaire Serial Numbers

Time	Serial Number
2 PM	
3 PM	
4 PM	
5 PM	
6 PM	
7 PM	
8 PM	
9 PM	
10 PM	

Comments

Figure 11
Passenger Count Form—Red Line

2. *Scheduling Trips*

The scheduling of the sampled bus and blue/green rapid trips was accomplished by transcribing the sampled clusters directly from the headway sheets to a Surveyor's Assignment Sheet. This sheet constituted a days' work assignment for one interviewer. It carried a unique assignment number, range of questionnaires to be used for the assignment, the date of the assignment, and the reporting time and location.

Each sampled trip for an assignment was shown in terms of the trip number, route number, direction, block number, start location, time of departure, end location, arrival time, and surveyor instructions for what to do at the conclusion of a trip. Each day an interviewer was given an assignment sheet and the necessary materials to carry out the survey of his or her assigned buses. At the conclusion of the work assignment, the materials were turned in and the next days' assignment was issued. A copy of the assignment sheet is presented as Figure 12.

Trips were not scheduled for the red rapid, since completely different procedures were used to sample the red line. These procedures are further described in this chapter.

3. *Riding and Surveying Passengers*

The objective of the on-board bus and blue/green rapid surveyor was to ride each sampled trip from the beginning of the trip to the end of the trip and to: (1) count the boarding passengers throughout the trip and tally each boarding passenger by black or non-black on the trip log for that trip, and (2) hand out a self-enumeration questionnaire to each boarding passenger age 5 and over.

The objective of the red rapid surveyor was to randomly hand out questionnaires to red rapid riders, while obtaining a total red rapid passenger count by black and non-black for their assigned station by hour of the day.

In conducting this work, the surveyor needed to understand the basic terms, install and use the required equipment, and follow prescribed procedures:

Definition of Terms

- ***Bus/Rapid Trip.*** A one-way movement of a bus/rapid from the beginning of a route to the end of the same route. It is not a round trip.
- ***Route.*** The geographical path followed by a bus/rapid from start to finish of a given trip. Several bus routes may travel over a single portion of roadway.
- ***Run.*** A driver's work for one full day.
- ***Block.*** All of the trips which a particular bus/rapid vehicle makes in one day of operation.
- ***Bus/Rapid Stop.*** A location on a bus/rapid route where a bus/rapid may stop to pick up and/or discharge passengers.
- ***Stop On.*** The bus/rapid stop where a person boards a bus.
- ***Stop Off.*** The bus/rapid stop where a person gets off a bus.

[illegible]

Figure 12

Surveyors Assignment Sheet

- **Transfer Passenger.** A passenger who uses a transfer to board the bus/rapid in lieu of paying a cash fare or using a pass.
- **GCRTA.** Greater Cleveland Regional Transit Authority. The agency which operates the system on whose buses and rapids the survey is being conducted.
- **Origin.** The place from which a person first leaves from on the trip that they are making.
- **Destination.** The place to which a person goes on the trip that they are making.

Survey Materials

Specially designed equipment was used for the surveying of the bus, as well as the rapid. The equipment was installed by the surveyors as directed. These items of equipment were helpful to the riders in completing the questionnaire and returning the completed questionnaire.

1. Return Boxes

Each interviewer's kit included two boxes used by bus/rapid riders to return survey questionnaires when leaving the bus/rapid. These boxes were hung on the railings by the doors located in the front and back of the bus. For the blue/green rapid survey, the boxes were hung on the railing within the car that was being surveyed. For the red rapid survey, the boxes were placed at all stations in easy-to-see locations. Velcro fastening materials were included in the kit for attaching the return and pencil boxes.

2. Pencil Boxes

Two boxes with pencils were provided to the Surveyor, for those respondents who asked for pencils.

3. "Survey Today" Signs

Each kit contained two "Survey Today" signs, which were used to alert boarding passengers that a survey was being conducted on that bus/rapid. The signs were placed in the front window (on the right side) and/or easily spotted locations within the car or station.

Surveyor Materials

1. Identification

An identification badge was issued which showed that the surveyor was authorized to conduct a survey on the bus.

2. Clipboard/Dispenser/Counters

Each kit contained a clipboard and a questionnaire dispenser to use during the course of the assignment. Thumb counters were attached to the clipboard for ease in counting black and non-black riders.

3. ***Survey Questionnaires***

The kit contained enough questionnaires for an entire day's work. Survey questionnaires were prepackaged in groups of 100 surveys called decks, for convenient handling.

4. ***Surveyor's Trip Logs***

The appropriate surveyor's trip log was issued for use on each assigned bus/rapid trip or station.

5. ***Return Envelopes***

Return envelopes for each bus/rapid trip were assigned. The envelopes were used to store the returned survey forms and completed trip logs.

6. ***Plastic Sack***

A plastic sack to keep the entire kit of materials together in one place and dry.

7. ***Watch***

A reliable watch was required for all survey personnel while conducting the survey. This eliminated missed departure times and inaccurate recording of times on the trip log.

8. ***Change***

The surveyors carried at least \$2.00 each day in quarters for use in making phone calls to the supervisor. Money spent on calls was reimbursed.

9. ***Surveyor's Bus Trip Assignment Sheet***

This sheet listed the bus trips which were assigned to individual surveyors each day.

Bus Procedure Checklist

The detailed bus procedures are described in the *Manual of Instructions* in Appendix B. However, the essential procedures required of each on-board surveyor are summarized in the following checklist:

- Pick up work assignment from supervisor.
- Locate the correct bus. Look for a route name and number at the time of day corresponding to the departure time on the log. Check in with the driver. (If starting at a garage, check in with the Supervisor/Dispatcher first.)

- Install the equipment:
 - "Survey Today" sign;
 - Return boxes; and
 - Pencil Boxes.
- Prepare trip log and questionnaires:
 - Record the serial number of first questionnaire on log .
 - Record the beginning tally for black and non-black passengers.
 - Enter time of trip beginning.
 - Sign the log.
- Place materials not in use in the seat beside you, or if the bus is crowded, place it on the floor or behind the drivers seat.
- Distribute a questionnaire to each boarding passenger.
- Count the passengers as they board the bus:
 - One thumb counter for black passengers
 - One thumb counter for non-black passengers
- Conclude the work assignment:
 - Record on the surveyor's trip log and in "Ending Questionnaire Number" the serial number of *next* available survey form.
 - Record the time of day in "end time" on the surveyors trip log.
 - Place returned questionnaires and completed trip log in current trip envelope.
 - If the completed trip is the last trip assigned on that bus, remove survey equipment and get off the bus and follow the instruction on your assignment sheet.
- Prepare for the next trip.

Blue/Green Rapid Procedure Checklist

The procedures for the blue/green rapid survey are similar to the procedures for the bus survey. The essential procedures required for the blue/green rapid survey are summarized in the following outline:

- Pick up work assignment from supervisor. Two surveyors and one supervisor were assigned per blue/green car. The survey was conducted on two blocks between 6:00 AM and 8:00 PM.

- Locate the correct car. Look for a route name and block number at the time of day corresponding to the departure time on the log. Check in with the driver.
- Install the equipment:
 - "Survey Today" signs;
 - Return boxes; and
 - Pencil Boxes.
- Prepare trip log and questionnaires:
 - Make sure trip log is correct log for direction and color of line.
 - Record the serial number of first questionnaire on log.
 - Record the beginning tally for black and non-black passengers.
 - Enter time of trip beginning.
 - Record the car number and sign the log.
- Place materials not in use in the seat beside you, or if the rapid is crowded, place it on the floor.
- Distribute a questionnaire to each boarding passenger. During the peak time, questionnaires were distributed to a sample of boarding passengers. (During the peak time two surveyors counted the passengers boarding the three doors, while the supervisor handed out questionnaires.)
- Count the passengers as they board the rapid:
 - One thumb counter for black passengers
 - One thumb counter for non-black passengers
- Record the serial number of the next questionnaire and the ending black and non-black tally at each stop.
- Conclude the work assignment:
 - Record on the surveyor's trip log "Ending Questionnaire Number" the serial number of *next* available survey form.

- Record the time of day in "arrive time" on the surveyor's trip log.
- Place returned questionnaires and completed trip log in current trip envelope.
- If the completed trip is the last trip assigned on that rapid, remove survey equipment, get off the rapid, and follow the instructions on your assignment sheet.
- Prepare for the next trip.

Red Rapid Procedure Checklist

The procedures for the red rapid survey are different from the procedures for the bus survey. The procedures for the red rapid survey are summarized in the following outline:

- Pick up work assignment from supervisor. The survey was conducted between 5:00 AM and 10:00 PM. The survey was split into two shifts, an AM and PM shift.
- Locate the assigned station. Two to four surveyors were assigned to each station along the red line depending on the potential ridership at that station.
- Install the equipment at the station:
 - "Survey Today" signs;
 - Return boxes; and
 - Pencil Boxes.
- Prepare trip log and questionnaires:
 - Make sure trip log is correct log for station and shift.
 - At the hour, record the serial number of first questionnaire on log.
 - At the hour, record the tally for black and non-black passengers.
 - Sign the log.
- Distribute questionnaires to every other boarding passenger. During the peak times increase the frequency.
- Count the boarding passengers as they go through the turnstile:
 - One thumb counter for black passengers
 - One thumb counter for non-black passengers
- Record the ending questionnaire number and ending tally at each hour.
- Conclude the work assignment:
 - Record on the surveyor's trip log "Ending Questionnaire Number" the serial number of *next* available survey form.
 - Place returned questionnaires in the envelopes as the Return boxes are filled.
 - If it is the last hour of the shift assigned at that station, remove survey equipment and meet your supervisor.
- Continue survey and prepare for the next hour.

4.

Conduct Survey

This section of the report reviews the pretest, the survey, coding and computer checks, and factoring of the data.

A. Pretest

In order to verify the survey instruments and procedures a pretest of the bus on-board survey was conducted on Wednesday, October 2, 1993. The objectives of the pretest were:

- To verify that the data desired by GCRTA would be obtained by the questionnaire.
- To verify that the bus trip log and other control documents would accomplish the task of managing boarding counts and questionnaire serial sequences, and
- To confirm that the procedures are understood and workable by the survey staff.

A sample of twenty-four bus trips was selected from six routes for the pretest. Surveyors were trained on the previous Tuesday in the use of the assignment sheet and surveyor log. They were also instructed in setting up the pencil and return boxes on the buses to be surveyed. The surveyors rode the pretest sample buses and tallied all boarding passengers on the trip log, handed out questionnaires to passengers, and followed all instructions relating to the on-board bus procedures.

Following the completion of the pretest the surveyors were debriefed to identify problems encountered during the pretest. The trip logs were carefully edited to verify that the serial numbers were properly entered and that the tally of boarding passengers was correct when matched against the number of questionnaires handed out. A frequency distribution of responses for each question was prepared. Minor changes to the questionnaire and control documents were made based on the results of the pretest.

B. Survey Conduct

The survey was put in the field on November 1, 1993, after each surveyor had undergone a training session and had ridden at least one bus trip and successfully carried out the necessary procedures. The surveyors were from Olsten Downtown Temporary Services and lived within the study corridor. Citizens within the study corridor were utilized as much as possible. Procedures outlined in the preceding chapters were utilized. A total of 1272 sample trips were ridden.

For the most part, surveyors were assigned a group of consecutive trips to ride in the same block for the same day for a given route. These assignments were typically given to the surveyor by a supervisor at a GCRTA bus garage or downtown at the GCRTA offices. Where feasible, block or block segments were assigned with either a "pull-in" or "pull-out" segment so that the surveyor was not required to drive or be transported to or from some location other than the original location. Pulling out of the garage tended to ensure the boarding of the correct bus because the GCRTA dispatcher was available to point out the correct bus. However, when the use of "pull out"/"pull in" segments was not appropriate for a particular cluster of sample bus trips, the assignment sheet designated a bus to get to the first sample bus trip or from the last sample bus trip.

Meal breaks were built into the assignment and every effort was made to avoid stranding a surveyor in the field. Surveyors were met by a supervisor at the GCRTA garage or GCRTA office to give the surveyor his assignment for the day and at the garage or RTA office at the end of the day to pick up the completed assignment.

The completed work was reviewed immediately to verify that the surveyor was correctly following procedures and to ensure that logs were completed and that log tallies and questionnaire sequence numbers were consistent.

The questionnaires and trip logs were edited and coded following the *Edit and Coding Manual* as presented in Appendix C.

C. Coding and Computer Checks

1. Coding and Editing Check

In order to ensure that the integrity of the data was maintained throughout the editing, coding, and keypunching process a number of quality control checks were established. The bus/rapid trip logs were first edited for completeness and accuracy, the questionnaires were examined and preliminary complete and refused percentages established for each trip, and computer contingency checks were performed to guarantee that the data obtained from the questionnaire was reasonable.

The editing process determined whether precise and complete information had been obtained for each sampled bus/rapid trip. Trip logs were examined to ensure that the necessary data was recorded from the trip selected in the sampling process. This was done by comparing the assignment number, route number, trip number, route name, departure

time, and date to the work assignment sheet. The begin and end questionnaire numbers noted on the log must match the corresponding range of questionnaire numbers inside the envelope. For the bus trips, the tally of boarding passengers and the total number of questionnaires distributed must also match. Failure on any of these points was potential grounds for rejection of the surveyed trip.

The editing process also provided preliminary estimates of the number of completed returns, the number of blank returns, and the number of rejections. If the percent returned complete was low, or conversely the percent rejected high, the surveyor was either retrained, reassigned, or released.

2. *Computer Checks*

After data entry of the questionnaires, the following computer edits were undertaken.

a. *Impossible Code Checks*

For questions 1, 3, 5, 6, 8, and 10 through 18, only one code was permitted per field. When the questionnaires were originally data entered, a data entry shell was implemented which would not allow an impossible code to be entered or the field left blank. However, to insure that no incorrect entries were allowed to find their way into the file, the fields for these questions were checked for blanks and multiple punches. The results of this check revealed no errors

Also, a frequency distribution of the responses to each of these questions was prepared and reviewed. These are presented in for bus trips only in Table 4-1.

b. *Field Checks*

The following logical inconsistencies were developed for testing:

1. If the response at the trip origin was home ($Q3 = 1$), then the purpose of the trip destination could not equal home ($Q8 \neq 1$)
2. If the access to the bus was walk ($Q5 = 1$), then the fare should not be a transfer ($Q6 \neq 0$).
3. If the access to the bus was a transfer ($Q5 = 3$) and the egress for the bus was walk ($Q10 = 1$), then the number of buses ridden should not be one ($Q11 \neq 1$).
4. If the access to the bus was a transfer ($Q5 = 3$) and the egress from the bus was a transfer ($Q10 = 3$), then the number of buses ridden should equal three or more ($Q11 = 3+$).

Table 4-1
Questionnaire Frequency Distribution

Previous Completion of Form Status				
Q1	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Not completed	10223	91.1	10223	91.1
Completed	996	8.9	11219	100.0

Where Respondent Came from Before Bus				
Q3	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	72	0.6	72	0.6
Home	5910	52.7	5982	53.3
Work	2899	25.8	8881	79.2
Shopping	370	3.3	9251	82.5
School/College	1107	9.9	10358	92.3
Doctor/Dentist	216	1.9	10574	94.3
Visit/Recreation	435	3.9	11009	98.1
Hotel	31	0.3	11040	98.4
Other	175	1.6	11215	100.0
Airline Related	4	0.0	11219	100.0

Mode of Access to Bus				
Q5	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	59	0.5	59	0.5
Walked	8694	77.5	8753	78.0
Drove Alone	231	2.1	8984	80.1
Transferred	1881	16.8	10865	96.8
Passenger	21	0.2	10886	97.0
Dropped Off	309	2.8	11195	99.8
Other	24	0.2	11219	100.0

Table 4-1 (Continued)
Questionnaire Frequency Distribution

Q6	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Transfer	1560	13.9	1560	13.9
Paid Cash	3879	34.6	5439	48.5
Local Weekly	1713	15.3	7152	63.7
Local Monthly	504	4.5	7656	68.2
Express Weekly	808	7.2	8464	75.4
Express Monthly	493	4.4	8957	79.8
Local Ticket	459	4.1	9416	83.9
Express Ticket	712	6.3	10128	90.3
Senior/Disabled	429	3.8	10557	94.1
Student	524	4.7	11081	98.8
50 Cent Ticket	58	0.5	11139	99.3
No Response	80	0.7	11219	100.0

Where Respondent Went to After Bus

Q8	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	98	0.9	98	0.9
Home	4747	42.3	4845	43.2
Work	3461	30.8	8306	74.0
Shopping	636	5.7	8942	79.7
School/College	910	8.1	9852	87.8
Doctor/Dentist	267	2.4	10119	90.2
Visit/Recreation	817	7.3	10936	97.5
Hotel	12	0.1	10948	97.6
Other	268	2.4	11216	100.0
Airline Related	3	0.0	11219	100.0

Table 4-1 (Continued)
Questionnaire Frequency Distribution

Mode of Egress from Bus				
Q10	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	250	2.2	250	2.2
Walked	8780	78.3	9030	80.5
Drove Alone	203	1.8	9233	82.3
Transferred	1757	15.7	10990	98.0
Passenger	32	0.3	11022	98.2
Picked Up	157	1.4	11179	99.6
Other	40	0.4	11219	100.0

Number of Bus/Rapid Rode during Trip				
Q11	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	337	3.0	337	3.0
1 bus/rapid	5472	48.8	5809	51.8
2 bus/rapid	4334	38.6	10143	90.4
3+ bus/rapid	1076	9.6	11219	100.0

Number of Motor Vehicles in Household				
Q12	Frequency	Percent	Cumulative Frequency	Cumulative Percent
None	4257	37.9	4257	37.9
One	3735	33.3	7992	71.2
Two	2123	18.9	10115	90.2
Three or more	787	7.0	10902	97.2
No Response	317	2.8	11219	100.0

Was a Car Available for the trip made?				
Q13	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	232	2.1	232	2.1
Yes	3168	28.2	3400	30.3
No	7819	69.7	11219	100.0

Table 4-1 (Continued)
Questionnaire Frequency Distribution

Gender of the Respondent				
Q14	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	257	2.3	257	2.3
Male	4056	36.2	4313	38.4
Female	69.6	61.6	11219	100.0

Age Group of the Respondent				
Q15	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	214	1.9	214	1.9
13 or younger	95	0.8	309	2.8
14 - 17	914	8.1	1223	10.9
18 - 22	1471	13.1	2694	24.0
23 - 34	3040	27.1	5734	51.1
35 - 49	3329	29.7	9063	80.8
50 - 64	1464	13.0	10527	93.8
65 or older	692	6.2	11219	100.0

Employment Status of Respondent				
Q16	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	219	2.0	219	2.0
Full-Time	5916	52.7	6135	54.7
Part-Time	1872	16.7	8007	71.4
Homemaker	410	3.7	8417	75.0
Student	1450	12.9	9867	87.9
Retired	591	5.3	10458	93.2
Unemployed	532	4.7	10990	98.0
Other	229	2.0	11219	100.0

Table 4-1 (Continued)
Questionnaire Frequency Distribution

Total Annual Income for the Household				
Q17	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	1654	14.7	1654	14.7
\$0 - \$9,999	2676	23.9	4330	38.6
\$10,000 - \$19,999	2245	20.0	6575	58.6
\$20,000 - \$29,999	1685	15.0	8260	73.6
\$30,000 - \$39,999	1197	10.7	9457	84.3
\$40,000 - \$49,999	738	6.6	10195	90.9
\$50,000 or more	1024	9.1	11219	100.0

Race of the Respondent				
Q18	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Response	482	4.3	482	4.3
Black	5666	50.5	6148	54.8
Hispanic	296	2.6	6444	57.4
Oriental	89	0.8	6533	58.2
White	4327	38.6	10860	96.8
Other	359	3.2	11219	100.0

5. If the access to the bus was walk ($Q5 = 1$) and the egress from the bus was walk ($Q10 = 1$), then only one bus should have been ridden ($Q11 = 1$).
6. If the access to the bus was walk ($Q5 = 1$) and the egress from the bus was transfer ($Q10 = 3$), then the buses ridden should not be one ($Q11 \neq 1$).
7. Cross tabulate fare ($Q6$) and employment status ($Q16$).
8. Cross tabulate fare ($Q6$) by age group ($Q15$).
9. Cross tabulate age group ($Q15$) by employment status ($Q16$).

c. *Pre-Edit for GeoCoding*

On the premise that a trip file by origin and destination is a fundamental goal of the on board survey, the completed questionnaires were edited to determine whether an origin and destination were both present in the file of complete questionnaires. However, if origin information is missing, but the bus stop location is complete *and* the access mode is walk, one can substitute the bus stop geographic location for the missing origin information. Also, if the destination information is not present, but the egress mode is walk *and* the bus stop off location is complete, the bus stop off geocode can be used in lieu of the destination code. (See Figure 13.)

D. Geocoding

The purpose of the geocoding effort is to convert the passengers responses to the question of where their bus trip began and ended, as well as the question as to bus stop location of the on and the bus stop off.

The geographic location of the origin and/or destination was obtained in one of three possible formats:

- address, street name, city and zip code
- intersection of two streets
- name of a place

For geographic location of bus stops the respondent was asked to provide the intersection of two streets.

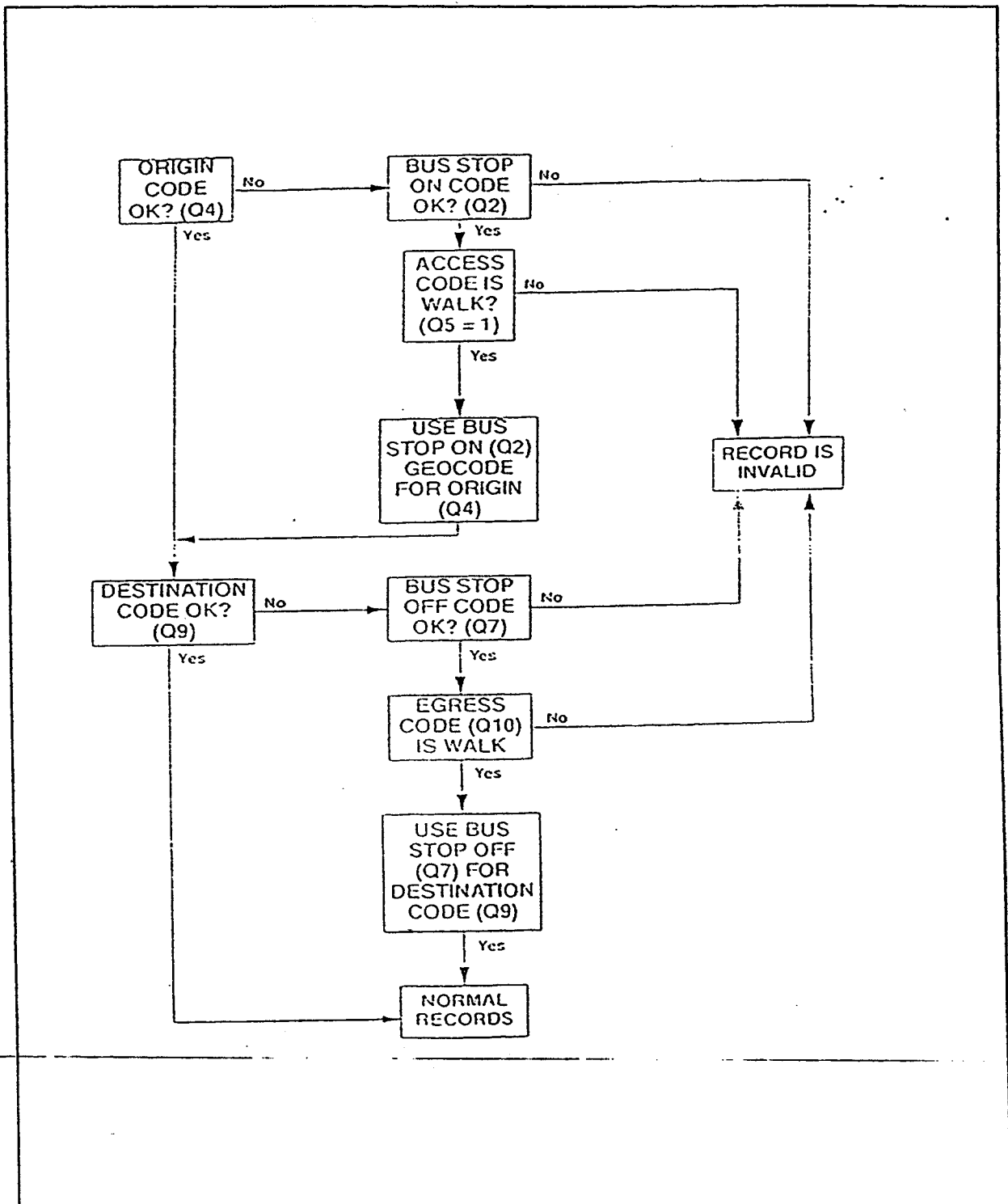


Figure 13
Logic for Substitution of Bus Stop Location for Origin or Destination

These geographic locations were to be matched against the 1992 TIGER files for the 7 county Metropolitan Cleveland area. Where a match was obtained, the latitude and longitude of the matching geographic location in the TIGER file would be entered in the questionnaire file in the appropriate field.

The Consultant had hoped, on the basis of prior conversations with GCRTA staff, that a bus stop file would be made available for use as a coding vehicle. However, this file was not available in time and we have proceeded to code intersections of bus stop.

1. *Coding Materials Used*

The following coding aids and materials have been assembled:

- a. 1992 TIGER files for the Greater Cleveland Metropolitan Area include the following counties:
 - (1) Cuyahoga
 - (2) Lorain
 - (3) Lake
 - (4) Medina
 - (5) Geauga
- b. AAA maps of Cleveland and Ohio
- c. GCRTA route schedules and route diagrams
- d. Telephone directories - Cleveland Metropolitan Area
 - yellow pages
 - white pages
- e. Survey Questionnaires
- f. Atlas GIS
- g. Computer (486 50Mhz)

2. *Geocoding Procedures*

The geocoding was performed using the address matching features in ATLAS GIS. This is geographical program which takes an address from a datapoint record and parses it (divides it) into seven components: street number, street name, street type, prefix direction, suffix direction, city and zipcode. For example, the address 2197 East 70th Street, Cleveland, 44103_ would be parsed in the following manner:

2197	street number
East	prefix direction
70th	street name
Street	street type
--	the address does not contain a suffix direction
Cleveland	City
44103	Zip code

Each piece of the address is then matched to the corresponding address information in the geographical file.

Origin and Destination Coding

The records to be coded were processed in multiple passes against the TIGER file. The first major pass required an exact match of all seven address characteristics (listed above).

Subsequent passes were made in which the prefix direction, street name, street type, suffix direction, city, and zipcode requirements were successively relaxed.

The non-matched records were then sorted alphabetical and the origin and/or destination listed. The bulk of these non-matches were blank. A record was salvageable if the bus stop on was geocodable and the access mode was walked. Likewise, the record was salvaged if the bus stop off was geocoded and the egress mode was walk.

An editor looked up the address record for the non-matched records that could not be salvaged by the bus stop on or off to determine the problem. If possible, the editor would correct the problem.

Bus Stop On and Bus Stop Off Coding

The bus stop on and bus stop off fields were next passed against the TIGER files for geocoding.

The non-matches for bus stop on and bus stop off were listed. If there was only one street name, the bus stop may have been codable by examining the bus route to see if the street name intersected with the street of the bus route. For three street names, there was an examination of the names to see if there were two legitimate intersection on the bus route. For two street names an examination of streets along the bus route may reveal the correct intersection. Also, if there was a problem with spelling, appropriate spaces, etc. the record was corrected.

3. *GeoCoding Results*

Each questionnaire contains four fields that were geocoded, bus stop or train station on, origin, bus stop or train station off, and destination. These fields were coded to either street addresses or intersections. Failure to code the origin or destination resulted in an unusable survey. Ideally, failure to code any of the four fields, bus stop or train station

on, origin, bus stop or train station off, and destination would result in the survey beginning discarded.

The table below displays the result of geocoding the bus, red line, and the blue/green line survey for the bus stop or train station on, origin, bus stop or train station off, and destination.

	Number of Records	Number of Bus/Train on Records Geocoded	Number of Origin Records Geocoded	Number of Bus/Train Off Records Geocoded	Number of Destination Records Geocoded
Bus On-Board	11,219	9,712	9,983	8,840	9,339
Red Line	1,326	1,300	1,046	1,305	1,108
Blue/Green Line	790	776	665	774	646

The Table below displays the result for the questionnaires that have both a codeable origin and destination.

	Number of Records	Number of Records With Both Origin and Destination Geocoded
Bus On-Board	11,219	8,391
Red Line	1,326	878
Blue/Green Line	790	538

E. Factoring

1. General

Because the survey is a sample survey, the questionnaires were expanded (factored) to estimate the GCRTA ridership on an average weekday in November, 1993.

The Red Line expansion procedure was different than the procedures for the bus routes and the Blue and Green Lines because the Red Line patrons were sampled within Red Line Stations by hour of the day. When the factoring procedures were complete, each complete response (questionnaire) carried two expansion numbers. Summarizing the first expansion number yields actual boarding estimates on sampled bus trips instead of counts

of questionnaires. The second factor, the trip factor, is an adjustment factor that accounts for the fact that only a sample of the bus or train trips in a stratum were surveyed. A stratum consists of the following:

- a. a specified route, haustus route (route branch), or route group;
- b. the time period into which of the departure time of the bus or rail trips fall, eg. 7AM to 8:59AM;
- c. the direction (eg. east, west, etc.) of the bus trips.

2. *Bus and Green/Blue Line Factoring*

The factoring of these trips consists of the calculation of a boarding factor and a trip factor for each trip in a stratum.

a. *Boarding Factor*

The boarding factor is the product of two factors.

(1) The Response Factor

The Response Factor is calculated for an entire stratum and is the ratio of boarding on sample transit trips in the stratum to completed questionnaires in that stratum.

$$f_h = b_h / r_h$$

where:

f_h = response factor for stratum h

b_h = number of boarding passengers on sampled bus trips in stratum h

r_h = completed questionnaires by boarding passengers on trips in stratum h

The response factor may be calculated on the basis of a further subdivision of the stratum into black and non-black passengers. A separate tally of boarding passengers by the designation of black or non-black was maintained. Since an ethnicity question (Q 18) was included in the questionnaire, it is possible to calculate a separate response rate on the basis of the black/non-black classification. If there is a clear and consistent difference in the response rate, this response factor may be used. Of course there may be differences in response rates as a result of age, sex, income, occupation/industry, and trip length itself. Of these factors, only a surrogate of the trip length is available. This could be obtained by calculating the response rate for the first half of the boarding and a response rate for the second half. The other factors cannot be estimated for boardings and therefore cannot be examined. During the calculation of the response factor, both the black/non-black categorization and the segmentation of

boardings by boarding order was examined for usefulness in the factoring process.

While factoring by black and non-black tallies and split trip factoring were considered, neither procedures was used as the results did not warrant their use. A separate technical memorandum documents these considerations.

b. *The Trip Factor*

The trip factor is needed in order to represent the bus and train trips not included in the sample. That is, if 20% of the daily trips for a specific route are sampled, the trip factor would be equal to 5.0. This factor then, is the ratio of total trips for a stratum to the sampled trips in that stratum. A stratum for this factor consists of the:

- (1) route, haustus route, or route group;
- (2) time of day period during which the trips begin, and;
- (3) direction of trips. Note, black/non-black and trip segmentation are not included in this factor.

Symbolically:

$$F_h = T_h / t_h$$

where:

F_h = the trip factor for stratum h
 T_h = the total daily trips in stratum h
 t_h = sampled trips in stratum h

c. *The Combined Factor (Boarding Factor)*

The combined factor for a stratum is obtained as a product of the response factor and the trip factor:

$$K_h = f_h F_h$$

where:

K_h = boarding factor
 f_h = the response factor
 F_h = the trip factor

The boarding factor is appended to each completed questionnaire in a stratum. When the boarding factor is summed for all completed questionnaires in a stratum, the result is an estimate of the number of boardings in that stratum. If the boarding factor is summed across a route and a single time period, an estimate of

the boardings for that route for that time period is obtained. The sum of the boarding factors for all completed questionnaires for a route is the estimate of total boardings for that route for an average weekday. Obviously, estimates are available by direction. Finally, summing the boarding factor for all strata yields total boardings in the bus system.

d. *Construction and Use of Strata*

The basic strata consist of:

- (1) route, route branch, or route group;
- (2) the direction of the trips in the route, and;
- (3) the time period (7 to 8:59, 9 to 3:59, 4 to 5:59, 6 to 10:59, and all other).

As was seen in the discussion (1 - 3 above) the factors are ratios of stratum universe elements to sample elements. It may happen that the sample elements for a stratum will equal zero (non-response, surveyor failure, etc.). Should this occur, and the universe count for that stratum is not zero, the resulting factor is infinity which of course, can not to be tolerated. Should this happen it will be necessary to aggregate strata to eliminate the offending zero cell(s). Aggregation may be by trip direction and/or time of day strata. This adjustment is a heuristic process.

e. *Person Trip Factor*

The development of a factor to represent the total boardings represented by a single questionnaire was discussed above. In addition to estimating boardings, it is desired to estimate person trips, especially in the modeling of travel behavior. For example, if one uses two buses to go from zone i to zone j, two bus boardings are involved for that single trip. Therefore a factor is necessary to convert boardings to trips. This Person Trip Factor is obtained as follows:

Number of buses Used to Complete Trip	Person Trip Factor
1	1.0
2	.5
3 or more	.333

This person trip factor is appended to *each* completed questionnaire.

The product of the boarding factor and the person trip factor yields an estimate of the number of person trips represented by a specific questionnaire.

3. *Red Line Factoring*

The factoring of the Red Line questionnaire was based upon the hourly counts of entering patrons by each Red Line station. The questionnaires handed out at a Red Line station were referenced to the station and the hour of receipt by the serial number of the questionnaire.

Each completed questionnaire carried two factors; a boarding factor and a person trip factor. The person trip factor was calculated as described in Section II - B. The boarding factor is the ratio of the station entry count for each hour to the completed questionnaires for that hour and station. Thus the factor is route and time of day specific. The estimate of directional boardings is based on the split of direction as reported in the questionnaires. This requires the assumption of equal response rates by direction. The black/non-black count categories were reviewed by station and hour to and it was decided that their inclusion into the factoring process would not improve the precision of the directional estimates.

4. *Review of Factoring*

With the factoring complete, the estimated boardings by route and the imputed revenues from the fare question should be compared with existing GCRTA data by route and systemwide. Discussion with GCRTA staff will consider whether further adjustments if any are required.

5. Summary of Survey Results

A. Accuracy

This section of the report documents the results of this survey based on factored data (for most summaries). A total of 13,009 surveys were returned completed. The response rates for each of the three main service categories are shown below:

**Table 5-1
Response Rate by Service Category**

Service	Distributed Questionnaires	Completed Questionnaires	Complete Response Rate	Complete O/D Geocodes	Complete Geocode Response Rate
Bus	26,845	11,219	41.8%	8,391	31.3%
Blue & Green Line Rapid	1,379	790	57.3%	538	39.0%
Red Line Rapid*	3,474	1,000	28.8%	n/a	n/a
Total*	31,698	13,009	41.0%	n/a	n/a

*Excludes surveys distributed at Tower City and E 105th/Quincy. Some questionnaires distributed at those stations were not recorded. If the known numbers of surveys distributed at those stations are used, the response rate for the Red Line is 19.9%.

The statistical validity of the data is based on absolute error. The following formula was used to calculate the sample size needed in each category to achieve a confidence level of 90% or 95% with a sampling error range of $\pm 5\%$.

$$n = \frac{z^2 pq m}{e^2 (m-1) + z^2 pq}$$

where:

n	=	sample size (number of sampled elements)
e	=	plus/minus sampling error range in estimating p at a level of confidence represented by the value of normal variate, z
m	=	number of elements in universe (total average boardings)
p	=	proportion of sample elements characterized by or possessing a given attribute "a"; e.g., male
q	=	1 - p
z	=	normal variate
		z = 1.64; represents the 90% confidence level
		z = 1.96; represents the 95% confidence level

Table 5-2 summarizes the accuracy levels for the three main service categories. For each of the categories the total average daily boardings, the total number of geocoded origin-destination responses, and the achieved statistical validity is presented.

Table 5-2
Summary of Statistical Results

Service	Average Daily Boardings	Complete O/D Geocodes	Absolute Error @ 90% Confidence*	Absolute Error @ 95% Confidence*
Bus	86,367	8,391	±0.009	±0.010
Blue & Green Line Rapid	13,002	538	±0.035	±0.041
Red Line Rapid	14,654	878	±0.027	±0.032
Total	114,023	9,807	±0.008	±0.009

* Assuming 50 percent of the respondents possess the attribute.

B. Frequency Distributions by Question and Service Type

In this section, the factored results of the GCRTA on-board survey are presented by question for three main service types: Services types are as follows:

- Bus
- Light Rail (Green and Blue Lines)
- Heavy Rail (Red Line)

Question 1: Have you already completed a survey form?

Table 5-3 summarizes the results of this question. Unfactored data have been used for this summary since it relates more to the conduct of the survey than the characteristics of riders. As can be seen in Table 5-3, almost 8 percent of the respondents completed more than one diary.

Question 2: Where did you get on the bus?

This question has not been summarized for this report. It provides information on the actual transit stop used to access the transit vehicle used.

Question 3: Where did you come from before you got on this bus/rapid?

Table 5-4 provides information on the activity of the travelers at their origin. The most frequent purpose is "home"(52 percent), followed by "work"(31 percent).

Question 4: What is the address of the place (you came from)?

Address information has been geocoded as discussed in a previous section. The geocoded data forms the basis for the construction of transit trip tables. The trip table data have not been summarized in this report.

Question 5: How did you get to this bus/rapid?

Access mode describes the method travelers used to get to transit. Since "boardings" rather than transit "trips" are summarized in Table 5-5, transfers are included as an access mode. Walk is the most frequently used mode to access transit, with transfer from other transit being the second most frequent access mode. Access by services category varies substantially. For example, while walk access is, by far, the most frequent access mode to bus, walk and transfer access to the Red Line are almost equally split. Also, auto access either as a driver or passenger of a car parked at a transit stop, or as a passenger dropped off at a transit stop is far more prevalent as access to rail transit than as access to bus.

Table 5-6 summarizes walk access trips by the number of minutes walked. Based on Table 5-6, the average walk access times are 3.2 minutes, 3.1 minutes, and 2.5 minutes for bus, light rail and heavy rail, respectively..

Question 6: To get on (or get off) this bus, I used: (fare and payment method):

Table 5-7 summarizes the fare and payment method used by travelers for their trips. About one-third of the transit users pay cash for their trip on a specific

Table 5-3:

Have you previously completed a form on another bus/rapid trip ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
Completed	11,284	397	1,656	13,337
% Row	84.61%	2.98%	12.42%	100.00%
% Column	7.91%	6.17%	11.30%	8.14%
Not Completed	131,375	6,039	12,998	150,412
% Row	87.34%	4.01%	8.64%	100.00%
% Column	92.09%	93.83%	88.70%	91.86%
Total	142,659	6,436	14,654	163,749
% Row	87.12%	3.93%	8.95%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-4:
Where did you come from before you got on the bus/rapid ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	310	0	93	403
% Row	76.92%	0.00%	23.08%	100.00%
% Column	0.22%	0.00%	0.63%	0.25%
Home	76,738	3,896	6,977	87,611
% Row	87.59%	4.45%	7.96%	100.00%
% Column	53.79%	60.53%	47.61%	53.50%
Work	34,383	1,917	5,292	41,592
% Row	82.67%	4.61%	12.72%	100.00%
% Column	24.10%	29.78%	36.11%	25.40%
Shopping	4,618	58	248	4,924
% Row	93.78%	1.19%	5.04%	100.00%
% Column	3.24%	0.91%	1.69%	3.01%
School/College	14,714	225	1,177	16,116
% Row	91.30%	1.40%	7.30%	100.00%
% Column	10.31%	3.50%	8.03%	9.84%
Doctor/Dentist	2,700	77	35	2,813
% Row	95.99%	2.75%	1.26%	100.00%
% Column	1.89%	1.20%	0.24%	1.72%
Visiting/Recreation	6,307	182	336	6,825
% Row	92.40%	2.67%	4.92%	100.00%
% Column	4.42%	2.84%	2.29%	4.17%
Hotel	349	0	63	412
% Row	84.64%	0.00%	15.36%	100.00%
% Column	0.24%	0.00%	0.43%	0.25%

Table 5-4 (Continued):

Where did you come from before you got on the bus/rapid ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
Other	2,509	42	190	2,742
% Row	91.51%	1.54%	6.95%	100.00%
% Column	1.76%	0.66%	1.30%	1.67%
Airline Related	31	37	243	311
% Row	9.84%	12.04%	78.12%	100.00%
% Column	0.02%	0.58%	1.66%	0.19%
Total	142,659	6,436	14,655	163,749
% Row	87.12%	3.93%	8.95%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-5:
How did you get to this bus/rapid ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	192	0	0	192
% Row	100.00%	0.00%	0.00%	100.00%
% Column	0.13%	0.00%	0.00%	0.12%
Walked	116,207	3,869	7,127	127,203
% Row	91.36%	3.04%	5.60%	100.00%
% Column	81.46%	60.12%	48.64%	77.68%
Drove	2,132	928	1,816	4,876
% Row	43.73%	19.03%	37.25%	100.00%
% Column	1.49%	14.41%	12.39%	2.98%
Transferred	20,067	1,218	4,548	25,833
% Row	77.68%	4.71%	17.61%	100.00%
% Column	14.07%	18.92%	31.04%	15.78%
Passenger	161	24	227	412
% Row	39.06%	5.88%	55.07%	100.00%
% Column	0.11%	0.38%	1.55%	0.25%
Dropped Off	3,756	397	891	5,044
% Row	74.46%	7.87%	17.66%	100.00%
% Column	2.63%	6.17%	6.08%	3.08%
Other	144	0	45	189
% Row	76.19%	0.00%	23.81%	100.00%
% Column	0.10%	0.00%	0.31%	0.12%
Total	142,659	6,436	14,654	163,749
% Row	87.12%	3.93%	8.95%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-6:

If you walked to the bus/rapid, how many minutes did your walk trip take ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	19	0	0	19
0	18,517	532	982	20,031
1	15,910	206	370	16,486
2	20,110	475	772	21,357
3	13,938	436	598	14,972
4	3,121	110	196	3,427
5	24,747	832	1,839	27,418
6	1,744	49	199	1,992
7	2,509	233	24	2,766
8	818	96	213	1,127
9	100	9	0	109
10	9,721	682	1,078	11,481
11	0	9	7	16
12	214	67	91	372
13	41	11	0	52
14	57	0	108	165
15	3,048	79	359	3,486
16	50	0	0	50
17	41	0	0	41
18	5	0	0	5
19	0	0	5	5
20 or more	1,497	43	286	1,826
Total	116,208	3,870	7,126	127,204

Table 5-7:

What method of payment did you use to board the bus/rapid ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	746	9	50	805
% Row	92.68%	1.10%	6.21%	100.00%
% Column	0.52%	0.14%	0.34%	0.49%
Transfer	17,919	680	2,509	21,108
% Row	84.89%	3.22%	11.89%	100.00%
% Column	12.56%	10.57%	17.12%	12.89%
Paid Cash	51,392	2,195	4,710	58,297
% Row	88.16%	3.76%	8.08%	100.00%
% Column	36.02%	34.10%	32.14%	35.60%
Local Weekly	22,912	341	651	23,904
% Row	95.85%	1.42%	2.72%	100.00%
% Column	16.06%	5.29%	4.44%	14.60%
Local Monthly	6,604	77	267	6,948
% Row	95.05%	1.11%	3.84%	100.00%
% Column	4.63%	1.20%	1.82%	4.24%
Express Weekly	10,384	985	2,459	13,828
% Row	75.10%	7.12%	17.78%	100.00%
% Column	7.28%	15.30%	16.78%	8.44%
Express Monthly	6,563	600	1,216	8,379
% Row	78.33%	7.16%	14.51%	100.00%
% Column	4.60%	9.32%	8.30%	5.12%
Local Ticket	6,150	14	55	6,219
% Row	98.90%	0.22%	0.88%	100.00%
% Column	4.31%	0.21%	0.38%	3.80%

Table 5-7 (Continued):

What method of payment did you use to board the bus/rapid ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
Express Ticket	7,852	1,222	2,067	11,141
% Row	70.48%	10.96%	18.55%	100.00%
% Column	5.50%	18.98%	14.11%	6.80%
Senior/Disabled	4,625	135	163	4,923
% Row	93.96%	2.73%	3.31%	100.00%
% Column	3.24%	2.09%	1.11%	3.01%
Student	6,767	181	500	7,448
% Row	90.86%	2.43%	6.71%	100.00%
% Column	4.74%	2.81%	3.41%	4.55%
50 Cent Ticket	745	0	7	752
% Row	99.07%	0.00%	0.93%	100.00%
% Column	0.52%	0.00%	0.05%	0.46%
Total	142,659	6,436	14,654	163,749
% Row	87.12%	3.93%	8.95%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

transit vehicle, about one-third use weekly or monthly passes, and the remaining third use transfers, pre-purchased tickets, or special discount fares.

Table 5-8 is a frequency distribution of the fare paid by transit riders paying cash fares. As can be seen in Table 5-8, the modal fare paid is \$100 as reported by 98% of those reporting paying cash.

Question 7: *Where will you get off the bus/rapid?*

This question has not been summarized for this report. It provides information on the actual transit stop used to alight from the transit vehicle used.

Question 8: *Where are you going now?*

Table 5-9 provides information on the activity of the travelers at their destination. As with the access purpose, the most frequent destination purpose is "home", followed by "work".

Question 9: *What is the address of the place that you are going to?*

Address information has been geocoded as discussed in a previous section. The geocoded data forms the basis for the construction of transit trip tables. The trip table data have not been summarized in this report.

Question 10: *How will you get from this bus/rapid to the place that you are going to?*

This question, summarized in Table 5-10, obtained the egress mode used by transit riders. As with transit access, the most frequently used egress mode is walk, followed by transfer to another transit vehicle.

Table 5-11 summarizes walk egress trips by the number of minutes walked. Based on Table 5-11, the average walk egress time is 3.4 minutes, 3.3 minutes, and 2.7 minutes from bus, light rail, and heavy rail, respectively.

Question 11: *Including this trip, how many buses and/or rapids will you ride to get from where you came from to where you are going?*

This question is used as a means to determine the number of transfers used for "linked" transit trips. The number of transfers, which is the number of bus-es/rapids used minus one, is summarized in Table 5-12. The transfer information embodied in this question will be used in the construction of transit trip tables.

Question 12: *How many motor vehicles in running condition are available for use by members of your household?*

This is the first of several socioeconomic questions asked in the on-board survey. As summarized in Table 5-13, almost one-third of the transit users had zero autos in their household, and another one-third had only one vehicle available. Travelers

Table 5-8:

If you paid cash, what was the amount ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	3,362	130	166	3,658
% Row	91.90%	3.56%	4.54%	100.00%
% Column	7.72%	7.05%	3.93%	7.37%
\$1.00	39,234	1,716	4,053	45,003
% Row	87.18%	3.81%	9.01%	100.00%
% Column	90.11%	92.95%	96.07%	90.72%
\$2.00	888	0	0	888
% Row	100.00%	0.00%	0.00%	100.00%
% Column	2.04%	0.00%	0.00%	1.79%
\$3.00	17	0	0	17
% Row	100.00%	0.00%	0.00%	100.00%
% Column	0.04%	0.00%	0.00%	0.03%
Other	41	0	0	41
% Row	100.00%	0.00%	0.00%	100.00%
% Column	0.09%	0.00%	0.00%	0.08%
Total	43,542	1,846	4,219	49,607
% Row	87.77%	3.72%	8.50%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-9:
Where did you go to after you got off the bus/rapid ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	700	62	103	865
% Row	80.89%	7.21%	11.90%	100.00%
% Column	0.49%	0.97%	0.70%	0.53%
Home	57,772	2,392	6,766	66,930
% Row	86.32%	3.57%	10.11%	100.00%
% Column	40.50%	37.16%	46.17%	40.87%
Work	46,973	2,917	5,701	55,591
% Row	84.50%	5.25%	10.26%	100.00%
% Column	32.93%	45.32%	38.90%	33.95%
Shopping	7,730	138	218	8,086
% Row	95.60%	1.70%	2.70%	100.00%
% Column	5.42%	2.14%	1.49%	4.94%
School/College	11,465	490	781	12,736
% Row	90.02%	3.85%	6.13%	100.00%
% Column	8.04%	7.61%	5.33%	7.78%
Doctor/Dentist	3,645	30	121	3,796
% Row	96.01%	0.80%	3.19%	100.00%
% Column	2.56%	0.47%	0.83%	2.32%
Visiting/Recreation	10,379	264	597	11,240
% Row	92.34%	2.35%	5.31%	100.00%
% Column	7.28%	4.11%	4.07%	6.86%
Hotel	55	45	88	188
% Row	29.22%	24.02%	46.75%	100.00%
% Column	0.04%	0.70%	0.60%	0.11%

Table 5-9 (Continued):

Where did you go to after you got off the bus/rapid ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
Other	3,908	91	162	4,161
% Row	93.93%	2.18%	3.89%	100.00%
% Column	2.74%	1.41%	1.11%	2.54%
Airline Related	32	7	117	156
% Row	20.54%	4.36%	75.10%	100.00%
% Column	0.02%	0.11%	0.80%	0.10%
Total	142,659	6,436	14,654	163,749
% Row	87.12%	3.93%	8.95%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-10:
How did you get from this bus/rapid to the place to which you are going?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	693	26	38	757
% Row	91.51%	3.48%	5.02%	100.00%
% Column	0.49%	0.41%	0.26%	0.46%
Walked	117,333	4,126	7,687	129,146
% Row	90.85%	3.19%	5.95%	100.00%
% Column	82.25%	64.11%	52.46%	78.87%
Drove	1,957	439	1,121	3,517
% Row	55.65%	12.48%	31.87%	100.00%
% Column	1.37%	6.82%	7.65%	2.15%
Transferred	20,455	1,563	5,223	27,241
% Row	75.09%	5.74%	19.17%	100.00%
% Column	14.34%	24.29%	35.64%	16.64%
Passenger	415	13	161	589
% Row	70.46%	2.21%	27.33%	100.00%
% Column	0.29%	0.20%	1.10%	0.36%
Picked Up	1,261	229	292	1,782
% Row	70.75%	12.86%	16.38%	100.00%
% Column	0.88%	3.56%	1.99%	1.09%
Other	545	39	132	716
% Row	76.13%	5.43%	18.44%	100.00%
% Column	0.38%	0.60%	0.90%	0.44%
Total	142,659	6,436	14,654	163,749
% Row	87.12%	3.93%	8.95%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-11:

If you walked from the bus/rapid, how many minutes did your walk trip take ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	25	0	0	25
0	19,830	632	974	21,436
1	14,984	258	206	15,448
2	19,859	437	995	21,291
3	12,418	455	634	13,507
4	3,101	108	169	3,378
5	27,231	1,043	1,966	30,240
6	1,208	87	119	1,414
7	2,267	121	229	2,617
8	1,368	87	110	1,565
9	11	0	0	11
10	9,088	640	1,695	11,423
11	102	0	0	102
12	319	11	11	341
13	26	0	13	39
14	8	0	0	8
15	3,675	182	298	4,155
16	8	0	0	8
17	0	0	0	0
18	10	0	0	10
19	0	0	0	0
20 or more	1,795	65	268	2,128
Total	117,333	4,126	7,687	129,146

Table 5-12:

How many transfers to another bus/rapid did you make during this trip ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	2,104	63	200	2,367
% Row	88.90%	2.65%	8.45%	100.00%
% Column	1.47%	0.97%	1.36%	1.45%
0	71,636	4,490	8,338	84,464
% Row	84.81%	5.32%	9.87%	100.00%
% Column	50.21%	69.77%	56.90%	51.58%
1	55,750	1,428	4,430	61,608
% Row	90.49%	2.32%	7.19%	100.00%
% Column	39.08%	22.19%	30.23%	37.62%
2 or more	13,169	455	1,686	15,310
% Row	86.02%	2.97%	11.01%	100.00%
% Column	9.23%	7.07%	11.51%	9.35%
Total	142,659	6,436	14,654	163,749
% Row	87.12%	3.93%	8.95%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-13:

How many motor vehicles in running condition
are available for use by household members ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	1,588	104	93	1,785
% Row	88.96%	5.84%	5.21%	100.00%
% Column	1.11%	1.62%	0.63%	1.09%
0	55,445	1,538	4,011	60,994
% Row	90.90%	2.52%	6.58%	100.00%
% Column	38.87%	23.89%	27.37%	37.25%
1	48,408	2,020	4,966	55,394
% Row	87.39%	3.65%	8.96%	100.00%
% Column	33.93%	31.39%	33.89%	33.83%
2	27,616	2,251	3,883	33,750
% Row	81.82%	6.67%	11.51%	100.00%
% Column	19.36%	34.98%	26.50%	20.61%
3 or more	9,602	523	1,701	11,826
% Row	81.20%	4.42%	14.38%	100.00%
% Column	6.73%	8.12%	11.61%	7.22%
Total	142,659	6,436	14,654	163,749
% Row	87.12%	3.93%	8.95%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

with zero autos available are found relatively more frequently on buses than on rapids. Since the auto is used relatively more frequently to access rapids, this is a logical result.

Question 13: *Did you have a car available to make this trip?*

This question, summarized in Table 5-14, is a direct measure of transit "captivity". As can be seen in Table 5-14, about two-thirds of transit users do not have a car available for their trip and, thus, can be considered captive to transit. It is interesting to note that only about one-half of the rapid users are captive to transit, while about 68 percent of the bus users are captives.

Question 14: *I am [male or female]:*

Table 5-15 summarizes the sex of transit users. About 60 percent of all transit riders are female. The percentage varies by service type; the sex of rapid users is almost split evenly between male and female.

Question 15: *My age group is:*

Table 5-16 summarizes the transit users by age group. The largest share of transit users are in the 35 - 49 age group with the second largest share being in the 23-34 age group.

Question 16: *I am [employment status]:*

Table 5-17 summarizes the employment status of the transit users. As can be seen in Table 5-17 over 61 percent of the transit users are employed full-time and about 16 percent are employed part-time. Over 10 percent of transit users listed themselves as students.

Many respondents specified more than one employment status category, such as employed full-time and home-maker, or employed part-time and student. For these cases, only one category was coded, with precedence being given to employment categories. In these two examples, employed full-time and employed part-time would be coded instead of home-maker and student.

Question 17: *The combined total annual income of all members of my household is:*

The total household income of transit riders is summarized in Table 5-18. The median income of transit riders is also summarized. As can be seen in Table 5-18, the income levels of bus users tend to be lower than the income levels of rapid users. About one-half of the bus users reporting income make less than \$20,000 per year, while only about one-third of the rapid users make less than \$20,000 per year.

Table 5-14:

Did you have a car available to make this trip ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	805	62	89	956
% Row	84.24%	6.44%	9.31%	100.00%
% Column	0.56%	0.96%	0.61%	0.58%
Yes	40,637	3,328	6,711	50,676
% Row	80.19%	6.57%	13.24%	100.00%
% Column	28.49%	51.71%	45.80%	30.95%
No	101,217	3,047	7,854	112,118
% Row	90.28%	2.72%	7.01%	100.00%
% Column	70.95%	47.34%	53.60%	68.47%
Total	142,659	6,436	14,654	163,749
% Row	87.12%	3.93%	8.95%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-15:
Are you Male or Female ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	1,029	22	111	1,162
% Row	88.55%	1.89%	9.55%	100.00%
% Column	0.72%	0.34%	0.76%	0.71%
Female	90,759	3,325	7,626	101,710
% Row	89.23%	3.27%	7.50%	100.00%
% Column	63.62%	51.66%	52.04%	62.11%
Male	50,871	3,089	6,917	60,877
% Row	83.56%	5.07%	11.36%	100.00%
% Column	35.66%	48.00%	47.20%	37.18%
Total	142,659	6,436	14,654	163,749
% Row	87.12%	3.93%	8.95%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-16:
What is your age group ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	399	0	14	413
% Row	96.61%	0.00%	3.39%	100.00%
% Column	0.28%	0.00%	0.10%	0.25%
13 or younger	1,336	19	5	1,360
% Row	98.23%	1.40%	0.37%	100.00%
% Column	0.94%	0.30%	0.03%	0.83%
14 - 17	11,621	334	662	12,617
% Row	92.11%	2.64%	5.25%	100.00%
% Column	8.15%	5.18%	4.52%	7.70%
18 - 22	18,090	525	1,630	20,245
% Row	89.35%	2.59%	8.05%	100.00%
% Column	12.68%	8.16%	11.12%	12.36%
23 - 34	40,194	2,321	4,784	47,299
% Row	84.98%	4.91%	10.11%	100.00%
% Column	28.17%	36.06%	32.65%	28.88%
35 - 49	44,425	2,070	5,994	52,489
% Row	84.64%	3.94%	11.42%	100.00%
% Column	31.14%	32.16%	40.90%	32.05%
50 - 64	18,740	937	1,299	20,976
% Row	89.34%	4.47%	6.19%	100.00%
% Column	13.14%	14.56%	8.86%	12.81%
65 or older	7,854	231	266	8,351
% Row	94.05%	2.76%	3.19%	100.00%
% Column	5.51%	3.59%	1.82%	5.10%
Total	142,659	6,436	14,654	163,749
% Row	87.12%	3.93%	8.95%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-17:
What is your employment status ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	421	0	0	421
% Row	100.00%	0.00%	0.00%	100.00%
% Column	0.30%	0.00%	0.00%	0.26%
Full-Time	76,949	4,654	10,908	92,511
% Row	83.18%	5.03%	11.79%	100.00%
% Column	53.94%	72.31%	74.44%	56.50%
Part-Time	23,912	885	2,084	26,881
% Row	88.95%	3.29%	7.75%	100.00%
% Column	16.76%	13.75%	14.22%	16.42%
Homemaker	4,808	97	116	5,021
% Row	95.75%	1.94%	2.31%	100.00%
% Column	3.37%	1.51%	0.79%	3.07%
Student	19,880	480	977	21,337
% Row	93.17%	2.25%	4.58%	100.00%
% Column	13.94%	7.47%	6.67%	13.03%
Retired	7,184	134	145	7,463
% Row	96.27%	1.79%	1.94%	100.00%
% Column	5.04%	2.08%	0.99%	4.56%
Unemployed	6,570	70	337	6,977
% Row	94.16%	1.01%	4.83%	100.00%
% Column	4.61%	1.10%	2.30%	4.26%
Other	2,935	115	87	3,137
% Row	93.57%	3.65%	2.77%	100.00%
% Column	2.06%	1.78%	0.59%	1.92%
Total	142,659	6,436	14,654	163,749
% Row	87.12%	3.93%	8.95%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-18:

What is the combined total annual income of all members of your household ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	16,678	485	1,000	18,163
% Row	91.82%	2.67%	5.51%	100.00%
% Column	11.69%	7.54%	6.82%	11.09%
\$0 - \$9,999	35,318	772	1,556	37,646
% Row	93.81%	2.05%	4.13%	100.00%
% Column	24.76%	12.00%	10.62%	22.99%
\$10,000 - \$19,999	30,929	779	3,543	35,251
% Row	87.74%	2.21%	10.05%	100.00%
% Column	21.68%	12.11%	24.18%	21.53%
\$20,000 - \$29,999	21,954	932	2,701	25,587
% Row	85.80%	3.64%	10.56%	100.00%
% Column	15.39%	14.48%	18.43%	15.63%
\$30,000 - \$39,999	15,833	943	2,212	18,988
% Row	83.39%	4.96%	11.65%	100.00%
% Column	11.10%	14.64%	15.09%	11.60%
\$40,000 - \$49,999	8,774	610	1,499	10,883
% Row	80.62%	5.60%	13.77%	100.00%
% Column	6.15%	9.47%	10.23%	6.65%
\$50,000 or more	13,173	1,915	2,143	17,231
% Row	76.45%	11.11%	12.44%	100.00%
% Column	9.23%	29.76%	14.62%	10.52%
Total	142,659	6,436	14,654	163,749
% Row	87.12%	3.93%	8.95%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

About 10 percent of the riders did not respond to the income question. This is typical for surveys.

Question 18: I am [ethnic group]:

Table 5-19 summarizes the ethnic composition of transit users. About one-half of all transit riders are black, while about 40 percent are white.

C. Cross-Tabulations of Traveler Characteristics

This section of the report presents various cross-tabulations of the survey results. The following cross-tabulations are presented:

<u>Table</u>	<u>Content</u>
5-20	Age by Number of Transfers <to be provided>
5-21	Income by Number of Transfers <to be provided>
5-22	Access Mode by Origin Purpose <to be provided>
5-23	Egress Mode by Destination Purpose
5-24	Access Mode by Egress Mode <to be provided>
5-25	Origin Purpose by Destination Purpose <to be provided>
5-26	Sex by General Purpose
5-27	Age by General Purpose
5-28	Income by General Purpose
5-29	Autos Available to Household by General Purpose
5-30	Auto Available for Trip by General Purpose
5-31	Transfers by General Purpose <to be provided>
5-32	Fare Payment by General Purpose
5-33	Fare Payment by Income
5-34	Access Mode by General Purpose
5-35	Walk Access Time by General Purpose
5-36	Egress Mode by General Purpose
5-37	Walk Egress Time by General Purpose

General purpose is defined based on the origin and destination trip purposes. General purposes are broken into three main categories: home-based, non-home-based, and hotel-based. Home-based trips have either an origin or a destination at the traveler's home. Non-home-based trips are trips made by residents of the region with neither end of the trip at the traveler's home. The hotel-based trips are trips made by travelers who are visitors to the area. One end of the trip is at a hotel and the other end is at a location other than "home". The general purposes summarized are as follows:

Table 5-19:
What is your ethnicity ?

Response	Type of Service			
	Bus	Light Rail	Heavy Rail	Total
No Response	0	0	564	564
% Row	0.00%	0.00%	100.00%	100.00%
% Column	0.00%	0.00%	3.85%	0.34%
Black	78,247	3,613	6,256	88,116
% Row	88.80%	4.10%	7.10%	100.00%
% Column	54.85%	56.14%	42.69%	53.81%
Hispanic	4,413	31	204	4,648
% Row	94.94%	0.67%	4.39%	100.00%
% Column	3.09%	0.48%	1.39%	2.84%
Oriental	1,148	77	101	1,326
% Row	86.59%	5.79%	7.62%	100.00%
% Column	0.80%	1.19%	0.69%	0.81%
White	54,370	2,580	7,089	64,039
% Row	84.90%	4.03%	11.07%	100.00%
% Column	38.11%	40.09%	48.38%	39.11%
Other	4,481	135	440	5,056
% Row	88.63%	2.67%	8.70%	100.00%
% Column	3.14%	2.09%	3.00%	3.09%
Total	142,659	6,436	14,654	163,749
% Row	87.12%	3.93%	8.95%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-20:
Table of age group by number of transfers

Age Group	Number of Transfers				
	No Response	0	1	2 or more	Total
No Response	12	197	90	114	413
% Row	2.91%	47.75%	21.81%	27.53%	100.00%
% Column	0.51%	0.23%	0.15%	0.74%	0.25%
13 or younger	5	833	467	54	1,360
% Row	0.37%	61.29%	34.35%	4.00%	100.00%
% Column	0.21%	0.99%	0.76%	0.36%	0.83%
14 - 17	106	5,328	6,315	868	12,617
% Row	0.84%	42.23%	50.05%	6.88%	100.00%
% Column	4.48%	6.31%	10.25%	5.67%	7.71%
18 - 22	193	10,226	8,123	1,703	20,245
% Row	0.95%	50.51%	40.12%	8.41%	100.00%
% Column	8.15%	12.11%	13.18%	11.12%	12.36%
23 - 34	526	25,091	17,265	4,417	47,299
% Row	1.11%	53.05%	36.50%	9.34%	100.00%
% Column	22.22%	29.71%	28.02%	28.85%	28.89%
35 - 49	651	27,668	18,686	5,484	52,489
% Row	1.24%	52.71%	35.60%	10.45%	100.00%
% Column	27.50%	32.76%	30.33%	35.82%	32.05%
50 - 64	501	10,707	7,790	1,978	20,976
% Row	2.39%	51.05%	37.14%	9.43%	100.00%
% Column	21.17%	12.68%	12.64%	12.92%	12.81%
65 or older	373	4,413	2,873	693	8,351
% Row	4.47%	52.84%	34.40%	8.29%	100.00%
% Column	15.76%	5.22%	4.66%	4.52%	5.10%
Total	2,367	84,464	61,609	15,310	163,749
% Row	1.45%	51.58%	37.62%	9.35%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-21:
Table of annual household income by number of transfers

Income Group	Number of Transfers				
	No Response	0	1	2 or more	Total
No Response	531	9,822	6,626	1,185	18,163
% Row	2.92%	54.08%	36.48%	6.52%	100.00%
% Column	22.42%	11.63%	10.75%	7.74%	11.09%
\$0 - \$9,999	621	14,994	16,580	5,452	37,646
% Row	1.65%	39.83%	44.04%	14.48%	100.00%
% Column	26.23%	17.75%	26.91%	35.61%	22.99%
\$10,000 - \$19,999	524	15,137	15,353	4,238	35,252
% Row	1.49%	42.94%	43.55%	12.02%	100.00%
% Column	22.13%	17.92%	24.92%	27.68%	21.53%
\$20,000 - \$29,999	210	14,184	9,211	1,983	25,587
% Row	0.82%	55.43%	36.00%	7.75%	100.00%
% Column	8.86%	16.79%	14.95%	12.95%	15.63%
\$30,000 - \$39,999	255	10,847	6,418	1,468	18,988
% Row	1.34%	57.13%	33.80%	7.73%	100.00%
% Column	10.77%	12.84%	10.42%	9.59%	11.60%
\$40,000 - \$49,999	46	7,467	2,765	605	10,883
% Row	0.42%	68.61%	25.41%	5.56%	100.00%
% Column	1.95%	8.84%	4.49%	3.95%	6.65%
\$50,000 or more	181	12,013	4,656	380	17,230
% Row	1.05%	69.72%	27.02%	2.21%	100.00%
% Column	7.64%	14.22%	7.56%	2.48%	10.52%
Total	2,366	84,464	61,609	15,310	163,749
% Row	1.45%	51.58%	37.62%	9.35%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-22:
Table of mode of access by from where the respondent came

Access Mode	From where the respondent came					
	No Response	Home	Work	Shopping	School / College	Doctor / Dentist
No Response	0	70	62	31	14	9
% Row	0.00%	36.29%	32.51%	16.10%	7.25%	4.56%
% Column	0.00%	0.08%	0.15%	0.63%	0.09%	0.31%
Walked	283	68,320	33,457	3,999	11,178	2,106
% Row	0.22%	53.71%	26.30%	3.14%	8.79%	1.66%
% Column	70.26%	77.98%	80.44%	81.21%	69.36%	74.87%
Drove	25	4,570	135	31	9	14
% Row	0.51%	93.74%	2.76%	0.64%	0.18%	0.28%
% Column	6.22%	5.22%	0.32%	0.63%	0.06%	0.48%
Transferred	92	11,207	6,811	730	4,623	621
% Row	0.35%	43.38%	26.36%	2.83%	17.89%	2.40%
% Column	22.70%	12.79%	16.38%	14.83%	28.68%	22.06%
Passenger	0	395	16	0	0	0
% Row	0.00%	96.11%	3.89%	0.00%	0.00%	0.00%
% Column	0.00%	0.45%	0.04%	0.00%	0.00%	0.00%
Dropped Off	3	2,974	1,066	133	238	64
% Row	0.07%	58.96%	21.13%	2.65%	4.71%	1.27%
% Column	0.83%	3.39%	2.56%	2.71%	1.47%	2.27%
Other	0	75	45	0	56	0
% Row	0.00%	39.78%	23.82%	0.00%	29.55%	0.00%
% Column	0.00%	0.09%	0.11%	0.00%	0.35%	0.00%
Total	403	87,610	41,592	4,924	16,117	2,813
% Row	0.25%	53.50%	25.40%	3.01%	9.84%	1.72%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-22 (Continued):
Table of mode of access by from where the respondent came

Access Mode	From where the respondent came				
	Visiting / Recreation	Hotel	Other	Airline Related	Total
No Response	0	0	6	0	192
% Row	0.00%	0.00%	3.30%	0.00%	100.00%
% Column	0.00%	0.00%	0.23%	0.00%	0.12%
Walked	5,262	358	1,962	280	127,205
% Row	4.14%	0.28%	1.54%	0.22%	100.00%
% Column	77.09%	86.74%	71.57%	90.12%	77.68%
Drove	66	0	26	0	4,875
% Row	1.35%	0.00%	0.54%	0.00%	100.00%
% Column	0.96%	0.00%	0.96%	0.00%	2.98%
Transferred	1,113	3	616	20	25,833
% Row	4.31%	0.01%	2.38%	0.08%	100.00%
% Column	16.31%	0.61%	22.46%	6.32%	15.78%
Passenger	0	0	0	0	411
% Row	0.00%	0.00%	0.00%	0.00%	100.00%
% Column	0.00%	0.00%	0.00%	0.00%	0.25%
Dropped Off	385	52	125	4	5,044
% Row	7.63%	1.03%	2.48%	0.08%	100.00%
% Column	5.64%	12.66%	4.56%	1.32%	3.08%
Other	0	0	6	7	189
% Row	0.00%	0.00%	3.17%	3.68%	100.00%
% Column	0.00%	0.00%	0.22%	2.24%	0.12%
Total	6,825	412	2,742	311	163,749
% Row	4.17%	0.25%	1.67%	0.19%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-23:

Table of mode of egress by to where the respondent went

Egress Mode	To where the respondent went					
	No Response	Home	Work	Shopping	School / College	Doctor / Dentist
No Response	0	210	295	94	33	9
% Row	0.00%	27.73%	39.01%	12.36%	4.36%	1.20%
% Column	0.00%	0.31%	0.53%	1.16%	0.26%	0.24%
Walked	554	51,771	44,800	6,882	9,089	2,958
% Row	0.43%	40.09%	34.69%	5.33%	7.04%	2.29%
% Column	64.06%	77.35%	80.59%	85.11%	71.36%	77.90%
Drove	0	3,151	136	110	19	0
% Row	0.00%	89.60%	3.86%	3.11%	0.55%	0.00%
% Column	0.00%	4.71%	0.24%	1.35%	0.15%	0.00%
Transferred	311	10,010	9,869	905	3,133	830
% Row	1.14%	36.75%	36.23%	3.32%	11.50%	3.05%
% Column	35.94%	14.96%	17.75%	11.19%	24.60%	21.86%
Passenger	0	385	159	0	18	0
% Row	0.00%	65.36%	27.02%	0.00%	3.08%	0.00%
% Column	0.00%	0.58%	0.29%	0.00%	0.14%	0.00%
Picked Up	0	1,238	180	96	66	0
% Row	0.00%	69.47%	10.11%	5.38%	3.69%	0.00%
% Column	0.00%	1.85%	0.32%	1.19%	0.52%	0.00%
Other	0	164	150	0	378	0
% Row	0.00%	22.93%	20.91%	0.00%	52.81%	0.00%
% Column	0.00%	0.25%	0.27%	0.00%	2.97%	0.00%
Total	865	66,930	55,590	8,086	12,736	3,797
% Row	0.53%	40.87%	33.95%	4.94%	7.78%	2.32%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-23 (Continued):

Table of mode of egress by to where the respondent went

Egress Mode	To where the respondent went				
	Visiting / Recreation	Hotel	Other	Airline Related	Total
No Response	94	0	16	7	757
% Row	12.36%	0.00%	2.09%	0.90%	100.00%
% Column	0.83%	0.00%	0.38%	4.38%	0.46%
Walked	9,519	181	3,253	137	129,145
% Row	7.37%	0.14%	2.52%	0.11%	100.00%
% Column	84.69%	96.31%	78.19%	88.12%	78.87%
Drove	49	0	52	0	3,517
% Row	1.38%	0.00%	1.49%	0.00%	100.00%
% Column	0.43%	0.00%	1.26%	0.00%	2.15%
Transferred	1,377	0	795	12	27,242
% Row	5.06%	0.00%	2.92%	0.04%	100.00%
% Column	12.25%	0.00%	19.10%	7.50%	16.64%
Passenger	10	0	17	0	589
% Row	1.68%	0.00%	2.87%	0.00%	100.00%
% Column	0.09%	0.00%	0.41%	0.00%	0.36%
Picked Up	192	0	11	0	1,782
% Row	10.75%	0.00%	0.60%	0.00%	100.00%
% Column	1.70%	0.00%	0.26%	0.00%	1.09%
Other	0	7	17	0	716
% Row	0.00%	0.97%	2.37%	0.00%	100.00%
% Column	0.00%	3.69%	0.41%	0.00%	0.44%
Total	11,240	188	4,161	155	163,749
% Row	6.86%	0.12%	2.54%	0.09%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-24:
Table of mode of access by mode of egress

Access Mode	Egress Mode			
	No Response	Walked	Drove	Transferred
No Response	18	133	0	41
% Row	9.43%	69.25%	0.00%	21.32%
% Column	2.39%	0.10%	0.00%	0.15%
Walked	591	100,346	2,916	21,005
% Row	0.46%	78.89%	2.29%	16.51%
% Column	78.08%	77.70%	82.90%	77.11%
Drove	41	4,034	299	470
% Row	0.84%	82.74%	6.14%	9.64%
% Column	5.38%	3.12%	8.51%	1.72%
Transferred	107	20,493	203	4,677
% Row	0.41%	79.33%	0.79%	18.10%
% Column	14.14%	15.87%	5.77%	17.17%
Passenger	0	299	0	87
% Row	0.00%	72.71%	0.00%	21.21%
% Column	0.00%	0.23%	0.00%	0.32%
Dropped Off	0	3,689	99	925
% Row	0.00%	73.14%	1.96%	18.35%
% Column	0.00%	2.86%	2.82%	3.40%
Other	0	152	0	37
% Row	0.00%	80.58%	0.00%	19.42%
% Column	0.00%	0.12%	0.00%	0.13%
Total	757	129,146	3,517	27,242
% Row	0.46%	78.87%	2.15%	16.64%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-24 (Continued):
Table of mode of access by mode of egress

Access Mode	Egress Mode			
	Passenger	Picked Up	Other	Total
No Response	0	0	0	192
% Row	0.00%	0.00%	0.00%	100.00%
% Column	0.00%	0.00%	0.00%	0.12%
Walked	500	1,401	445	127,204
% Row	0.39%	1.10%	0.35%	100.00%
% Column	84.93%	78.63%	62.10%	77.68%
Drove	18	0	14	4,875
% Row	0.37%	0.00%	0.29%	100.00%
% Column	3.06%	0.00%	1.95%	2.98%
Transferred	23	230	101	25,833
% Row	0.09%	0.89%	0.39%	100.00%
% Column	3.86%	12.91%	14.08%	15.78%
Passenger	0	0	25	411
% Row	0.00%	0.00%	6.08%	100.00%
% Column	0.00%	0.00%	3.49%	0.25%
Dropped Off	48	151	132	5,044
% Row	0.95%	2.99%	2.61%	100.00%
% Column	8.15%	8.46%	18.39%	3.08%
Other	0	0	0	189
% Row	0.00%	0.00%	0.00%	100.00%
% Column	0.00%	0.00%	0.00%	0.12%
Total	589	1,782	716	163,749
% Row	0.36%	1.09%	0.44%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-25:

Table of from where the respondent came by to where the respondent went

From where the respondent came	To where the respondent went					
	No Response	Home	Work	Shopping	School / College	Doctor / Dentist
No Response	111	203	25	17	31	0
% Row	27.44%	50.21%	6.24%	4.31%	7.77%	0.00%
% Column	12.80%	0.30%	0.05%	0.21%	0.25%	0.00%
Home	609	6,627	50,328	5,826	11,255	2,690
% Row	0.70%	7.56%	57.45%	6.65%	12.85%	3.07%
% Column	70.37%	9.90%	90.53%	72.06%	88.37%	70.83%
Work	45	35,416	1,842	775	385	455
% Row	0.11%	85.15%	4.43%	1.86%	0.93%	1.09%
% Column	5.20%	52.92%	3.31%	9.59%	3.02%	11.99%
Shopping	0	3,677	477	253	127	112
% Row	0.00%	74.66%	9.68%	5.13%	2.58%	2.28%
% Column	0.00%	5.49%	0.86%	3.12%	1.00%	2.96%
School/College	26	13,118	1,058	502	269	271
% Row	0.16%	81.40%	6.57%	3.12%	1.67%	1.68%
% Column	2.97%	19.60%	1.90%	6.21%	2.11%	7.14%
Doctor/Dentist	0	2,000	165	326	115	92
% Row	0.00%	71.08%	5.85%	11.57%	4.07%	3.26%
% Column	0.00%	2.99%	0.30%	4.03%	0.90%	2.41%

Table 5-25 (Continued):

Table of from where the respondent came by to where the respondent went

From where the respondent came	To where the respondent went					
	No Response	Home	Work	Shopping	School / College	Doctor / Dentist
Visit/Recreation	0	4,636	699	278	271	144
% Row	0.00%	67.92%	10.25%	4.08%	3.98%	2.11%
% Column	0.00%	6.93%	1.26%	3.44%	2.13%	3.79%
Hotel	0	64	278	53	2	0
% Row	0.00%	15.48%	67.42%	12.75%	0.58%	0.00%
% Column	0.00%	0.10%	0.50%	0.65%	0.02%	0.00%
Other	68	1,110	632	55	280	19
% Row	2.48%	40.48%	23.07%	2.02%	10.23%	0.70%
% Column	7.86%	1.66%	1.14%	0.68%	2.20%	0.50%
Airline Related	7	81	85	0	0	14
% Row	2.24%	25.93%	27.44%	0.00%	0.00%	4.57%
% Column	0.80%	0.12%	0.15%	0.00%	0.00%	0.37%
Total	865	66,930	55,590	8,086	12,736	3,797
% Row	0.53%	40.87%	33.95%	4.94%	7.78%	2.32%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-25:

Table of from where the respondent came by to where the respondent went

From where the respondent came	To where the respondent went					
	No Response	Home	Work	Shopping	School / College	Doctor / Dentist
No Response	111	203	25	17	31	0
% Row	27.44%	50.21%	6.24%	4.31%	7.77%	0.00%
% Column	12.80%	0.30%	0.05%	0.21%	0.25%	0.00%
Home	609	6,627	50,328	5,826	11,255	2,690
% Row	0.70%	7.56%	57.45%	6.65%	12.85%	3.07%
% Column	70.37%	9.90%	90.53%	72.06%	88.37%	70.83%
Work	45	35,416	1,842	775	385	455
% Row	0.11%	85.15%	4.43%	1.86%	0.93%	1.09%
% Column	5.20%	52.92%	3.31%	9.59%	3.02%	11.99%
Shopping	0	3,677	477	253	127	112
% Row	0.00%	74.66%	9.68%	5.13%	2.58%	2.28%
% Column	0.00%	5.49%	0.86%	3.12%	1.00%	2.96%
School/College	26	13,118	1,058	502	269	271
% Row	0.16%	81.40%	6.57%	3.12%	1.67%	1.68%
% Column	2.97%	19.60%	1.90%	6.21%	2.11%	7.14%
Doctor/Dentist	0	2,000	165	326	115	92
% Row	0.00%	71.08%	5.85%	11.57%	4.07%	3.26%
% Column	0.00%	2.99%	0.30%	4.03%	0.90%	2.41%

Table 5-25 (Continued):

Table of from where the respondent came by to where the respondent went

From where the respondent came	To where the respondent went					
	No Response	Home	Work	Shopping	School / College	Doctor / Dentist
Visit/Recreation	0	4,636	699	278	271	144
% Row	0.00%	67.92%	10.25%	4.08%	3.98%	2.11%
% Column	0.00%	6.93%	1.26%	3.44%	2.13%	3.79%
Hotel	0	64	278	53	2	0
% Row	0.00%	15.48%	67.42%	12.75%	0.58%	0.00%
% Column	0.00%	0.10%	0.50%	0.65%	0.02%	0.00%
Other	68	1,110	632	55	280	19
% Row	2.48%	40.48%	23.07%	2.02%	10.23%	0.70%
% Column	7.86%	1.66%	1.14%	0.68%	2.20%	0.50%
Airline Related	7	81	85	0	0	14
% Row	2.24%	25.93%	27.44%	0.00%	0.00%	4.57%
% Column	0.80%	0.12%	0.15%	0.00%	0.00%	0.37%
Total	865	66,930	55,590	8,086	12,736	3,797
% Row	0.53%	40.87%	33.95%	4.94%	7.78%	2.32%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-25 (Continued):

Table of from where the respondent came by to where the respondent went

From where the respondent came	To where the respondent went				
	Visiting / Recreation	Hotel	Other	Airline Related	Total
No Response	16	0	0	0	403
% Row	4.03%	0.00%	0.00%	0.00%	100.00%
% Column	0.14%	0.00%	0.00%	0.00%	0.25%
Home	7,367	14	2,817	77	87,611
% Row	8.41%	0.02%	3.22%	0.09%	100.00%
% Column	65.54%	7.45%	67.71%	49.81%	53.50%
Work	1,985	54	585	50	41,592
% Row	4.77%	0.13%	1.41%	0.12%	100.00%
% Column	17.66%	28.51%	14.07%	31.90%	25.40%
Shopping	279	0	0	0	4,924
% Row	5.66%	0.00%	0.00%	0.00%	100.00%
% Column	2.48%	0.00%	0.00%	0.00%	3.01%
School/College	469	0	403	0	16,116
% Row	2.91%	0.00%	2.50%	0.00%	100.00%
% Column	4.17%	0.00%	9.69%	0.00%	9.84%
Doctor/Dentist	86	0	31	0	2,813
% Row	3.06%	0.00%	1.11%	0.00%	100.00%
% Column	0.77%	0.00%	0.75%	0.00%	1.72%

Table 5-25 (Continued):

Table of from where the respondent came by to where the respondent went

From where the respondent came	To where the respondent went				
	Visiting / Recreation	Hotel	Other	Airline Related	Total
Visit/Recreation	666	32	92	7	6,825
% Row	9.75%	0.47%	1.34%	0.11%	100.00%
% Column	5.92%	16.97%	2.20%	4.67%	4.17%
Hotel	16	0	0	0	412
% Row	3.77%	0.00%	0.00%	0.00%	100.00%
% Column	0.14%	0.00%	0.00%	0.00%	0.25%
Other	330	0	232	14	2,742
% Row	12.04%	0.00%	8.47%	0.52%	100.00%
% Column	2.94%	0.00%	5.58%	9.15%	1.67%
Airline Related	28	89	0	7	311
% Row	9.05%	28.54%	0.00%	2.24%	100.00%
% Column	0.25%	47.07%	0.00%	4.47%	0.19%
Total	11,240	188	4,161	155	163,749
% Row	6.86%	0.12%	2.54%	0.09%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-26:

Table of gender of the respondent by general purpose of the trip

Gender	General Purpose				
	No Response	Home-Based Work	Home-Based Shopping	Home-Based School	Home-Based Other
No Response	323	397	155	47	129
% Row	27.80%	34.12%	13.30%	4.02%	11.14%
% Column	4.15%	0.46%	1.63%	0.19%	0.62%
Male	3,107	32,509	2,738	8,540	7,971
% Row	5.10%	53.40%	4.50%	14.03%	13.09%
% Column	39.91%	37.91%	28.81%	35.04%	38.22%
Female	4,355	52,838	6,610	15,787	12,754
% Row	4.28%	51.95%	6.50%	15.52%	12.54%
% Column	55.94%	61.62%	69.56%	64.77%	61.16%
Total	7,785	85,744	9,503	24,373	20,854
% Row	4.75%	52.36%	5.80%	14.88%	12.74%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%
	Non-Home-Based Work	Non-Home-Based Other	Non-Home-Based Hotel	Total	
No Response	74	38	0	1,162	
% Row	6.36%	3.26%	0.00%	100.00%	
% Column	0.78%	0.65%	0.00%	0.71%	
Male	3,453	2,445	114	60,877	
% Row	5.67%	4.02%	0.19%	100.00%	
% Column	36.25%	41.85%	94.64%	37.18%	
Female	5,999	3,360	6	101,710	
% Row	5.90%	3.30%	0.01%	100.00%	
% Column	62.97%	57.50%	5.36%	62.11%	
Total	9,526	5,843	121	163,749	
% Row	5.82%	3.57%	0.07%	100.00%	
% Column	100.00%	100.00%	100.00%	100.00%	

Table 5-27:

Table of age of the respondent by general purpose of the trip

Age	General Purpose				
	No Response	Home-Based Work	Home-Based Shopping	Home-Based School	Home-Based Other
No Response	56	112	23	103	39
% Row	13.60%	27.07%	5.69%	24.83%	9.54%
% Column	0.72%	0.13%	0.25%	0.42%	0.19%
13 or younger	60	10	67	1,155	67
% Row	4.38%	0.75%	4.95%	84.98%	4.94%
% Column	0.77%	0.01%	0.71%	4.74%	0.32%
14-17	443	484	556	9,062	1,170
% Row	3.52%	3.83%	4.40%	71.82%	9.28%
% Column	5.70%	0.56%	5.85%	37.18%	5.61%
18-22	795	7,165	1,168	5,960	3,057
% Row	3.93%	35.39%	5.77%	29.44%	15.10%
% Column	10.21%	8.36%	12.29%	24.45%	14.66%
23-34	2,174	27,774	1,876	4,479	6,667
% Row	4.60%	58.72%	3.97%	9.47%	14.10%
% Column	27.92%	32.39%	19.74%	18.38%	31.97%
35-49	2,484	34,175	1,630	3,165	5,321
% Row	4.73%	65.11%	3.11%	6.03%	10.14%
% Column	31.91%	39.86%	17.16%	12.98%	25.51%
50-64	1,040	13,814	1,860	305	1,853
% Row	4.96%	65.86%	8.87%	1.46%	8.83%
% Column	13.36%	16.11%	19.57%	1.25%	8.88%
65 or older	734	2,209	2,322	145	2,680
% Row	8.78%	26.45%	27.81%	1.73%	32.09%
% Column	9.42%	2.58%	24.44%	0.59%	12.85%
Total	7,785	85,743	9,503	24,373	20,854
% Row	4.75%	52.36%	5.80%	14.88%	12.74%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-27 (Continued):

Table of age of the respondent by general purpose of the trip

Age	General Purpose			
	Non-Home- Based Work	Non-Home- Based Other	Non-Home- Based Hotel	Total
No Response	21	58	0	413
% Row	5.19%	14.08%	0.00%	100.00%
% Column	0.23%	1.00%	0.00%	0.25%
13 or younger	0	0	0	1,360
% Row	0.00%	0.00%	0.00%	100.00%
% Column	0.00%	0.00%	0.00%	0.83%
14 - 17	272	604	26	12,617
% Row	2.16%	4.79%	0.20%	100.00%
% Column	2.86%	10.34%	21.14%	7.70%
18 - 22	1,166	935	0	20,245
% Row	5.76%	4.62%	0.00%	100.00%
% Column	12.24%	16.00%	0.00%	12.36%
23 - 34	2,947	1,382	0	47,299
% Row	6.23%	2.92%	0.00%	100.00%
% Column	30.93%	23.65%	0.00%	28.89%
35 - 49	3,705	1,934	75	52,489
% Row	7.06%	3.68%	0.14%	100.00%
% Column	38.89%	33.10%	62.47%	32.05%
50 - 64	1,298	786	20	20,976
% Row	6.19%	3.75%	0.09%	100.00%
% Column	13.63%	13.45%	16.40%	12.81%
65 or older	117	144	0	8,351
% Row	1.40%	1.73%	0.00%	100.00%
% Column	1.23%	2.47%	0.00%	5.10%
Total	9,526	5,843	121	163,749
% Row	5.82%	3.57%	0.07%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-28:

Table of household income of the respondent by general purpose of the trip

Household Income	General Purpose				
	No Response	Home-Based Work	Home-Based Shopping	Home-Based School	Home-Based Other
No Response	1,338	7,308	1,391	4,893	2,167
% Row	7.37%	40.23%	7.66%	26.94%	11.93%
% Column	17.18%	8.52%	14.63%	20.08%	10.39%
\$0 - \$9,999	2,698	12,323	3,595	6,065	8,650
% Row	7.17%	32.73%	9.55%	16.11%	22.98%
% Column	34.66%	14.37%	37.83%	24.88%	41.48%
\$10,000-\$19,999	1,339	19,505	2,214	3,679	5,065
% Row	3.80%	55.33%	6.28%	10.44%	14.37%
% Column	17.20%	22.75%	23.30%	15.09%	24.29%
\$20,000-\$29,999	1,005	16,397	1,288	3,046	1,990
% Row	3.93%	64.08%	5.04%	11.90%	7.78%
% Column	12.91%	19.12%	13.56%	12.50%	9.54%
\$30,000-\$39,999	539	11,559	403	3,026	1,586
% Row	2.84%	60.88%	2.12%	15.94%	8.35%
% Column	6.93%	13.48%	4.24%	12.42%	7.61%
\$40,000-\$49,999	265	7,291	357	1,334	717
% Row	2.43%	66.99%	3.28%	12.26%	6.59%
% Column	3.40%	8.50%	3.76%	5.47%	3.44%
\$50,000 or more	601	11,360	255	2,331	677
% Row	3.49%	65.93%	1.48%	13.53%	3.93%
% Column	7.72%	13.25%	2.68%	9.56%	3.25%
Total	7,785	85,743	9,503	24,374	20,854
% Row	4.75%	52.36%	5.80%	14.88%	12.74%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-28 (Continued):

Table of household income of the respondent by general purpose of the trip

Household Income	General Purpose			
	Non-Home-Based Work	Non-Home-Based Other	Non-Home-Based Hotel	Total
No Response	395	671	0	18,163
% Row	2.18%	3.69%	0.00%	100.00%
% Column	4.15%	11.48%	0.00%	11.09%
\$0 - \$9,999	1,995	2,313	6	37,646
% Row	5.30%	6.14%	0.02%	100.00%
% Column	20.94%	39.59%	5.35%	22.99%
\$10,000-\$19,999	2,243	1,206	0	35,252
% Row	6.36%	3.42%	0.00%	100.00%
% Column	23.55%	20.64%	0.00%	21.53%
\$20,000-\$29,999	1,481	365	14	25,587
% Row	5.79%	1.43%	0.06%	100.00%
% Column	15.55%	6.25%	11.78%	15.63%
\$30,000-\$39,999	1,277	597	0	18,988
% Row	6.73%	3.15%	0.00%	100.00%
% Column	13.41%	10.22%	0.00%	11.60%
\$40,000-\$49,999	832	87	0	10,883
% Row	7.64%	0.80%	0.00%	100.00%
% Column	8.73%	1.48%	0.00%	6.65%
\$50,000 or more	1,302	604	100	17,230
% Row	7.56%	3.51%	0.58%	100.00%
% Column	13.67%	10.34%	82.87%	10.52%
Total	9,526	5,843	121	163,749
% Row	5.82%	3.57%	0.07%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-29:

Table of motor vehicles in the household by general purpose of the trip

Household Vehicles	General Purpose				
	No Response	Home-Based Work	Home-Based Shopping	Home-Based School	Home-Based Other
No Response	194	639	177	257	251
% Row	10.88%	35.83%	9.93%	14.42%	14.05%
% Column	2.49%	0.75%	1.87%	1.06%	1.20%
None	3,740	26,938	5,463	7,391	11,195
% Row	6.13%	44.16%	8.96%	12.12%	18.35%
% Column	48.04%	31.42%	57.49%	30.32%	53.68%
One	2,365	31,802	2,408	8,077	5,741
% Row	4.27%	57.41%	4.35%	14.58%	10.36%
% Column	30.38%	37.09%	25.34%	33.14%	27.53%
Two	1,004	20,082	1,106	5,917	2,738
% Row	2.97%	59.50%	3.28%	17.53%	8.11%
% Column	12.89%	23.42%	11.64%	24.28%	13.13%
Three or more	482	6,282	349	2,732	930
% Row	4.08%	53.12%	2.95%	23.10%	7.86%
% Column	6.19%	7.33%	3.67%	11.21%	4.46%
Total	7,785	85,743	9,503	24,373	20,854
% Row	4.75%	52.36%	5.80%	14.88%	12.74%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-29 (Continued):

Table of motor vehicles in the household by general purpose of the trip

Household Vehicles	General Purpose			
	Non-Home- Based Work	Non-Home- Based Other	Non-Home- Based Hotel	Total
No Response	138	128	0	1,784
% Row	7.72%	7.17%	0.00%	100.00%
% Column	1.45%	2.19%	0.00%	1.09%
None	3,370	2,871	26	60,994
% Row	5.52%	4.71%	0.04%	100.00%
% Column	35.37%	49.14%	21.63%	37.25%
One	3,365	1,617	21	55,395
% Row	6.07%	2.92%	0.04%	100.00%
% Column	35.32%	27.67%	17.54%	33.83%
Two	2,026	842	35	33,750
% Row	6.00%	2.49%	0.10%	100.00%
% Column	21.26%	14.40%	29.05%	20.61%
Three or more	628	386	38	11,826
% Row	5.31%	3.26%	0.32%	100.00%
% Column	6.59%	6.60%	31.78%	7.22%
Total	9,526	5,843	121	163,749
% Row	5.82%	3.57%	0.07%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-30:

Table of auto availability for the respondent by general purpose of the trip

Was Auto Available ?	General Purpose				
	No Response	Home-Based Work	Home-Based Shopping	Home-Based School	Home-Based Other
No Response	135	406	7	120	165
% Row	14.11%	42.44%	0.71%	12.52%	17.30%
% Column	1.73%	0.47%	0.07%	0.49%	0.79%
Yes	1,919	35,348	1,870	4,542	3,473
% Row	3.79%	69.76%	3.69%	8.96%	6.85%
% Column	24.65%	41.23%	19.68%	18.63%	16.65%
No	5,732	49,990	7,626	19,712	17,216
% Row	5.11%	44.59%	6.80%	17.58%	15.36%
% Column	73.62%	58.30%	80.25%	80.87%	82.56%
Total	7,785	85,744	9,503	24,374	20,854
% Row	4.75%	52.36%	5.80%	14.88%	12.74%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%
	Non-Home-Based Work	Non-Home-Based Other	Non-Home-Based Hotel	Total	
No Response	7	104	13	956	
% Row	0.75%	10.83%	1.34%	100.00%	
% Column	0.08%	1.77%	10.64%	0.58%	
Yes	2,637	861	26	50,675	
% Row	5.20%	1.70%	0.05%	100.00%	
% Column	27.68%	14.74%	21.14%	30.95%	
No	6,882	4,879	82	112,118	
% Row	6.14%	4.35%	0.07%	100.00%	
% Column	72.24%	83.49%	68.22%	68.47%	
Total	9,526	5,843	121	163,749	
% Row	5.82%	3.57%	0.07%	100.00%	
% Column	100.00%	100.00%	100.00%	100.00%	

Table 5-31:

Table of number of transfers made by the respondent by general purpose of the trip

Transfers	General Purpose				
	No Response	Home-Based Work	Home-Based Shopping	Home-Based School	Home-Based Other
No Response	50	1,027	512	97	405
% Row	2.10%	43.41%	21.63%	4.11%	17.11%
% Column	0.64%	1.20%	5.39%	0.40%	1.94%
None	3,974	48,273	5,097	9,887	9,141
% Row	4.71%	57.15%	6.03%	11.71%	10.82%
% Column	51.05%	56.30%	53.63%	40.57%	43.83%
One	2,700	29,273	3,225	12,775	8,587
% Row	4.38%	47.51%	5.23%	20.74%	13.94%
% Column	34.68%	34.14%	33.93%	52.41%	41.18%
Two or more	1,062	7,171	670	1,614	2,722
% Row	6.93%	46.84%	4.37%	10.54%	17.78%
% Column	13.63%	8.36%	7.05%	6.62%	13.05%
Total	7,785	85,744	9,503	24,373	20,854
% Row	4.75%	52.36%	5.80%	14.88%	12.74%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-31 (Continued):

Table of number of transfers made by the respondent by general purpose of the trip

Transfers	General Purpose			
	Non-Home- Based Work	Non-Home- Based Other	Non-Home- Based Hotel	Total
No Response	204	71	0	2,366
% Row	8.64%	3.01%	0.00%	100.00%
% Column	2.15%	1.22%	0.00%	1.45%
None	5,689	2,334	69	84,464
% Row	6.74%	2.76%	0.08%	100.00%
% Column	59.72%	39.95%	56.83%	51.58%
One	2,749	2,274	27	61,609
% Row	4.46%	3.69%	0.04%	100.00%
% Column	28.86%	38.91%	22.03%	37.62%
Two or more	883	1,164	26	15,310
% Row	5.77%	7.60%	0.17%	100.00%
% Column	9.27%	19.92%	21.14%	9.35%
Total	9,526	5,843	121	163,749
% Row	5.82%	3.57%	0.07%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-31:

Table of number of transfers made by the respondent by general purpose of the trip

Transfers	General Purpose				
	No Response	Home-Based Work	Home-Based Shopping	Home-Based School	Home-Based Other
No Response	50	1,027	512	97	405
% Row	2.10%	43.41%	21.63%	4.11%	17.11%
% Column	0.64%	1.20%	5.39%	0.40%	1.94%
None	3,974	48,273	5,097	9,887	9,141
% Row	4.71%	57.15%	6.03%	11.71%	10.82%
% Column	51.05%	56.30%	53.63%	40.57%	43.83%
One	2,700	29,273	3,225	12,775	8,587
% Row	4.38%	47.51%	5.23%	20.74%	13.94%
% Column	34.68%	34.14%	33.93%	52.41%	41.18%
Two or more	1,062	7,171	670	1,614	2,722
% Row	6.93%	46.84%	4.37%	10.54%	17.78%
% Column	13.63%	8.36%	7.05%	6.62%	13.05%
Total	7,785	85,744	9,503	24,373	20,854
% Row	4.75%	52.36%	5.80%	14.88%	12.74%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-31 (Continued):

Table of number of transfers made by the respondent by general purpose of the trip

Transfers	General Purpose			
	Non-Home- Based Work	Non-Home- Based Other	Non-Home- Based Hotel	Total
No Response	204	71	0	2,366
% Row	8.64%	3.01%	0.00%	100.00%
% Column	2.15%	1.22%	0.00%	1.45%
None	5,689	2,334	69	84,464
% Row	6.74%	2.76%	0.08%	100.00%
% Column	59.72%	39.95%	56.83%	51.58%
One	2,749	2,274	27	61,609
% Row	4.46%	3.69%	0.04%	100.00%
% Column	28.86%	38.91%	22.03%	37.62%
Two or more	883	1,164	26	15,310
% Row	5.77%	7.60%	0.17%	100.00%
% Column	9.27%	19.92%	21.14%	9.35%
Total	9,526	5,843	121	163,749
% Row	5.82%	3.57%	0.07%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-32:

Table of method of payment by the respondent by general purpose of the trip

Payment Method	General Purpose				
	No Response	Home-Based Work	Home-Based Shopping	Home-Based School	Home-Based Other
No Response	139	376	43	98	119
% Row	17.27%	46.67%	5.31%	12.14%	14.78%
% Column	1.79%	0.44%	0.45%	0.40%	0.57%
Transfer	1,246	8,834	1,253	4,482	3,453
% Row	5.90%	41.85%	5.94%	21.23%	16.36%
% Column	16.00%	10.30%	13.18%	18.39%	16.56%
Paid Cash	3,348	29,888	4,655	5,037	9,782
% Row	5.74%	51.27%	7.99%	8.64%	16.78%
% Column	43.01%	34.86%	48.99%	20.66%	46.91%
Local Weekly	1,031	12,628	998	3,325	2,234
% Row	4.31%	52.83%	4.18%	13.91%	9.34%
% Column	13.24%	14.73%	10.51%	13.64%	10.71%
Local Monthly	267	3,197	477	1,514	784
% Row	3.85%	46.02%	6.87%	21.80%	11.29%
% Column	3.43%	3.73%	5.02%	6.21%	3.76%
Express Weekly	318	9,455	323	969	1,260
% Row	2.30%	68.38%	2.33%	7.01%	9.11%
% Column	4.09%	11.03%	3.40%	3.97%	6.04%
Express Monthly	388	5,877	160	829	468
% Row	4.63%	70.14%	1.91%	9.90%	5.58%
% Column	4.98%	6.85%	1.68%	3.40%	2.24%

Table 5-32 (Continued):

Table of method of payment by the respondent by general purpose of the trip

Payment Method	General Purpose				
	No Response	Home-Based Work	Home-Based Shopping	Home-Based School	Home-Based Other
Local Ticket	187	3,877	97	1,203	517
% Row	3.00%	62.34%	1.55%	19.34%	8.31%
% Column	2.40%	4.52%	1.02%	4.94%	2.48%
Express Ticket	297	9,639	127	705	122
% Row	2.67%	86.52%	1.14%	6.33%	1.09%
% Column	3.82%	11.24%	1.33%	2.89%	0.58%
Senior/Disabled	288	1,569	1,234	143	1,504
% Row	5.86%	31.87%	25.07%	2.91%	30.55%
% Column	3.70%	1.83%	12.99%	0.59%	7.21%
Student	237	208	67	6,068	408
% Row	3.18%	2.79%	0.91%	81.47%	5.48%
% Column	3.05%	0.24%	0.71%	24.90%	1.96%
50 Cent Ticket	38	196	69	0	203
% Row	5.11%	26.06%	9.22%	0.00%	26.99%
% Column	0.49%	0.23%	0.73%	0.00%	0.97%
Total	7,785	85,744	9,503	24,373	20,854
% Row	4.75%	52.36%	5.80%	14.88%	12.74%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-32 (Continued):

Table of method of payment by the respondent by general purpose of the trip

Payment Method	General Purpose			
	Non-Home- Based Work	Non-Home- Based Other	Non-Home- Based Hotel	Total
Local Ticket	66	266	7	6,219
% Row	1.07%	4.27%	0.11%	100.00%
% Column	0.70%	4.55%	5.76%	3.80%
Express Ticket	201	50	0	11,140
% Row	1.80%	0.45%	0.00%	100.00%
% Column	2.11%	0.85%	0.00%	6.80%
Senior/Disabled	24	160	0	4,923
% Row	0.50%	3.25%	0.00%	100.00%
% Column	0.26%	2.74%	0.00%	3.01%
Student	134	300	26	7,449
% Row	1.80%	4.03%	0.34%	100.00%
% Column	1.41%	5.14%	21.14%	4.55%
50 Cent Ticket	187	58	0	752
% Row	24.89%	7.74%	0.00%	100.00%
% Column	1.96%	1.00%	0.00%	0.46%
Total	9,526	5,843	121	163,749
% Row	5.82%	3.57%	0.07%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-32 (Continued):

Table of method of payment by the respondent by general purpose of the trip

Payment Method	General Purpose			
	Non-Home- Based Work	Non-Home- Based Other	Non-Home- Based Hotel	Total
No Response	6	24	0	805
% Row	0.80%	3.04%	0.00%	100.00%
% Column	0.07%	0.42%	0.00%	0.49%
Transfer	1,061	760	20	21,108
% Row	5.03%	3.60%	0.09%	100.00%
% Column	11.14%	13.00%	16.28%	12.89%
Paid Cash	3,556	1,961	69	58,295
% Row	6.10%	3.36%	0.12%	100.00%
% Column	37.33%	33.55%	56.83%	35.60%
Local Weekly	2,486	1,202	0	23,904
% Row	10.40%	5.03%	0.00%	100.00%
% Column	26.09%	20.57%	0.00%	14.60%
Local Monthly	488	219	0	6,948
% Row	7.03%	3.15%	0.00%	100.00%
% Column	5.13%	3.75%	0.00%	4.24%
Express Weekly	913	590	0	13,828
% Row	6.60%	4.27%	0.00%	100.00%
% Column	9.58%	10.10%	0.00%	8.44%
Express Monthly	403	254	0	8,379
% Row	4.81%	3.03%	0.00%	100.00%
% Column	4.23%	4.34%	0.00%	5.12%

Table 5-33:
Table of method of payment by the household income of the respondent

Payment Method	Household Income			
	No Response	\$0 - \$9,999	\$10,000 - \$19,999	\$20,000 - \$29,999
No Response	240	102	65	38
% Row	29.81%	12.65%	8.04%	4.66%
% Column	1.32%	0.27%	0.18%	0.15%
Transfer	2,876	5,728	4,466	3,386
% Row	13.62%	27.14%	21.16%	16.04%
% Column	15.83%	15.22%	12.67%	13.23%
Paid Cash	5,012	14,061	12,559	9,022
% Row	8.60%	24.12%	21.54%	15.48%
% Column	27.59%	37.35%	35.63%	35.26%
Local Weekly	2,174	6,869	7,473	3,498
% Row	9.09%	28.73%	31.26%	14.63%
% Column	11.97%	18.24%	21.20%	13.67%
Local Monthly	676	1,946	1,896	1,115
% Row	9.73%	28.01%	27.29%	16.05%
% Column	3.72%	5.17%	5.38%	4.36%
Express Weekly	1,037	2,681	3,706	2,874
% Row	7.50%	19.39%	26.80%	20.78%
% Column	5.71%	7.12%	10.51%	11.23%
Express Monthly	552	1,154	1,612	1,527
% Row	6.59%	13.77%	19.24%	18.23%
% Column	3.04%	3.07%	4.57%	5.97%

Table 5-33 (Continued):

Table of method of payment by the household income of the respondent

Payment Method	Household Income			
	No Response	\$0 - \$9,999	\$10,000 - \$19,999	\$20,000 - \$29,999
Local Ticket	771	1,383	995	1,076
% Row	12.40%	22.23%	16.01%	17.30%
% Column	4.25%	3.67%	2.82%	4.20%
Express Ticket	1,099	288	630	1,890
% Row	9.86%	2.58%	5.65%	16.97%
% Column	6.05%	0.76%	1.79%	7.39%
Senior/Disabled	929	1,853	885	521
% Row	18.87%	37.63%	17.98%	10.58%
% Column	5.11%	4.92%	2.51%	2.04%
Student	2,703	1,259	908	603
% Row	36.28%	16.90%	12.19%	8.10%
% Column	14.88%	3.34%	2.58%	2.36%
50 Cent Ticket	96	325	57	38
% Row	12.72%	43.18%	7.56%	5.07%
% Column	0.53%	0.86%	0.16%	0.15%
Total	18,163	37,646	35,252	25,587
% Row	11.09%	22.99%	21.53%	15.63%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-33 (Continued):

Table of method of payment by the household income of the respondent

Payment Method	Household Income			
	\$30,000 - \$39,999	\$40,000 - \$49,999	\$50,000 or more	Total
No Response	189	57	116	805
% Row	23.42%	7.03%	14.39%	100.00%
% Column	0.99%	0.52%	0.67%	0.49%
Transfer	2,051	1,101	1,501	21,108
% Row	9.72%	5.22%	7.11%	100.00%
% Column	10.80%	10.12%	8.71%	12.89%
Paid Cash	6,435	4,577	6,631	58,296
% Row	11.04%	7.85%	11.37%	100.00%
% Column	33.89%	42.05%	38.48%	35.60%
Local Weekly	2,112	877	901	23,904
% Row	8.84%	3.67%	3.77%	100.00%
% Column	11.12%	8.06%	5.23%	14.60%
Local Monthly	970	124	222	6,948
% Row	13.96%	1.78%	3.19%	100.00%
% Column	5.11%	1.14%	1.29%	4.24%
Express Weekly	1,721	677	1,131	13,828
% Row	12.45%	4.90%	8.18%	100.00%
% Column	9.06%	6.23%	6.57%	8.44%
Express Monthly	1,105	783	1,645	8,379
% Row	13.19%	9.35%	19.64%	100.00%
% Column	5.82%	7.20%	9.55%	5.12%

Table 5-33:

Table of method of payment by the household income of the respondent

Payment Method	Household Income			
	No Response	\$0 - \$9,999	\$10,000 - \$19,999	\$20,000 - \$29,999
No Response	240	102	65	38
% Row	29.81%	12.65%	8.04%	4.66%
% Column	1.32%	0.27%	0.18%	0.15%
Transfer	2,876	5,728	4,466	3,386
% Row	13.62%	27.14%	21.16%	16.04%
% Column	15.83%	15.22%	12.67%	13.23%
Paid Cash	5,012	14,061	12,559	9,022
% Row	8.60%	24.12%	21.54%	15.48%
% Column	27.59%	37.35%	35.63%	35.26%
Local Weekly	2,174	6,869	7,473	3,498
% Row	9.09%	28.73%	31.26%	14.63%
% Column	11.97%	18.24%	21.20%	13.67%
Local Monthly	676	1,946	1,896	1,115
% Row	9.73%	28.01%	27.29%	16.05%
% Column	3.72%	5.17%	5.38%	4.36%
Express Weekly	1,037	2,681	3,706	2,874
% Row	7.50%	19.39%	26.80%	20.78%
% Column	5.71%	7.12%	10.51%	11.23%
Express Monthly	552	1,154	1,612	1,527
% Row	6.59%	13.77%	19.24%	18.23%
% Column	3.04%	3.07%	4.57%	5.97%

Table 5-33 (Continued):

Table of method of payment by the household income of the respondent

Payment Method	Household Income			
	No Response	\$0 - \$9,999	\$10,000 - \$19,999	\$20,000 - \$29,999
Local Ticket	771	1,383	995	1,076
% Row	12.40%	22.23%	16.01%	17.30%
% Column	4.25%	3.67%	2.82%	4.20%
Express Ticket	1,099	288	630	1,890
% Row	9.86%	2.58%	5.65%	16.97%
% Column	6.05%	0.76%	1.79%	7.39%
Senior/Disabled	929	1,853	885	521
% Row	18.87%	37.63%	17.98%	10.58%
% Column	5.11%	4.92%	2.51%	2.04%
Student	2,703	1,259	908	603
% Row	36.28%	16.90%	12.19%	8.10%
% Column	14.88%	3.34%	2.58%	2.36%
50 Cent Ticket	96	325	57	38
% Row	12.72%	43.18%	7.56%	5.07%
% Column	0.53%	0.86%	0.16%	0.15%
Total	18,163	37,646	35,252	25,587
% Row	11.09%	22.99%	21.53%	15.63%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-33 (Continued):

Table of method of payment by the household income of the respondent

Payment Method	Household Income			
	\$30,000 - \$39,999	\$40,000 - \$49,999	\$50,000 or more	Total
No Response	189	57	116	805
% Row	23.42%	7.03%	14.39%	100.00%
% Column	0.99%	0.52%	0.67%	0.49%
Transfer	2,051	1,101	1,501	21,108
% Row	9.72%	5.22%	7.11%	100.00%
% Column	10.80%	10.12%	8.71%	12.89%
Paid Cash	6,435	4,577	6,631	58,296
% Row	11.04%	7.85%	11.37%	100.00%
% Column	33.89%	42.05%	38.48%	35.60%
Local Weekly	2,112	877	901	23,904
% Row	8.84%	3.67%	3.77%	100.00%
% Column	11.12%	8.06%	5.23%	14.60%
Local Monthly	970	124	222	6,948
% Row	13.96%	1.78%	3.19%	100.00%
% Column	5.11%	1.14%	1.29%	4.24%
Express Weekly	1,721	677	1,131	13,828
% Row	12.45%	4.90%	8.18%	100.00%
% Column	9.06%	6.23%	6.57%	8.44%
Express Monthly	1,105	783	1,645	8,379
% Row	13.19%	9.35%	19.64%	100.00%
% Column	5.82%	7.20%	9.55%	5.12%

Table 5-33 (Continued):

Table of method of payment by the household income of the respondent

Payment Method	Household Income			
	Non-Home- Based Work	Non-Home- Based Other	Non-Home- Based Hotel	Total
Local Ticket	1,025	417	553	6,219
% Row	16.48%	6.70%	8.89%	100.00%
% Column	5.40%	3.83%	3.21%	3.80%
Express Ticket	2,183	1,655	3,396	11,140
% Row	19.59%	14.85%	30.49%	100.00%
% Column	11.50%	15.21%	19.71%	6.80%
Senior/Disabled	251	240	244	4,923
% Row	5.11%	4.87%	4.96%	100.00%
% Column	1.32%	2.20%	1.42%	3.01%
Student	856	352	768	7,449
% Row	11.50%	4.72%	10.32%	100.00%
% Column	4.51%	3.23%	4.46%	4.55%
50 Cent Ticket	90	24	123	752
% Row	11.95%	3.19%	16.33%	100.00%
% Column	0.47%	0.22%	0.71%	0.46%
Total	18,988	10,883	17,230	163,749
% Row	11.60%	6.65%	10.52%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-34:

Table of mode of access of the respondent by general purpose of the trip

Access Mode	General Purpose				
	No Response	Home-Based Work	Home-Based Shopping	Home-Based School	Home-Based Other
No Response	6	98	6	14	15
% Row	3.13%	51.15%	3.35%	7.26%	7.87%
% Column	0.08%	0.11%	0.07%	0.06%	0.07%
Walked	6,485	66,128	8,180	17,589	16,204
% Row	5.10%	51.99%	6.43%	13.83%	12.74%
% Column	83.31%	77.12%	86.08%	72.16%	77.70%
Drove	214	3,999	107	195	230
% Row	4.38%	82.03%	2.19%	4.00%	4.72%
% Column	2.74%	4.66%	1.13%	0.80%	1.10%
Transferred	777	12,528	1,054	5,725	3,457
% Row	3.01%	48.50%	4.08%	22.16%	13.38%
% Column	9.98%	14.61%	11.09%	23.49%	16.58%
Passenger	0	238	28	30	116
% Row	0.00%	57.85%	6.73%	7.27%	28.15%
% Column	0.00%	0.28%	0.29%	0.12%	0.56%
Dropped Off	303	2,684	128	745	820
% Row	6.01%	53.21%	2.54%	14.76%	16.27%
% Column	3.89%	3.13%	1.35%	3.05%	3.93%
Other	0	67	0	76	12
% Row	0.00%	35.62%	0.00%	40.36%	6.17%
% Column	0.00%	0.08%	0.00%	0.31%	0.06%
Total	7,785	85,743	9,503	24,374	20,854
% Row	4.75%	52.36%	5.80%	14.88%	12.74%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-34 (Continued):

Table of mode of access of the respondent by general purpose of the trip

Access Mode	General Purpose			
	Non-Home- Based Work	Non-Home- Based Other	Non-Home- Based Hotel	Total
No Response	28	25	0	192
% Row	14.47%	12.77%	0.00%	100.00%
% Column	0.29%	0.42%	0.00%	0.12%
Walked	7,710	4,832	75	127,204
% Row	6.06%	3.80%	0.06%	100.00%
% Column	80.94%	82.70%	62.58%	77.68%
Drove	105	0	26	4,875
% Row	2.15%	0.00%	0.52%	100.00%
% Column	1.10%	0.00%	21.14%	2.98%
Transferred	1,431	841	20	25,833
% Row	5.54%	3.26%	0.08%	100.00%
% Column	15.02%	14.39%	16.28%	15.78%
Passenger	0	0	0	412
% Row	0.00%	0.00%	0.00%	100.00%
% Column	0.00%	0.00%	0.00%	0.25%
Dropped Off	225	139	0	5,044
% Row	4.45%	2.76%	0.00%	100.00%
% Column	2.36%	2.39%	0.00%	3.08%
Other	28	6	0	189
% Row	14.69%	3.17%	0.00%	100.00%
% Column	0.29%	0.10%	0.00%	0.12%
Total	9,526	5,843	121	163,749
% Row	5.82%	3.57%	0.07%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-35:

Frequencies of walk times for those respondents with walk access mode

Minutes	General Purpose				
	No Response	Home-Based Work	Home-Based Shopping	Home-Based School	Home-Based Other
No Response	0	0	19	0	0
0	1,591	8,627	2,196	2,084	3,061
1	291	9,237	793	2,311	2,185
2	964	10,782	1,053	3,234	2,573
3	751	8,385	653	2,059	1,856
4	137	2,267	167	325	343
5	1,334	14,728	1,698	4,438	2,951
6	82	1,160	213	158	251
7	63	1,862	256	122	367
8	101	729	0	124	123
9	0	65	20	24	0
10	769	5,520	640	1,888	1,465
11	0	7	0	0	9
12	0	215	4	13	141
13	0	28	24	0	0
14	0	165	0	0	0
15	299	1,527	382	513	639
16	0	34	0	0	0
17	0	41	0	0	0
18	0	6	0	0	0
19	0	0	0	5	0
20 or more	103	747	63	292	239
Total	6,485	66,128	8,180	17,589	16,204

Table 5-35 (Continued):
Frequencies of walk times for those respondents with walk access mode

Minutes	General Purpose			
	Non-Home- Based Work	Non-Home- Based Other	Non-Home- Based Hotel	Total
No Response	0	0	0	19
0	1,594	844	34	20,030
1	1,008	661	0	16,485
2	1,772	978	0	21,357
3	750	518	0	14,972
4	69	119	0	3,426
5	1,401	834	35	27,418
6	119	10	0	1,991
7	85	13	0	2,766
8	38	11	0	1,127
9	0	0	0	109
10	775	417	7	11,481
11	0	0	0	16
12	0	0	0	372
13	0	0	0	51
14	0	0	0	165
15	38	88	0	3,486
16	17	0	0	50
17	0	0	0	41
18	0	0	0	6
19	0	0	0	5
20 or more	45	341	0	1,831
Total	7,710	4,832	75	127,204

Table 5-36:

Table of mode of egress of the respondent by general purpose of the trip

Egress Mode	General Purpose				
	No Response	Home-Based Work	Home-Based Shopping	Home-Based School	Home-Based Other
No Response	36	225	94	127	130
% Row	4.78%	29.75%	12.36%	16.81%	17.16%
% Column	0.46%	0.26%	0.99%	0.52%	0.62%
Walked	6,242	67,020	8,359	18,361	16,671
% Row	4.83%	51.89%	6.47%	14.22%	12.91%
% Column	80.18%	78.16%	87.96%	75.33%	79.94%
Drove	167	2,608	76	273	190
% Row	4.76%	74.16%	2.15%	7.76%	5.41%
% Column	2.15%	3.04%	0.80%	1.12%	0.91%
Transferred	1,155	14,192	828	5,005	3,617
% Row	4.24%	52.10%	3.04%	18.37%	13.28%
% Column	14.83%	16.55%	8.71%	20.53%	17.34%
Passenger	0	376	0	55	148
% Row	0.00%	63.79%	0.00%	9.33%	25.20%
% Column	0.00%	0.44%	0.00%	0.23%	0.71%
Picked Up	185	1,050	133	150	76
% Row	10.39%	58.93%	7.43%	8.40%	4.28%
% Column	2.38%	1.22%	1.39%	0.61%	0.37%
Other	0	272	14	402	21
% Row	0.00%	37.99%	1.95%	56.15%	2.95%
% Column	0.00%	0.32%	0.15%	1.65%	0.10%
Total	7,785	85,744	9,503	24,373	20,854
% Row	4.75%	52.36%	5.80%	14.88%	12.74%
% Column	100.00%	100.00%	100.00%	100.00%	100.00%

Table 5-36 (Continued):

Table of mode of egress of the respondent by general purpose of the trip

Egress Mode	General Purpose			
	Non-Home- Based Work	Non-Home- Based Other	Non-Home- Based Hotel	Total
No Response	145	0	0	757
% Row	19.15%	0.00%	0.00%	100.00%
% Column	1.52%	0.00%	0.00%	0.46%
Walked	7,959	4,419	114	129,145
% Row	6.16%	3.42%	0.09%	100.00%
% Column	83.55%	75.63%	94.24%	78.87%
Drove	186	16	0	3,517
% Row	5.30%	0.45%	0.00%	100.00%
% Column	1.96%	0.27%	0.00%	2.15%
Transferred	1,184	1,262	0	27,242
% Row	4.35%	4.63%	0.00%	100.00%
% Column	12.43%	21.59%	0.00%	16.64%
Passenger	3	7	0	589
% Row	0.57%	1.11%	0.00%	100.00%
% Column	0.03%	0.11%	0.00%	0.36%
Picked Up	48	140	0	1,782
% Row	2.72%	7.85%	0.00%	100.00%
% Column	0.51%	2.40%	0.00%	1.09%
Other	0	0	7	716
% Row	0.00%	0.00%	0.97%	100.00%
% Column	0.00%	0.00%	5.76%	0.44%
Total	9,526	5,843	121	163,749
% Row	5.82%	3.57%	0.07%	100.00%
% Column	100.00%	100.00%	100.00%	100.00%

Table 5-37:
Frequencies of walk times for those respondents with walk egress mode

Minutes	General Purpose				
	No Response	Home-Based Work	Home-Based Shopping	Home-Based School	Home-Based Other
No Response	24	0	0	0	0
0	1,828	8,488	2,639	1,938	3,949
1	288	8,240	696	2,405	1,427
2	1,026	11,349	1,196	3,497	2,175
3	412	7,232	989	1,999	1,606
4	93	2,084	246	526	272
5	1,362	16,213	1,537	4,449	4,170
6	75	943	17	170	182
7	111	1,755	69	396	197
8	122	914	39	93	248
9	0	11	0	0	0
10	429	6,230	522	2,088	1,406
11	0	102	0	0	0
12	6	300	0	6	10
13	0	40	0	0	0
14	0	8	0	0	0
15	239	2,052	282	619	698
16	0	0	0	8	0
17	0	0	0	0	0
18	0	6	5	0	0
19	0	0	0	0	0
20 or more	229	1,054	122	169	331
Total	6,242	67,020	8,359	18,361	16,671

Table 5-37 (Continued):
Frequencies of walk times for those respondents with walk egress mode

Minutes	General Purpose			
	Non-Home- Based Work	Non-Home- Based Other	Non-Home- Based Hotel	Total
No Response	0	0	0	24
0	1,851	695	48	21,435
1	1,363	1,009	20	15,448
2	1,452	571	26	21,292
3	842	414	14	13,508
4	45	113	0	3,379
5	1,571	931	6	30,240
6	16	13	0	1,415
7	73	16	0	2,617
8	108	41	0	1,565
9	0	0	0	11
10	478	271	0	11,423
11	0	0	0	102
12	0	17	0	340
13	0	0	0	40
14	0	0	0	8
15	86	180	0	4,156
16	0	0	0	8
17	0	0	0	0
18	0	0	0	10
19	0	0	0	0
20 or more	74	148	0	2,127
Total	7,959	4,419	114	129,146

- home-based work
- home-based shop
- home-based school
- home-based other (visit/recreation, doctor/dentist, hotel, other, airline)
- non-home-based work-related
- non-home-based other
- hotel-based

Appendix A

Total Weekday Bus Service

Table A-1
Parent Route

GCRTA Summary of All Bus Routes

parent route		5:00 am 6:59 am	7:00 am 8:59 am	9:00 am 3:59 pm	4:00 pm 5:59 pm	6:00 pm 10:59 pm	11:00 pm 4:45 am	Total
1	E	7	18	48	18	15	8	114
	W	14	17	50	16	11	8	116
	TOT	21	35	98	34	26	16	230
10	N	13	14	46	16	18	12	119
	S	12	16	45	14	21	10	118
	TOT	25	30	91	30	39	22	237
106	E	0	0	0	1	0	0	1
	TOT	0	0	0	1	0	0	1
11	E	3	5	11	6	9	3	37
	W	6	3	12	6	8	2	37
	TOT	9	8	23	12	17	5	74
12	E	7	9	27	10	10	3	66
	W	11	10	24	9	9	3	66
	TOT	18	19	51	19	19	6	132
14	E	11	13	43	15	16	8	106
	W	13	13	42	14	17	11	110
	TOT	24	26	85	29	33	19	216
15	E	8	10	37	19	12	3	89
	W	13	17	35	8	11	4	88
	I	0	1	1	0	0	0	2
	O	0	1	1	0	0	0	2
	TOT	21	29	74	27	23	7	181
16	N	8	7	17	7	11	2	52
	S	6	7	17	7	11	3	51
	TOT	14	14	34	14	22	5	103
18	E	1	1	5	1	1	1	10
	W	1	1	4	1	1	1	9
	TOT	2	2	9	2	2	2	19
19	E	7	10	21	10	11	7	66
	W	8	10	23	7	10	7	65
	TOT	15	20	44	17	21	14	131

Table A-1
Parent Route

GCRTA Summary of All Bus Routes

parent route		5:00 am 6:59 am	7:00 am 8:59 am	9:00 am 3:59 pm	4:00 pm 5:59 pm	6:00 pm 10:59 pm	11:00 pm 4:45 am	Total
1	E	7	18	48	18	15	8	114
	W	14	17	50	16	11	8	116
	TOT	21	35	98	34	26	16	230
10	N	13	14	46	16	18	12	119
	S	12	16	45	14	21	10	118
	TOT	25	30	91	30	39	22	237
106	E	0	0	0	1	0	0	1
	TOT	0	0	0	1	0	0	1
11	E	3	5	11	6	9	3	37
	W	6	3	12	6	8	2	37
	TOT	9	8	23	12	17	5	74
12	E	7	9	27	10	10	3	66
	W	11	10	24	9	9	3	66
	TOT	18	19	51	19	19	6	132
14	E	11	13	43	15	16	8	106
	W	13	13	42	14	17	11	110
	TOT	24	26	85	29	33	19	216
15	E	8	10	37	19	12	3	89
	W	13	17	35	8	11	4	88
	I	0	1	1	0	0	0	2
	O	0	1	1	0	0	0	2
	TOT	21	29	74	27	23	7	181
16	N	8	7	17	7	11	2	52
	S	6	7	17	7	11	3	51
	TOT	14	14	34	14	22	5	103
18	E	1	1	5	1	1	1	10
	W	1	1	4	1	1	1	9
	TOT	2	2	9	2	2	2	19
19	E	7	10	21	10	11	7	66
	W	8	10	23	7	10	7	65
	TOT	15	20	44	17	21	14	131

Universe.par

GCRTA Summary of All Bus Routes

Parent route		5:00 am 6:59 am	7:00 am 8:59 am	9:00 am 3:59 pm	4:00 pm 5:59 pm	6:00 pm 10:59 pm	11:00 pm 4:45 am	Total
2	N	4	4	13	5	8	2	36
	S	2	5	13	4	9	3	36
	TOT	6	9	26	9	17	5	72
20	N	1	2	0	1	0	0	4
	S	0	0	0	4	0	0	4
	TOT	1	2	0	5	0	0	8
20A	N	10	9	19	7	5	8	58
	S	5	7	20	11	7	4	54
	TOT	15	16	39	18	12	12	112
20B	N	8	7	21	7	7	1	51
	S	6	7	20	9	8	2	52
	TOT	14	14	41	16	15	3	103
22	E	9	12	42	9	12	9	93
	W	7	11	42	12	13	8	93
	TOT	16	23	84	21	25	17	186
23	E	5	5	14	5	5	2	36
	W	3	6	13	5	7	2	36
	TOT	8	11	27	10	12	4	72
25	E	7	8	17	6	8	3	49
	W	5	8	18	12	9	3	55
	TOT	12	16	35	18	17	6	104
28	E	19	7	24	19	16	10	95
	W	14	12	23	11	15	9	84
	TOT	33	19	47	30	31	19	179
3	E	13	14	46	13	12	8	106
	W	11	19	42	14	12	9	107
	TOT	24	33	88	27	24	17	213
30	E	5	7	14	7	11	4	48
	W	6	7	14	7	12	6	52
	TOT	11	14	28	14	23	10	100

GCRTA Summary of All Bus Routes

Parent route		5:00 am 6:59 am	7:00 am 8:59 am	9:00 am 3:59 pm	4:00 pm 5:59 pm	6:00 pm 10:59 pm	11:00 pm 4:45 am	Total
31	E	2	2	0	0	0	0	4
	W	0	0	0	3	1	0	4
	TOT	2	2	0	3	1	0	8
32	E	9	13	30	19	11	1	83
	W	9	14	27	16	11	2	79
	TOT	18	27	57	35	22	3	162
32X	E	3	4	9	5	3	0	24
	W	2	5	8	4	5	0	24
	TOT	5	9	17	9	8	0	48
33	E	2	4	8	4	1	0	19
	W	2	4	9	4	0	0	19
	TOT	4	8	17	8	1	0	38
34	N	4	4	11	5	5	0	29
	S	5	3	12	4	7	0	31
	TOT	9	7	23	9	12	0	60
35	N	5	7	14	4	5	1	36
	S	3	5	16	8	6	6	44
	TOT	8	12	30	12	11	7	80
35F	N	5	7	0	0	0	0	12
	S	0	0	0	11	0	0	11
	TOT	5	7	0	11	0	0	23
36	N	2	3	8	3	6	0	22
	S	2	2	9	3	6	0	22
	TOT	4	5	17	6	12	0	44
37	N	5	4	10	3	6	0	28
	S	5	3	11	4	5	0	28
	TOT	10	7	21	7	11	0	56
38	E	3	5	13	5	6	2	34
	W	4	5	13	5	6	1	34
	TOT	7	10	26	10	12	3	68

GCRTA Summary of All Bus Routes

Parent Route		5:00 am 6:59 am	7:00 am 8:59 am	9:00 am 3:59 pm	4:00 pm 5:59 pm	6:00 pm 10:59 pm	11:00 pm 4:45 am	Total
39	E	7	7	15	7	8	3	47
	W	5	9	15	3	7	2	41
	TOT	12	16	30	10	15	5	88
39F	E	0	0	3	16	2	0	21
	W	7	12	0	0	0	0	19
	TOT	7	12	3	16	2	0	40
4	E	3	5	14	4	7	2	35
	W	5	5	13	4	6	2	35
	TOT	8	10	27	8	13	4	70
40	N	6	5	18	7	10	6	52
	S	4	7	19	6	10	7	53
	TOT	10	12	37	13	20	13	105
41	N	6	7	18	6	18	2	57
	S	7	6	17	6	16	3	55
	TOT	13	13	35	12	34	5	112
43	E	4	1	0	5	0	0	10
	W	2	3	0	0	0	0	5
	TOT	6	4	0	5	0	0	15
44	E	1	1	4	1	0	0	7
	W	1	1	3	1	1	0	7
	TOT	2	2	7	2	1	0	14
45	N	1	1	3	1	2	0	8
	S	0	1	4	0	3	0	8
	TOT	1	2	7	1	5	0	16
46	E	2	3	0	2	2	0	9
	W	4	1	0	5	0	0	10
	TOT	6	4	0	7	2	0	19
47I	E	8	16	56	16	6	0	102
	W	6	16	56	16	8	0	102
	TOT	14	32	112	32	14	0	204

GCRTA Summary of All Bus Routes

parent route		5:00 am 6:59 am	7:00 am 8:59 am	9:00 am 3:59 pm	4:00 pm 5:59 pm	6:00 pm 10:59 pm	11:00 pm 4:45 am	Total
47M	I	4	15	53	15	4	0	91
	O	9	15	52	15	1	0	92
	TOT	13	30	105	30	5	0	183
48	N	10	7	27	9	10	4	67
	S	8	8	26	12	9	6	69
	TOT	18	15	53	21	19	10	136
49	E	0	0	0	2	0	0	2
	W	1	1	0	0	0	0	2
	TOT	1	1	0	2	0	0	4
5	E	4	3	9	4	7	2	29
	W	3	3	10	3	8	2	29
	TOT	7	6	19	7	15	4	58
50	N	6	6	16	6	9	0	43
	S	4	7	15	7	10	0	43
	TOT	10	13	31	13	19	0	86
51	N	7	10	10	4	8	0	39
	S	10	6	11	7	5	0	39
	TOT	17	16	21	11	13	0	78
51F	N	12	15	0	0	0	0	27
	S	0	0	1	22	1	0	24
	TOT	12	15	1	22	1	0	51
53	E	0	0	7	2	1	0	10
	W	0	0	7	2	1	0	10
	TOT	0	0	14	4	2	0	20
55AX	E	2	6	11	3	0	0	22
	W	1	3	11	5	1	0	21
	TOT	3	9	22	8	1	0	43
55CX	E	6	7	7	3	7	0	30
	W	2	3	8	9	5	0	27
	TOT	8	10	15	12	12	0	57

GCRTA Summary of All Bus Routes

parent route		5:00 am 6:59 am	7:00 am 8:59 am	9:00 am 3:59 pm	4:00 pm 5:59 pm	6:00 pm 10:59 pm	11:00 pm 4:45 am	Total
55NX	E	3	6	7	5	3	0	24
	W	1	4	8	6	4	0	23
	TOT	4	10	15	11	7	0	47
55SX	E	4	5	8	4	5	0	26
	W	3	2	8	8	4	0	25
	TOT	7	7	16	12	9	0	51
55X	E	5	7	7	3	3	2	27
	W	1	2	9	7	3	2	24
	TOT	6	9	16	10	6	4	51
6	E	9	19	84	23	24	15	174
	W	12	22	84	22	20	15	175
	TOT	21	41	168	45	44	30	349
64	E	2	1	0	0	0	0	3
	W	0	0	0	3	0	0	3
	TOT	2	1	0	3	0	0	6
65	E	2	5	8	3	1	0	19
	W	1	3	8	4	1	0	17
	TOT	3	8	16	7	2	0	36
65F	E	1	2	0	0	0	0	3
	W	0	0	0	3	0	0	3
	TOT	1	2	0	3	0	0	6
66S	E	0	0	0	0	1	4	5
	W	0	0	0	0	3	4	7
	TOT	0	0	0	0	4	8	12
68	E	0	2	7	2	2	0	13
	W	1	2	7	2	1	0	13
	TOT	1	4	14	4	3	0	26
69	E	2	2	0	0	0	0	4
	W	0	0	0	3	1	0	4
	TOT	2	2	0	3	1	0	8

GCRTA Summary of All Bus Routes

Parent Route		5:00 am	7:00 am	9:00 am	4:00 pm	6:00 pm	11:00 pm	Total
		6:59 am	8:59 am	3:59 pm	5:59 pm	10:59 pm	4:45 am	
7	E	7	3	11	7	6	0	34
	W	5	5	10	3	6	0	29
	TOT	12	8	21	10	12	0	63
70	N	2	3	9	3	5	0	22
	S	4	3	9	3	6	0	25
	TOT	6	6	18	6	11	0	47
73	N	1	2	6	2	1	0	12
	S	1	2	6	2	2	0	13
	TOT	2	4	12	4	3	0	25
75	E	12	11	15	6	5	2	51
	W	4	6	18	13	7	2	50
	TOT	16	17	33	19	12	4	101
75F	E	2	1	0	0	0	0	3
	W	0	0	0	4	0	0	4
	TOT	2	1	0	4	0	0	7
76F	E	0	0	0	3	0	0	3
	W	1	2	0	0	0	0	3
	TOT	1	2	0	3	0	0	6
76X	E	2	3	11	4	7	1	28
	W	4	3	12	4	6	1	30
	TOT	6	6	23	8	13	2	58
77	N	6	7	9	6	3	0	31
	S	2	7	8	11	5	0	33
	TOT	8	14	17	17	8	0	64
78	N	4	3	9	4	6	1	27
	S	3	4	9	4	7	0	27
	TOT	7	7	18	8	13	1	54
79	N	14	16	26	6	8	2	72
	S	7	8	29	18	11	3	76
	TOT	21	24	55	24	19	5	148

GCRTA Summary of All Bus Routes

Parent route		5:00 am	7:00 am	9:00 am	4:00 pm	6:00 pm	11:00 pm	Total
		6:59 am	8:59 am	3:59 pm	5:59 pm	10:59 pm	4:45 am	
8	E	3	5	12	5	10	4	39
	W	4	5	13	4	10	3	39
	TOT	7	10	25	9	20	7	78
81	N	6	8	23	6	7	2	52
	S	5	8	23	7	7	2	52
	TOT	11	16	46	13	14	4	104
82	N	3	6	14	5	7	0	35
	S	4	6	14	6	5	0	35
	TOT	7	12	28	11	12	0	70
83	N	5	6	16	5	8	1	41
	S	5	5	16	6	8	1	41
	TOT	10	11	32	11	16	2	82
84	N	2	2	10	2	0	0	16
	S	1	3	9	3	0	0	16
	TOT	3	5	19	5	0	0	32
86	N	6	6	11	6	8	0	37
	S	5	4	11	6	6	0	32
	TOT	11	10	22	12	14	0	69
86F	E	5	2	0	3	4	0	14
	W	0	0	0	7	1	0	8
	TOT	5	2	0	10	5	0	22
87F	E	2	2	0	0	0	0	4
	W	0	0	0	4	0	0	4
	TOT	2	2	0	4	0	0	8
88X	E	2	3	11	4	0	0	20
	W	4	3	10	3	0	0	20
	TOT	6	6	21	7	0	0	40
9	E	5	9	31	23	10	0	78
	W	13	16	24	10	7	3	73
	TOT	18	25	55	33	17	3	151

GCRTA Summary of All Bus Routes

Parent Route		5:00 am	7:00 am	9:00 am	4:00 pm	6:00 pm	11:00 pm	Total
		6:59 am	8:59 am	3:59 pm	5:59 pm	10:59 pm	4:45 am	
90	N	6	6	10	5	3	0	30
	S	3	5	11	8	4	0	31
	TOT	9	11	21	13	7	0	61
91	N	5	4	10	3	3	0	25
	S	5	3	11	5	4	0	28
	TOT	10	7	21	8	7	0	53
93	E	0	0	11	0	0	0	11
	W	0	0	10	0	0	0	10
	TOT	0	0	21	0	0	0	21
94	N	1	2	7	1	1	0	12
	S	1	2	7	2	0	0	12
	TOT	2	4	14	3	1	0	24
96F	E	2	1	0	0	0	0	3
	W	0	0	0	3	0	0	3
	TOT	2	1	0	3	0	0	6
97	E	1	2	5	4	1	0	13
	W	3	3	5	2	0	0	13
	TOT	4	5	10	6	1	0	26
97F	E	0	0	0	2	0	0	2
	W	2	0	0	0	0	0	2
	TOT	2	0	0	2	0	0	4
98	E	1	2	7	2	1	0	13
	W	2	2	7	2	0	0	13
	TOT	3	4	14	4	1	0	26
=====								
	N	174	190	411	145	188	44	1152
	S	125	150	419	220	199	50	1163
	E	230	289	770	340	282	107	2018
	W	227	299	755	319	269	112	1981
	I	4	16	54	15	4	0	93
	O	9	16	53	15	1	0	94
TOTAL		769	960	2462	1054	943	313	6501

Table A-2
Hastus Route

univase.has

GCRTA Summary of All Bus Routes

hastus route		5:00 am 6:59 am	7:00 am 8:59 am	9:00 am 3:59 pm	4:00 pm 5:59 pm	6:00 pm 10:59 pm	11:00 pm 4:45 am	Total
1	E	7	18	48	18	15	8	114
	W	14	17	50	16	11	8	116
	TOT	21	35	98	34	26	16	230
10	N	13	14	46	16	18	12	119
	S	12	16	45	14	21	10	118
	TOT	25	30	91	30	39	22	237
106	E	0	0	0	1	0	0	1
	TOT	0	0	0	1	0	0	1
11	E	3	5	11	6	9	3	37
	W	6	3	12	6	8	2	37
	TOT	9	8	23	12	17	5	74
12	E	3	4	14	5	5	1	32
	W	5	5	12	4	5	1	32
	TOT	8	9	26	9	10	2	64
13	E	4	5	13	5	5	2	34
	W	6	5	12	5	4	2	34
	TOT	10	10	25	10	9	4	68
14	E	11	13	43	15	16	8	106
	W	13	13	42	14	17	11	110
	TOT	24	26	85	29	33	19	216
15	E	5	7	24	7	9	3	55
	W	5	7	23	6	9	4	54
	TOT	10	14	47	13	18	7	109
15A	E	3	3	12	4	3	0	25
	W	2	4	12	2	2	0	22
	TOT	5	7	24	6	5	0	47
15F	E	0	0	0	4	0	0	4
	W	2	2	0	0	0	0	4
	TOT	2	2	0	4	0	0	8
15TD	I	0	1	1	0	0	0	2
	O	0	1	1	0	0	0	2
	TOT	0	2	2	0	0	0	4

GCRTA Summary of All Bus Routes

Bus Route		5:00 am	7:00 am	9:00 am	4:00 pm	6:00 pm	11:00 pm	Total
		6:59 am	8:59 am	3:59 pm	5:59 pm	10:59 pm	4:45 am	
15X	E	0	0	1	4	0	0	5
	W	4	4	0	0	0	0	8
	TOT	4	4	1	4	0	0	13
16	N	5	3	9	3	6	1	27
	S	3	4	8	4	5	3	27
	TOT	8	7	17	7	11	4	54
16A	N	3	2	7	2	5	1	20
	S	2	1	8	3	6	0	20
	TOT	5	3	15	5	11	1	40
16B	N	0	2	1	2	0	0	5
	S	1	2	1	0	0	0	4
	TOT	1	4	2	2	0	0	9
18	E	1	1	5	1	1	1	10
	W	1	1	4	1	1	1	9
	TOT	2	2	9	2	2	2	19
19	E	6	7	20	8	11	7	59
	W	7	8	22	7	10	7	61
	TOT	13	15	42	15	21	14	120
19F	E	1	0	1	0	0	0	2
	W	0	0	1	0	0	0	1
	TOT	1	0	2	0	0	0	3
19X	E	0	3	0	2	0	0	5
	W	1	2	0	0	0	0	3
	TOT	1	5	0	2	0	0	8
2	N	4	4	13	5	8	2	36
	S	2	5	13	4	9	3	36
	TOT	6	9	26	9	17	5	72
20	N	1	2	0	1	0	0	4
	S	0	0	0	4	0	0	4
	TOT	1	2	0	5	0	0	8

Table A-2
Hastus Route

Univase.has

GCRTA Summary of All Bus Routes

hastus route		5:00 am 6:59 am	7:00 am 8:59 am	9:00 am 3:59 pm	4:00 pm 5:59 pm	6:00 pm 10:59 pm	11:00 pm 4:45 am	Total
1	E	7	18	48	18	15	8	114
	W	14	17	50	16	11	8	116
	TOT	21	35	98	34	26	16	230
10	N	13	14	46	16	18	12	119
	S	12	16	45	14	21	10	118
	TOT	25	30	91	30	39	22	237
106	E	0	0	0	1	0	0	1
	TOT	0	0	0	1	0	0	1
11	E	3	5	11	6	9	3	37
	W	6	3	12	6	8	2	37
	TOT	9	8	23	12	17	5	74
12	E	3	4	14	5	5	1	32
	W	5	5	12	4	5	1	32
	TOT	8	9	26	9	10	2	64
13	E	4	5	13	5	5	2	34
	W	6	5	12	5	4	2	34
	TOT	10	10	25	10	9	4	68
14	E	11	13	43	15	16	8	106
	W	13	13	42	14	17	11	110
	TOT	24	26	85	29	33	19	216
15	E	5	7	24	7	9	3	55
	W	5	7	23	6	9	4	54
	TOT	10	14	47	13	18	7	109
15A	E	3	3	12	4	3	0	25
	W	2	4	12	2	2	0	22
	TOT	5	7	24	6	5	0	47
15F	E	0	0	0	4	0	0	4
	W	2	2	0	0	0	0	4
	TOT	2	2	0	4	0	0	8
1STD	I	0	1	1	0	0	0	2
	O	0	1	1	0	0	0	2
	TOT	0	2	2	0	0	0	4

GCRTA Summary of All Bus Routes

Station	Route	5:00 am	7:00 am	9:00 am	4:00 pm	6:00 pm	11:00 pm	Total
		6:59 am	8:59 am	3:59 pm	5:59 pm	10:59 pm	4:45 am	
20A	N	10	9	19	7	5	8	58
	S	5	7	20	11	7	4	54
	TOT	15	16	39	18	12	12	112
20B	N	8	7	21	7	7	1	51
	S	6	7	20	9	8	2	52
	TOT	14	14	41	16	15	3	103
22	E	9	12	42	9	12	9	93
	W	7	11	42	12	13	8	93
	TOT	16	23	84	21	25	17	186
23	E	5	5	14	2	5	2	33
	W	0	6	12	5	7	2	32
	TOT	5	11	26	7	12	4	65
23E	E	0	0	0	3	0	0	3
	W	3	0	1	0	0	0	4
	TOT	3	0	1	3	0	0	7
25	E	7	8	17	6	8	3	49
	W	5	8	18	12	9	3	55
	TOT	12	16	35	18	17	6	104
28	E	19	7	24	19	16	10	95
	W	14	12	23	11	15	9	84
	TOT	33	19	47	30	31	19	179
3	E	1	0	4	0	0	0	5
	W	1	0	0	4	1	0	6
	TOT	2	0	4	4	1	0	11
30	E	5	7	14	7	11	4	48
	W	6	7	14	7	12	6	52
	TOT	11	14	28	14	23	10	100
31	E	2	2	0	0	0	0	4
	W	0	0	0	3	1	0	4
	TOT	2	2	0	3	1	0	8

GCRTA Summary of All Bus Routes

Route		5:00 am	7:00 am	9:00 am	4:00 pm	6:00 pm	11:00 pm	Total
		6:59 am	8:59 am	3:59 pm	5:59 pm	10:59 pm	4:45 am	
32	E	1	2	3	5	0	0	11
	W	3	2	1	4	0	0	10
	TOT	4	4	4	9	0	0	21
32A	E	2	4	10	6	2	0	24
	W	1	5	9	5	2	0	22
	TOT	3	9	19	11	4	0	46
32B	E	3	1	6	0	7	1	18
	W	4	1	6	1	6	2	20
	TOT	7	2	12	1	13	3	38
32C	E	0	3	3	6	1	0	13
	W	1	3	1	3	2	0	10
	TOT	1	6	4	9	3	0	23
32D	E	3	3	8	2	1	0	17
	W	0	3	10	2	1	0	16
	TOT	3	6	18	4	2	0	33
2E	W	0	0	0	1	0	0	1
	TOT	0	0	0	1	0	0	1
32X	E	3	4	9	5	3	0	24
	W	2	5	8	4	5	0	24
	TOT	5	9	17	9	8	0	48
33	E	2	4	8	4	1	0	19
	W	2	4	9	4	0	0	19
	TOT	4	8	17	8	1	0	38
34	N	4	4	11	5	5	0	29
	S	5	3	12	4	7	0	31
	TOT	9	7	23	9	12	0	60
35	N	5	7	14	4	5	1	36
	S	3	5	16	8	6	6	44
	TOT	8	12	30	12	11	7	80
35F	N	5	7	0	0	0	0	12
	S	0	0	0	11	0	0	11
	TOT	5	7	0	11	0	0	23

GCRTA Summary of All Bus Routes

Bus Route		5:00 am	7:00 am	9:00 am	4:00 pm	6:00 pm	11:00 pm	Total
		6:59 am	8:59 am	3:59 pm	5:59 pm	10:59 pm	4:45 am	
36	N	2	3	8	3	6	0	22
	S	2	2	9	3	6	0	22
	TOT	4	5	17	6	12	0	44
37	N	5	4	10	3	6	0	28
	S	5	3	11	4	5	0	28
	TOT	10	7	21	7	11	0	56
38	E	3	5	13	5	6	2	34
	W	4	5	13	5	6	1	34
	TOT	7	10	26	10	12	3	68
39	E	7	7	8	7	5	3	37
	W	5	8	9	3	7	2	34
	TOT	12	15	17	10	12	5	71
39B	E	0	0	7	0	3	0	10
	W	0	1	6	0	0	0	7
	TOT	0	1	13	0	3	0	17
39F	E	0	0	3	16	2	0	21
	W	7	12	0	0	0	0	19
	TOT	7	12	3	16	2	0	40
3H	E	1	8	17	10	4	3	43
	W	5	6	21	3	3	4	42
	TOT	6	14	38	13	7	7	85
3T	E	11	6	25	3	8	5	58
	W	5	13	21	7	8	5	59
	TOT	16	19	46	10	16	10	117
4	E	3	5	14	4	7	2	35
	W	5	5	13	4	6	2	35
	TOT	8	10	27	8	13	4	70
40	N	6	5	18	7	10	6	52
	S	4	7	19	6	10	7	53
	TOT	10	12	37	13	20	13	105

GCRTA Summary of All Bus Routes

Bus Route	Thrustus	5:00 am	7:00 am	9:00 am	4:00 pm	6:00 pm	11:00 pm	Total
		6:59 am	8:59 am	3:59 pm	5:59 pm	10:59 pm	4:45 am	
41	N	6	7	18	6	13	2	52
	S	7	6	17	6	11	3	50
	TOT	13	13	35	12	24	5	102
41S	N	0	0	0	0	5	0	5
	S	0	0	0	0	5	0	5
	TOT	0	0	0	0	10	0	10
43	E	0	0	0	5	0	0	5
	W	2	3	0	0	0	0	5
	TOT	2	3	0	5	0	0	10
43A	E	1	1	0	0	0	0	2
	TOT	1	1	0	0	0	0	2
43B	E	3	0	0	0	0	0	3
	TOT	3	0	0	0	0	0	3
44	E	1	1	4	1	0	0	7
	W	1	1	3	1	1	0	7
	TOT	2	2	7	2	1	0	14
45	N	1	1	3	1	2	0	8
	S	0	1	4	0	3	0	8
	TOT	1	2	7	1	5	0	16
46	E	0	0	0	2	2	0	4
	W	4	1	0	0	0	0	5
	TOT	4	1	0	2	2	0	9
46F	E	2	3	0	0	0	0	5
	W	0	0	0	5	0	0	5
	TOT	2	3	0	5	0	0	10
47I	E	8	16	56	16	6	0	102
	W	6	16	56	16	8	0	102
	TOT	14	32	112	32	14	0	204
47M	I	4	15	53	15	4	0	91
	O	9	15	52	15	1	0	92
	TOT	13	30	105	30	5	0	183

GCRTA Summary of All Bus Routes

Fastus Route		5:00 am	7:00 am	9:00 am	4:00 pm	6:00 pm	11:00 pm	Total
		6:59 am	8:59 am	3:59 pm	5:59 pm	10:59 pm	4:45 am	
48	N	5	3	14	4	5	2	33
	S	4	5	13	6	5	2	35
	TOT	9	8	27	10	10	4	68
48A	N	5	4	13	5	5	2	34
	S	4	3	13	6	4	4	34
	TOT	9	7	26	11	9	6	68
49	E	0	0	0	2	0	0	2
	W	1	1	0	0	0	0	2
	TOT	1	1	0	2	0	0	4
5	E	4	3	9	4	7	2	29
	W	3	3	10	3	8	2	29
	TOT	7	6	19	7	15	4	58
50	N	6	6	16	6	9	0	43
	S	4	7	15	7	10	0	43
	TOT	10	13	31	13	19	0	86
51	N	7	10	10	4	8	0	39
	S	10	6	11	7	5	0	39
	TOT	17	16	21	11	13	0	78
51F	N	12	15	0	0	0	0	27
	S	0	0	1	22	1	0	24
	TOT	12	15	1	22	1	0	51
53	E	0	0	7	2	1	0	10
	W	0	0	7	2	1	0	10
	TOT	0	0	14	4	2	0	20
55AX	E	2	6	11	3	0	0	22
	W	1	3	11	5	1	0	21
	TOT	3	9	22	8	1	0	43
55CX	E	6	7	7	3	7	0	30
	W	2	3	8	9	5	0	27
	TOT	8	10	15	12	12	0	57

GCRTA Summary of All Bus Routes

hastus oute		5:00 am	7:00 am	9:00 am	4:00 pm	6:00 pm	11:00 pm	Total
		6:59 am	8:59 am	3:59 pm	5:59 pm	10:59 pm	4:45 am	
55NX	E	3	6	7	5	3	0	24
	W	1	4	8	6	4	0	23
	TOT	4	10	15	11	7	0	47
55SX	E	4	5	8	4	5	0	26
	W	3	2	8	8	4	0	25
	TOT	7	7	16	12	9	0	51
55X	E	5	7	7	3	3	2	27
	W	1	2	9	7	3	2	24
	TOT	6	9	16	10	6	4	51
6	E	9	19	84	23	24	15	174
	W	12	22	84	22	20	15	175
	TOT	21	41	168	45	44	30	349
64	E	2	1	0	0	0	0	3
	W	0	0	0	3	0	0	3
	TOT	2	1	0	3	0	0	6
J5	E	2	5	8	3	1	0	19
	W	1	3	8	4	1	0	17
	TOT	3	8	16	7	2	0	36
65F	E	1	2	0	0	0	0	3
	W	0	0	0	3	0	0	3
	TOT	1	2	0	3	0	0	6
66S	E	0	0	0	0	1	4	5
	W	0	0	0	0	3	4	7
	TOT	0	0	0	0	4	8	12
68	E	0	2	7	2	2	0	13
	W	1	2	7	2	1	0	13
	TOT	1	4	14	4	3	0	26
69	E	2	2	0	0	0	0	4
	W	0	0	0	3	1	0	4
	TOT	2	2	0	3	1	0	8

GCRTA Summary of All Bus Routes

hastus route	5:00 am 6:59 am	7:00 am 8:59 am	9:00 am 3:59 pm	4:00 pm 5:59 pm	6:00 pm 10:59 pm	11:00 pm 4:45 am	Total
7 E	7	3	11	1	6	0	28
W	2	2	10	3	6	0	23
TOT	9	5	21	4	12	0	51
70 N	2	3	9	3	5	0	22
S	4	3	9	3	6	0	25
TOT	6	6	18	6	11	0	47
73 N	1	1	3	2	1	0	8
S	1	1	3	2	2	0	9
TOT	2	2	6	4	3	0	17
73A N	0	1	3	0	0	0	4
S	0	1	3	0	0	0	4
TOT	0	2	6	0	0	0	8
75 E	12	11	15	6	5	2	51
W	4	6	18	13	7	2	50
TOT	16	17	33	19	12	4	101
75F E	2	1	0	0	0	0	3
W	0	0	0	4	0	0	4
TOT	2	1	0	4	0	0	7
76F E	0	0	0	3	0	0	3
W	1	2	0	0	0	0	3
TOT	1	2	0	3	0	0	6
76X E	2	3	11	4	7	1	28
W	4	3	12	4	6	1	30
TOT	6	6	23	8	13	2	58
77 N	6	7	9	6	3	0	31
S	2	7	8	11	5	0	33
TOT	8	14	17	17	8	0	64
78 N	4	3	9	4	6	1	27
S	3	4	9	4	7	0	27
TOT	7	7	18	8	13	1	54

GCRTA Summary of All Bus Routes

hastus route	5:00 am 6:59 am	7:00 am 8:59 am	9:00 am 3:59 pm	4:00 pm 5:59 pm	6:00 pm 10:59 pm	11:00 pm 4:45 am	Total
79 N	7	9	13	3	0	0	32
S	2	4	14	12	2	2	36
TOT	9	13	27	15	2	2	68
79A N	4	5	0	1	0	0	10
S	3	0	7	6	7	1	24
TOT	7	5	7	7	7	1	34
79C N	0	0	7	2	5	1	15
S	2	2	6	0	1	0	11
TOT	2	2	13	2	6	1	26
79P N	3	2	6	0	3	1	15
S	0	2	2	0	1	0	5
TOT	3	4	8	0	4	1	20
7F E	0	0	0	6	0	0	6
W	3	3	0	0	0	0	6
TOT	3	3	0	6	0	0	12
E	3	5	12	5	10	4	39
W	4	5	13	4	10	3	39
TOT	7	10	25	9	20	7	78
81 N	4	8	23	6	0	0	41
S	2	8	23	7	1	0	41
TOT	6	16	46	13	1	0	82
81T N	2	0	0	0	7	2	11
S	3	0	0	0	6	2	11
TOT	5	0	0	0	13	4	22
82 N	3	6	14	5	7	0	35
S	4	6	14	6	5	0	35
TOT	7	12	28	11	12	0	70
83 N	5	6	16	5	8	1	41
S	5	5	16	6	8	1	41
TOT	10	11	32	11	16	2	82

GCRTA Summary of All Bus Routes

hastus route	5:00 am 6:59 am	7:00 am 8:59 am	9:00 am 3:59 pm	4:00 pm 5:59 pm	6:00 pm 10:59 pm	11:00 pm 4:45 am	Total
84 N	2	2	10	2	0	0	16
S	1	3	9	3	0	0	16
TOT	3	5	19	5	0	0	32
86 N	6	6	11	6	8	0	37
S	5	4	11	6	6	0	32
TOT	11	10	22	12	14	0	69
86F E	5	2	0	3	4	0	14
W	0	0	0	7	1	0	8
TOT	5	2	0	10	5	0	22
87F E	2	2	0	0	0	0	4
W	0	0	0	4	0	0	4
TOT	2	2	0	4	0	0	8
88X E	2	3	11	4	0	0	20
W	4	3	10	3	0	0	20
TOT	6	6	21	7	0	0	40
9 E	5	6	23	15	9	0	58
W	10	9	16	7	7	3	52
TOT	15	15	39	22	16	3	110
90 N	3	5	10	5	3	0	26
S	3	5	11	4	4	0	27
TOT	6	10	21	9	7	0	53
90F N	3	1	0	0	0	0	4
S	0	0	0	4	0	0	4
TOT	3	1	0	4	0	0	8
91 N	4	3	10	3	3	0	23
S	5	3	11	3	4	0	26
TOT	9	6	21	6	7	0	49
91F N	1	1	0	0	0	0	2
S	0	0	0	2	0	0	2
TOT	1	1	0	2	0	0	4

GCRTA Summary of All Bus Routes

hastus route	5:00 am 6:59 am	7:00 am 8:59 am	9:00 am 3:59 pm	4:00 pm 5:59 pm	6:00 pm 10:59 pm	11:00 pm 4:45 am	Total
93							
E	0	0	11	0	0	0	11
W	0	0	10	0	0	0	10
TOT	0	0	21	0	0	0	21
94							
N	0	1	7	1	1	0	10
S	0	0	7	2	0	0	9
TOT	0	1	14	3	1	0	19
94A							
N	1	1	0	0	0	0	2
S	1	2	0	0	0	0	3
TOT	2	3	0	0	0	0	5
96F							
E	2	1	0	0	0	0	3
W	0	0	0	3	0	0	3
TOT	2	1	0	3	0	0	6
97							
E	1	2	5	4	1	0	13
W	3	3	5	2	0	0	13
TOT	4	5	10	6	1	0	26
7F							
E	0	0	0	2	0	0	2
W	2	0	0	0	0	0	2
TOT	2	0	0	2	0	0	4
98							
E	1	2	7	2	1	0	13
W	2	2	7	2	0	0	13
TOT	3	4	14	4	1	0	26
9A							
E	0	3	8	8	1	0	20
W	3	7	8	3	0	0	21
TOT	3	10	16	11	1	0	41
=====							
N	174	190	411	145	188	44	1152
S	125	150	419	220	199	50	1163
E	230	289	770	340	282	107	2018
W	227	299	755	319	269	112	1981
I	4	16	54	15	4	0	93
O	9	16	53	15	1	0	94
TOTAL	769	960	2462	1054	943	313	6501

Appendix B

Manual of Instruction

GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY

**MANUAL
OF
INSTRUCTIONS**

PREPARED FOR

**THE GREATER CLEVELAND
REGIONAL TRANSIT AUTHORITY**

BY

BARTON-ASCHMAN ASSOCIATES, INC.

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I. INTRODUCTION

This booklet provides instructions on how you are to conduct a survey of passengers aboard buses operated by the Greater Cleveland Regional Transit Authority (RTA). The survey will be conducted on weekdays in November, 1993. In order to help you do your job efficiently, this booklet contains a description of the purpose of the survey, and what you have to do during the survey. Please read and study this document thoroughly.

A. Purpose of the Survey

The purpose of this survey is to obtain origin and destination data for transit passengers in the Cleveland area. The survey will also provide valuable information on traveller behavior and patronage by route and direction.

Passengers should be encouraged to complete the questionnaire on board the bus or rapid they are riding, and to return the forms to the boxes located by the doors of the bus. Doing so will result in a higher response rate, thereby providing RTA with more accurate and usable data.

B. Participants in the Survey

Over the survey period, you will be part of a small group of ten or more people who will participate daily in conducting the survey. This group will be riding buses and rapids, handing out questionnaires to passengers, and counting boarding passengers. Your work is the most important part of the project. Please keep this in mind as you conduct the survey.

C. Duration of the Survey

The survey will be conducted on weekdays over a two to three week period in November, 1993.

D. Tasks

During the survey, you will be responsible for carrying out the tasks listed in Table 1. These tasks will be explained to you in this manual.

E. Times of Study

The survey will be conducted between 5:30 AM and 10:00 PM each day.

TABLE I ON-BOARD CHECKLIST

- Pick up work assignment from supervisor.
- Locate the correct bus.

Look for a route name and number at the time of day corresponding to the departure time on the log. Check in with the driver. (If starting at a garage, check in with the Supervisor/Dispatcher first.)
- Install the equipment:
 - "Survey Today" sign:
 - Return boxes:
 - Pencil Boxes.
- Prepare trip log and questionnaires:
 - Record the serial number of first questionnaire on log ("First Deck____").
 - Enter time of trip beginning.
 - Sign the log.
- Place materials not in use in the seat beside you, or if the bus is crowded, place it on the floor or behind the drivers seat.
- Distribute a questionnaire to each boarding passenger.
- Count the passengers as they board the bus.
 - One thumb counter for black passengers
 - One thumb counter for non-black passengers
- Conclude the work assignment:
 - Record on the surveyor's trip log ("NUMBER Deck____") and in "Ending Questionnaire Number" the serial number of next available survey form.
 - Record the Time of day in "end time" on the surveyors trip log.
 - Place returned questionnaires and completed trip log in current trip envelope for trip list surveys.
 - If the completed trip is the last trip assigned on that bus, remove survey equipment and get off the bus and follow the instruction on your assignment sheet.
- Prepare for the next trip.

II. ADMINISTRATIVE MATTERS

Before describing in detail what you will actually do during the survey, it is important to first explain some general rules and requirements. These are things that you should keep in mind before you get ready to conduct the survey.

A. Punctuality

It is essential that you report to work on time, and that you meet your buses as scheduled. Persons who fail to report on time will be dismissed. You must have a watch that keeps good time at all times during work hours.

B. Appearance

You will be facing the public daily when riding RTA buses. The willingness of people to respond to the survey depends a lot upon how you appear to the public. Therefore, you will be expected to present a neat appearance.

C. Behavior

Be courteous! Your behavior is very important to the success of the survey. For instance, some passengers will not like the survey, and will tell you so. Reply politely, and suggest that the questionnaire will help RTA to maintain and improve the bus system. If the person is abusive, or indicates that he does not want anything to do with the survey, accept the questionnaire and say something like, "I am sorry," and "thank you." In any event, do not get involved in an argument.

Mark questionnaires that are refused by boarding passengers with an R as listed on page 11 of this manual. Never hand a refused questionnaire to another boarding passenger. If you are too busy to write an R, place refused questionnaires on the floor and place your foot on top. Mark with an R at end of the trip.

Please report any problems you may encounter to your supervisor as quickly as possible. If you are unable to contact your supervisor, please call 566-5100 ext. 4442. Be prepared to give the following information when you call:

- Your name;
- Where you are;
- Phone number from which you are calling;
- Assignment number on which you are working;
- Route name and number, trip number, and trip time of problem; and
- What the problem is.

D. Supervisors

A supervisor will be responsible for your performance. Your supervisor will meet you regularly at the garage or in the field at prescheduled meeting places to supply you with your work assignments and materials, and to pick up materials that you have completed. If you have problems, your supervisor is the person to talk to regarding these problems. Your supervisor may ride with you from time to time to review your work and ensure that you are following the required survey procedures.

E. Reporting of Time

Report the time you worked to the nearest quarter hour. You must fill out a time sheet in order to get paid. Your supervisor will be required to verify and approve the hours of work which you report.

G. Transportation

You are allowed to ride RTA buses free of charge while you are working on this survey, and are traveling to and from your work assignments only under the following two conditions:

1. You are wearing your identification badge (See Figure 2).
2. You have your interviewer's kit (See pages 6 and 7).

Passes or fare money will be provided for your work related travel. You should plan to use the transit system whenever possible in your work rather than private car.

Usage of passes and fare money will be closely monitored by your supervisors. To repeat, these are only to be used for work related travel. Usage of these passes and/or fare money for personal travel or any other abuse may result in your dismissal. Passes must be returned to either your supervisor or Olsten upon termination of the survey or dismissal in order to receive your final paycheck.

H. Reimbursement for Use of Personal Auto

Should you be required to use your personal auto other than travel between home and work to make connections between bus trips during a particular assignment, you will be reimbursed at the rate of 25.5 cents/mile. The 25.5 cents/mile figure includes a contribution toward payment of your private auto insurance policy. Barton-Aschman Associates, or RTA will not be liable for any other reimbursement in the event of any accident occurring while you are working on this assignment.

You will not be reimbursed for travel or travel expenses to and from your home. Such travel is considered to be a normal commute which would be expected in any job.

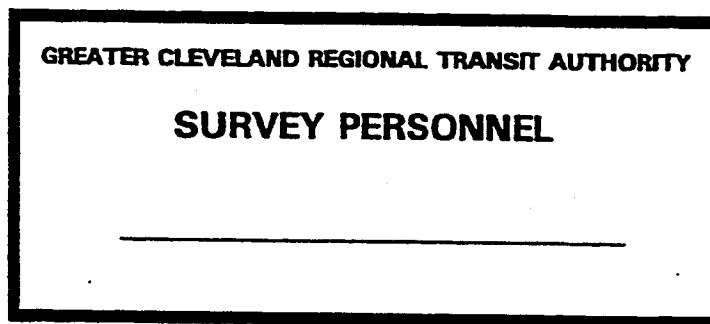


Figure 2
Transit Surveyor Badge

III. DEFINITION OF TERMS

Some terms which are frequently used by transit operators are defined below. Please become familiar with these terms.

- *Bus Trip.* A one-way movement of a bus from the beginning of a route to the end of the same route. It is not a round trip.
- *Route.* The geographical path followed by a bus from start to finish of a given trip. Several routes may travel over a single portion of roadway.
- *Run.* A bus driver's work for one full day, i.e., the buses driven by and the routes which he drives.
- *Block.* All of the trips which a particular bus makes in one day of operation.
- *Bus Stop.* A location on a bus route where a bus may stop to pick up and/or discharge passengers.
- *Stop On.* The bus stop where a person boards a bus.
- *Stop Off.* The bus stop where a person gets off a bus.
- *Transfer Passenger.* A passenger who uses a transfer to board the bus in lieu of paying a cash fare or using a pass.
- *RTA.* The Greater Cleveland Regional Transit Authority. The agency which operates the system on whose buses and rapids you will conduct the survey.
- *Origin.* The place from which a person first leaves on the trip that they are making. (Think of the origin as the door of a building--their home, work, doctor's office--the person walked out of to begin their trip).
- *Destination.* The place to which a person goes on the trip that they are making. (Think of the destination as the building--home, work, doctor's office--the person walks into at the end of their trip).
- *Bus Stop On.* The stop where the person got on their first bus to begin their current trip (begin location).
- *Bus Stop Off.* The stop where a person will get off of the last bus where their trip ends (end location).
- *Rapid.* RTA light and heavy rail. There are three systems; the red, blue and green line.

IV. SURVEY EQUIPMENT - INTERVIEWER'S KIT

Each day you will be provided with a kit of materials which are needed to conduct the survey. These materials fall into the following two categories: equipment which you will install on board the bus, and materials which you will retain for use and distribution during the on-board bus survey.

A. Bus Materials

These will be installed by you on-board each bus selected to be included in the survey. These items of equipment will be helpful to the riders in completing the questionnaire and returning the completed questionnaire.

1. *Return Boxes*

Each kit will include two boxes to be used by bus riders to return survey questionnaires when leaving the bus. These boxes will be hung on the railings by the doors located in the front and back of the bus, in the locations marked with a 1 in Figure 3. Reusable Velcro fastening materials will be included in your kit for attaching the return and pencil boxes.

2. *Pencil Boxes*

Two boxes with pencils will be provided for you to make available to those persons who ask for them on your bus trips. These will be located on board the bus in the locations marked 2 in Figure 3.

3. *"Survey Today" Signs*

Each kit will contain a "Survey Today" sign, which will be used to alert boarding passengers that a survey is being conducted on-board that bus. This sign will be placed in the front window of the bus in location 3 shown in Figure 3.

B. *Surveyor Materials*

These materials will be given to you to use as part of your kit. You will use some of these materials yourself, and you will distribute questionnaire and supply pencils to the riders on the bus.

1. *Identification*

You will be issued an identification badge which shows that you have been authorized to conduct the survey on this bus. You must wear your identification badge at all times while conducting the survey.

2. *Clipboard and Dispenser*

Each kit will contain a clipboard, and a questionnaire dispenser for you to use during the course of your assignment.

3. *Survey Questionnaires*

Your kit will contain enough questionnaires for an entire day's work. Survey questionnaires will be prepackaged for you in groups of 100 in serial number sequence for convenient handling.

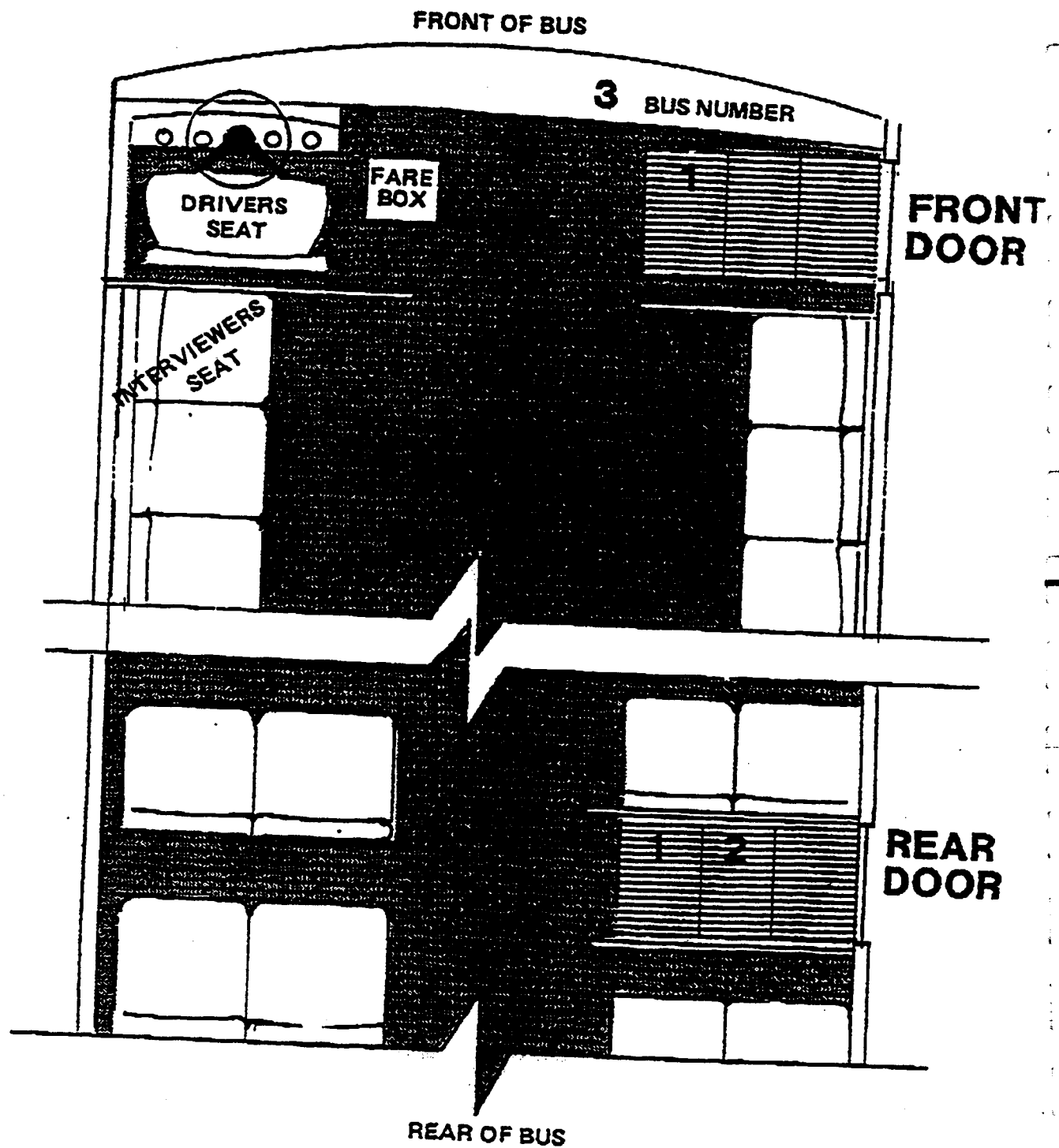


Figure 3

4. *Surveyor's Trip Logs*

A trip log (illustrated in Figure 4) will be included for each assigned bus trip that you will make in a day. The following information will be written in for you on each trip log:

- Route number and name.
- Block Number.
- Trip Serial Number.
- Assignment Number (the serial number of the surveyor's bus trip assignment sheet).
- Trip Number of Assignment (the sequence of the bus trip on the assignment sheet).
- Departure Time (of the bus trip you will be boarding).
- Date you ride the Assigned Bus.

5. *Return Envelopes*

One return envelope will be included for each bus trip you have been assigned to survey. The envelopes are to be used for storing returned survey forms and completed trip logs. Stamped upon the envelope will be a control log (Figure 5). Places to enter various kinds of information will be on the sheet attached to the trip return envelope. All of the information shown will have been filled out for you except surveyor's name and number of passengers boarded.

6. *Plastic Sack*

A carrying sack will be provided to carry each kit, and a plastic bag which is particularly helpful in case of rainy weather. The entire kit should be enclosed in this bag to keep the materials together in one place and dry.

SURVEYOR'S TRIP LOG

Route Number _____ Route Name _____

Block Number _____ Assignment Number _____

Departure Time _____ This Trip Number _____
 (circle one) AM PM

Day of Week: _____ Total Trips in This Assignment: _____

Driver's Name: _____ Surveyor Assigned: _____

Direction ☐ 1- east 2- west 3- north 4- south 5-loop 8- other

Beginning Questionnaire Number

--	--	--	--	--	--

--	--	--	--	--	--

--	--	--	--	--	--

1st deck

2nd deck

3rd deck

Ending Questionnaire Number:

--	--	--	--	--	--

--	--	--	--	--	--

--	--	--	--	--	--

Vehicle Number Painted on Bus

--	--	--	--

<div>Start Location:</div> <div></div> <div>at</div> <div></div> <div>Serial Number:</div> <div><div></div><div></div><div></div><div></div><div></div><div></div></div>	Tally of passenger boarding the bus	Black	Non-Black
	Begin Tally		
	End Tally		

Ending questionnaire number:

--	--	--	--	--

Ending Location:

_____ at _____

Time Trip Ending:

--	--	--	--

(circle one)

AM PM

OFFICE USE ONLY (below this line)-----

Remarks _____

Prepared by: _____

Checked by: _____

RETURN ENVELOPE CONTROL LOG

Assignment# _____

Trip _____ of _____

Route # _____

Route Name _____

Surveyor _____

Passengers Boarded _____

**ARE RETURNED SURVEYS AND TRIP LOG
IN ENVELOPE?**

7. *Change*

You should carry at least \$2.00 each day in quarters for use in making phone calls to your supervisor. Keep track of money spent on calls, because you will be reimbursed for this possible expense.

8. *Surveyor's Bus Trip Assignment Sheet*

This sheet lists the bus trips which you are assigned to ride for the day. See Figure 6 for an example of the information which it will contain.

V. ON-BOARD PROCEDURES

These are the most important steps for you to follow to successfully do your work. Please review these before you start each day's assignment.

A. Pick Up Work Assignments

Each day you will meet your supervisor at one of the garages or at a prearranged location to pick up your work assignment. Your supervisor will give you a log of all bus trips assigned to you for the day, and will go over your assignment with you. An example assignment sheet is shown in Figure 6.

Figure 6

Surveyor Assigned:

Report Location

[illegible]

Date_

Date _____

Survey Comments:

B. Find the Correct Bus

It is very important that you board the bus to which you are assigned and that this is a condition which must be met in order for you to be paid. Remember that a substitute bus is of no value to this survey.

The bus for which you are looking will have a route name and number (see Figure 7) and a scheduled time of departure. If your first bus trip assigned for the day does not begin at a garage, the bus will be at the first bus stop (see definitions) at a specified time. If the first bus trip assigned to you for the day does begin at a garage, the bus you are looking for can be located by asking your Supervisor. The dispatcher will then tell you which bus you need to board.

To make certain that you are boarding the right bus, check with the driver to see if the route number, as well as the departure time and block number agree with your assigned trip times. To verify that you are boarding the correct bus, you can show the driver your schedule on which the trip you are looking for is highlighted in yellow. The driver can confirm that this is his next bus trip.

After you have found the right bus, record the bus number on your trip log. The bus number may be seen in several places on the exterior of the bus, as well as in the interior of the bus (see Figures 7 and 3). The bus number will always be a four-digit number (e.g., 9481).

C. Establish Rapport with Driver

Gaining the cooperation of the bus driver will help you in conducting the interviews. When you are boarding the bus, politely introduce yourself, and explain who you are.

Be sure to wear your identification badge where it can be easily seen. You will be provided with passes or tickets which entitle you to ride the bus or rapid, so there should be no disputes about whether you are entitled to ride the bus or rapid.

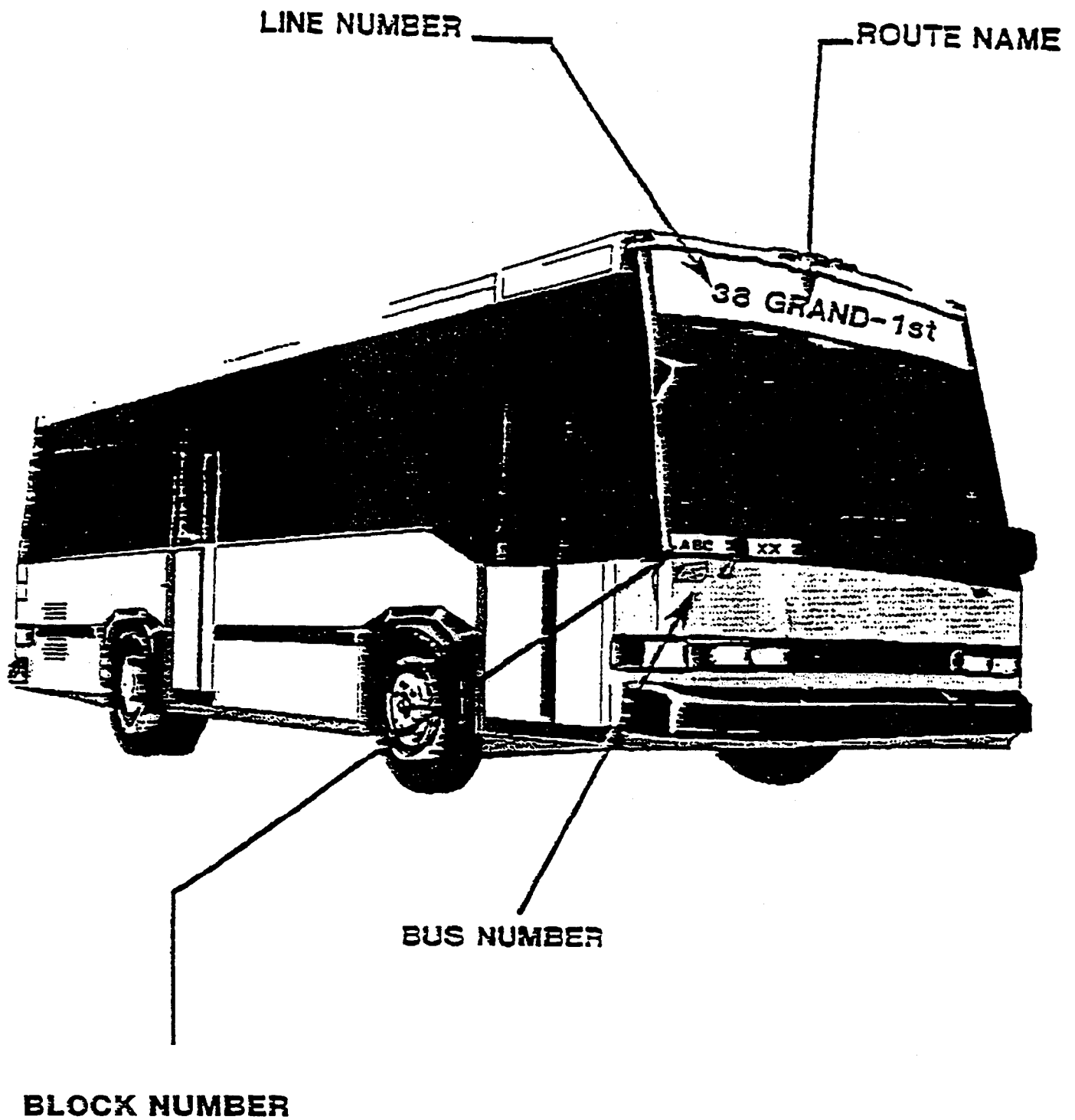


Figure 7

Sometimes there will be differences in the assigned block, route, and departure times on your assignment sheet and those indicated by the driver. At these times, you will have to use your best judgment to determine if in fact you are about to survey the correct bus or rapid. If there are small differences in time, then make a note of the time as indicated by the driver and survey the bus. If the begin and end locations (bus origin and destination) and times are correct, but the block is wrong, then enter the block number in the Remarks section and survey the trip. If the bus is not going to the assigned location, get off, and call the office unless the driver has indicated the correct bus is right behind him. In which case wait, board that bus, and check Fig. 7 - Outside Bus Diagram to see if it is correct. There are small variations in some routes so be sure to check with the driver before departing bus.

An established rapport with the driver can be helpful in another area as well. Many drivers keep track (either automatically or by their own counting mechanism) of the boarding passengers. This is an excellent way to check your own counts. At the end of the trip you can ask if the driver counted the same number of boarding passengers as you tallied during that trip.

D. Install Equipment

Once you have found the correct bus, install the equipment from your kit that will be placed on the bus as previously instructed. Do not install pencil boxes, or the return boxes in any location other than those shown in Figure 3. If you cannot install the pencil boxes as shown, then pass out pencils yourself. You must install the equipment quickly, so that you will be ready when the bus trip begins. Use the Velcro fastening provided for the boxes.

E. "Capture Seat Behind The Driver"

The best seat from which to conduct the survey is the one directly behind the driver. Therefore, it is essential that you obtain this seat. This is one reason to be at your assignment at the assigned time, then you can board the bus early. If someone is in the seat, explain that you are conducting a survey and it is important that you have the seat, and ask the passenger to take another seat.

If they refuse, take the seat opposite or next to the one behind the driver, and conduct the survey

If they refuse, take the seat opposite or next to the one behind the driver, and conduct the survey from there. Note that you do not have a right to the seat behind the driver and that surveyors who are rude in their approach to persons in that seat will be dismissed. Usually, you will board the bus when its empty, so this should not be a problem.

F. Prepare Questionnaires

After you have placed all of the materials on the bus, remove your clipboard, the return envelope, and questionnaire dispenser from your kit. Except for the first trip of the day, there will probably be cards remaining in the dispenser from the previous trip which you made. Record the serial number of the first card onto the trip log in the space marked "Beginning Questionnaire: First Deck."

If there are very few questionnaires left in the dispenser from the previous trip, you should be prepared to change decks in the middle of the new trip by pre-recording the first serial number of the next (unopened) deck under "Beginning Questionnaire: Second Deck" on the trip log. If you run out of questionnaires, note the occurrence in the "Remarks" section, get off the bus as soon as you can, and telephone your supervisor. Provide your supervisor with the information listed on page 3.

After you have taken your materials out of the kit, place the sack containing the unused materials behind the driver's seat (shown as point 4 in Figure 3). Your seat will be directly behind the driver's seat. After you have completed these steps, you will be ready to begin surveying your assigned bus trip.

G. Data Collection Procedures

On every bus trip you have been assigned to survey, you will be required to perform the following tasks:

1. Pass our survey questionnaires to people who board the bus.
2. Make counts of people boarding the bus.

3. Record serial numbers of the questionnaire at the beginning and end of the routes.

The following sections describe the overall on-board bus procedures and some special problems.

1. *On-Board Bus Procedures.*

The following steps illustrate the on-board procedures you will be utilizing in the on-board bus survey:

- First locate the assigned bus and board it. Ample lead time will be provided in your schedule.
- Check with the bus driver and verify that you have the correct bus. If you clearly have boarded the wrong bus, attempt to find the correct bus. If you find you have missed the correct trip, see Section I for the steps you should take.
- Install all necessary equipment after boarding the bus.
- Place the "SURVEY TODAY" sign in the front window of the bus, and hang the pencil boxes filled with pencils and the two return boxes by both exit doors. The boxes will have Velcro fasteners for easy handling and attachment.
- Your survey work begins with the first boarding passenger. You will have already entered the serial number of the first survey questionnaire on the bus trip log. Hand every person six years of age or older who boards the bus a questionnaire, and tally the passenger in the appropriate box on the trip log.
- If a rider declines to accept a questionnaire, mark that questionnaire with letter "R", and put it in the trip envelope for that trip. Do not issue that card to any other rider.

- Typically, you will not be providing instructions to the passengers. If asked, however, instruct the rider to fill out the questionnaire and deposit it in the return boxes at either bus exit. Encourage the passenger to complete the questionnaire before leaving the bus. The questionnaire has a postage free return address printed on the back, so that if the rider does not complete the questionnaire on the bus, he or she can still complete it and drop it in the nearest mailbox.
- Continue handing out questionnaire and tallying passengers at each bus stop as passengers board the bus.
- At the end of the trip, place the log in the trip log envelope, check that you have all of the completed questionnaires that have been placed in the two return boxes, and inspect the seats for any questionnaires that may have been filled but were left on the seats, or may have fallen to the floor. These questionnaires should be placed in the envelope for that trip.
- If the next revenue trip of the bus is also on your work assignment, leave the equipment on the bus and prepare to repeat the procedures described above on the next trip of the bus. Your assignment sheet will say Stay On Bus.
- If the next revenue trip of that bus is not on your assignment, pick up all of the equipment and unissued cards, and proceed to your next assigned bus trip.

2. *What To Do With Refusals*

As you try to pass out survey cards, some people will refuse to accept the survey card. When a person does this, **DO NOT PUT THE CARD BACK INTO THE DISPENSER OR GIVE IT TO ANOTHER PASSENGER.** Instead, remember to mark it with the letter "R" for refusal, and put it in with the returned survey cards for that trip in the trip envelope provided. If you pass the card out to someone else, or if you put it back in your dispenser, you will spoil the count of boarding passengers based on the serial numbers dispensed during that trip. If there is no time to mark the refused

questionnaire with an "R" and place it in the envelope, just drop it to the floor and put your foot on it until you have time to mark it and put it in the trip envelope.

3. *Persons Already on the Bus Before You Arrive*

Should there already be persons on the bus when you arrive to work a bus trip, write down the number of persons in the "Remarks" section of your trip log (e.g., "8 passengers already on board"). Give each of these persons a questionnaire, and write the serial number of the next blank questionnaire in the remarks column of the trip log. This will rarely happen.

4. *End of Trip*

You will repeat the steps described in Section 1 above until you reach the last stop on your bus trip. Record the serial number of the next available questionnaire in the trip log space marked "End: Deck ____." and "End Serial Number" (at the bottom of the Trip Log). Remember that if you had to add an additional deck during a trip, you will have two end serial numbers recorded, one for each deck of cards that you used.

You should put the following items into the return envelope for each trip: all returned questionnaires, rejected/refused questionnaires, blank questionnaires found on the seats on floor of the bus at the end of the trip, and the completed trip log. Close the envelope with the attached clasp, but do not seal the gummed flap. Finally, remove all equipment from the bus, put it into your kit, and get ready to find your next bus trip if you have more trips for the day.

H. **Making Counts of Boarding Passengers**

For each passenger that boards the bus on each trip, hit the appropriate counter for non-black and black.

End of Trip. Repeat the process described above until you reach the last stop on your trip. At this point, you will allow passengers to alight and collect questionnaires when offered. Record the serial number of the next available questionnaire in two places on the trip log:

- Ending questionnaire number: 1st Deck or 2nd Deck, and
- Ending questionnaire number under Ending location.

Remember that if you had to change to a new pack of questionnaires during a trip your last serial number will be recorded under "End: Deck 2". Record the end-of-trip time at the bottom of the trip log under "Fill in Time". Also remember to record the counter totals.

At the end of each trip, walk through the bus once to pick-up all of the questionnaires which may be on the seats or floors, even if they're blank. Collect the completed questionnaires from the survey return box.

Put the following items into the return envelope for that trip: All returned questionnaires, blank questionnaires that you handed out, rejected/refused questionnaires, and the completed trip log. Close the envelope with the attached string or clasp but do not seal the gummed flap. Make sure the information on the outside of the envelope is filled out completely. Finally, pull out the trip log for the next trip, and fill in the appropriate information:

- this trip number
- departure time
- direction
- begin questionnaire number
- vehicle number
- Start location

You are now ready to survey the next trip.

I. General Comments

The following suggestions will help you conduct the survey properly:

- **Courtesy to the Passengers.** It is an important part of your job to deal with passengers in a friendly and courteous way as they board the bus. As people board, greet them with a "good morning," or "good evening." If they ask you, say that you are conducting a survey for the RTA to improve service. It does not have anything to do with the fare proposals or service changes that might be under consideration by the RTA at this time.
- **Refusals.** Some passengers will not want to accept survey cards or they will be curious to know why they are being asked to take one. When this happens, explain to them that the results of the survey will be confidential and ask them to help the RTA plan for better service. If they refuse, mark their card with an R.
- **Encouragement to Respond.** It is part of your job to encourage the people to respond to the survey. Do this by assisting people with questions, by pointing out the location of pencil and return boxes, and assisting the passengers in general. Encourage riders to return the questionnaires before leaving the bus. They are generally more accurate than those returned by mail.
- **Bus Breaks Down.** If the bus you are on breaks down and another is sent in relief, look up your next work assignment and ask the driver to help you find a way to get to your next assignment. If it is clear that you are not going to be able to get to your next assignment on time, you should call 566-5100 ext. 4442. A supervisor on duty will try to arrange transportation for you to your next assignment or for the one following that. When leaving a bus that is broken down, remember to collect all your materials and to make a note of the fact that the bus broke down in the "Remarks" section of your Trip Log. Make certain that you have the bus number. You will not be paid for break-down trips unless you have the bus number which we will use to verify the time and place of the break-down.

- **Missed Trips.** If you miss a trip, which should happen only when an assigned bus does not come to the location it was supposed to, or the previous bus you have ridden is so late that you cannot make your connection, call and try to make arrangements to meet the next possible assignment on your work sheet.
- **Information to Give When Calling In.** If you call 566-5100 ext. 4442 with a problem, please give the following information:
 - Your name,
 - Where you are,
 - Phone number you are calling from,
 - Assignment number you are on,
 - Block number of trip with problem, and
 - What the problem is.

This will help speed the answers to your questions.

- **On-Board Check List.** The checklist shown in Table I, Page 2, is a step-by-step list of items to accomplish on each trip. This checklist will be taped to the back of your clipboard and will be handy for you to refer to often.

Appendix C

Editing and Coding Procedures Manual

CLEVELAND 1993 ON-BOARD SURVEY EDIT AND CODING PROCEDURES MANUAL

Prepared for:

**Greater Cleveland Regional Transit Authority
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INTRODUCTION

This document provides instructions for editing and coding the on-board bus survey questionnaires and trip logs obtained in the RTA on-board survey.

The on-board bus survey was accomplished by having persons ride on a sample of bus trips and handing out questionnaires to the passengers age five and over boarding the bus. For each bus trip assigned, the surveyor assigned to that trip recorded the number of black and non-black passengers who boarded and the number of questionnaires distributed. The bus trip log and the returned questionnaires are kept in an envelope marked with the work assignment number, bus trip number, and other characteristics of the sampled bus trip. The trip log and the questionnaires will remain in the envelope and all of the envelopes which constitute an interviewer's work assignment will remain together (banded by a rubber band) until editing begins.

EDITING INSTRUCTIONS

The editing process determines whether precise and complete information has been obtained for each sampled bus trip. Read these procedures thoroughly and discuss any questions during training and before beginning to edit or code the trip logs and questionnaires.

Organize Trip Envelopes

- Remove the band securing the trip envelopes which represent a work assignment (a collection of bus trips). Check that there is a trip envelope for each of the bus trips on the assignment sheet. If an envelope for a bus trip is missing, check the trip register to determine whether the missing trip has been noted already. If not, consult your supervisor.
- Arrange the trip envelopes in assignment trip number sequence.

Open the Trip Envelope

Open the trip envelope for the first trip and remove the trip log and the questionnaires. Never have the contents of more than one trip envelope out of its envelope at any time.

Edit the Trip Log

The trip log provides the basis for allocating the questionnaires of responding passengers to the bus trip through the use of the serial numbers recorded on the log. The trip log is edited to ensure that the necessary data have been recorded on the trip log and that the trip log represents the bus trip selected in the sampling process.

The editing will proceed as follows:

1. Verify the accuracy of the trip data recorded at the top of the log. Compare the trip log entries with the corresponding items on the assignment sheet. If blanks are found on the trip log, fill them in with red pencil as appropriate if the necessary data are available. The specific items are:

- Work Assignment Number
- Route Number
- Trip Number
- Route Name
- Departure Time (AM or PM circled)
- Block Number
- Day of week
- Driver's Name

2. Surveyor's Name Entered?

Be certain that surveyor has entered his name on the log. If not check with Supervisor and find out which surveyor surveyed the trip. Enter in red.

3. Bus Number Entered?

Check to see if bus number is entered. Failure to enter the bus number is potential grounds for rejection of log. If not filled in circle in, red and enter or edit log review sheet.

4. Beginning Questionnaire Number/Ending Questionnaire Number

Check to see that the "begin" and "end" serial numbers have been entered for each deck used for the trip. Also, the "begin" serial number for the first deck should be the same as the serial number entered on the first trip log of the surveyor's work assignment. The "end" serial number of the highest deck number used (1st, 2nd, or 3rd) must be the same as the "end" serial number entered at the end of the trip log. If any of these serial numbers are missing, the "log" is incomplete, and the log edit form so marked. If these troubles persist through the assignment the surveyor must be retrained.

5. Serial Number at Start Entered?

This is a failure if not entered. If the "beginning questionnaire number" first deck is entered this can be used if it appears to be correct.

If this is not the first trip of an assignment, the "serial number at start" should be the "serial number at the end of trip" for the previous trip log. It should also

correspond to the "ending questionnaire number" of the last deck used for the previous trip.

The "serial number at start" may be filled in from these other sources if the log otherwise appears to be ok. Note failure on edit review form. It is a failure and represents grounds for retraining or possibly release.

6. Start Location Entered

This should be completed by the interviewer. It should agree with the information on the assignment sheet.

7. Tally the Passenger Boarding Counts for Each Trip - For Full Edit Use Form Shown in Figure 1

The surveyor should have marked each boarding black and non-black passenger with a single stroke on the respective counters. Subtract the ending tally from the beginning tally. Do this for each trip. A trip is defined by start location and end location. Each trip is recorded on a "Trip Log", an example is shown in Figure 2. The total number of questionnaires handed out can be obtained by calculating the difference between the serial number at start of the deck minus the serial number at the end of the deck. Check the number of questionnaires against the number of total tallies on the counters (black plus non-black). Minor differences are unavoidable. The following table presents the acceptable differences:

<u>Questionnaires</u>	<u>Difference from Tally</u>
1-9	± 1
10-16	± 2
17-23	± 3
24-29	± 4
30 and over	$\pm (10\% + 1)$

A surveyor's Assignment Sheet is shown in Figure 3 which shows the number of trips. The number of Trip Logs as shown in Figure 2 should be equal to the number of trips shown in the Assignment Sheet. The Full Edit Form, shown in Figure 1, is used to determine the validity of the entire assignment packet.

8. Evaluate The Trip

Complete the evaluation questions 1-10 on the right.

- (1) Envelope OK - Was there an envelope for the trip? Were the log and questionnaires in the envelope? Were the specific items required on the envelope complete. If yes to these items check () in ok. If not write no.
- (2) Enter the number of questionnaires complete.
- (3) Enter the number of questionnaires blank.
- (4) Enter the number of questionnaires with a "R".
- (5) Enter the total questionnaires in envelope.
- (6) Do questionnaires agree with log. Check yes or no based on analysis described in step 7 above.
- (7) Are the deck entries correct? Circle yes or no.
- (8) Bus number missing? Circle yes or no.
- (9) Times of beginning and ending of trip log entered and reasonable.
- (10) Log ok? Indicate "Yes" or "No".

Enter Return Percentage. Divide Number of Returned Questionnaires by Total Boardings based on serial numbers - multiply by 100.

Enter returned complete percentage.

Enter "Refused" percentage.

Enter Blank percentage.

When all of the trips in an assignment have been edited, rate the assignment as pass/fail. Turn this sheet into supervisor for this review.

Assignment Number _____ Date of On Board _____
 Surveyor Name _____ Date of Edit _____
 Editor _____

Trip No.	Time	Serial No.	Question Distributed	Tallies	PASS FAIL
_____	_____	_____	_____ to _____	Black Non-B Total	
1. Env. OK? _____ 2. Questionnaires Complete _____ 3. Questionnaires Blank _____ 4. Questionnaires "R" _____ 5. Questionnaires in Env. _____ 6. Quest. Serials Agree w/log? Yes No 7. Deck Entries Correct Yes No			7. Deck Entries Correct Yes No 8. Bus Number Yes Missing 9. Times Reasonable Yes No Missing 10. Log OK? _____ Return _____ Return Complete _____ % "R" _____ % Blank _____ %		

Trip No.	Time	Serial No.	Question Distributed	Tallies	PASS FAIL
_____	_____	_____	_____ to _____	Black Non-B Total	
1. Env. OK? _____ 2. Questionnaires Complete _____ 3. Questionnaires Blank _____ 4. Questionnaires "R" _____ 5. Questionnaires in Env. _____ 6. Quest. Serials Agree w/log? Yes No 7. Deck Entries Correct Yes No			7. Deck Entries Correct Yes No 8. Bus Number Yes Missing 9. Times Reasonable Yes No Missing 10. Log OK? _____ Return _____ Return Complete _____ % "R" _____ % Blank _____ %		

Trip No.	Time	Serial No.	Question Distributed	Tallies	PASS FAIL
_____	_____	_____	_____ to _____	Black Non-B Total	
1. Env. OK? _____ 2. Questionnaires Complete _____ 3. Questionnaires Blank _____ 4. Questionnaires "R" _____ 5. Questionnaires in Env. _____ 6. Quest. Serials Agree w/log? Yes No 7. Deck Entries Correct Yes No			7. Deck Entries Correct Yes No 8. Bus Number Yes Missing 9. Times Reasonable Yes No Missing 10. Log OK? _____ Return _____ Return Complete _____ % "R" _____ % Blank _____ %		

Trip No.	Time	Serial No.	Question Distributed	Tallies	PASS FAIL
_____	_____	_____	_____ to _____	Black Non-B Total	
1. Env. OK? _____ 2. Questionnaires Complete _____ 3. Questionnaires Blank _____ 4. Questionnaires "R" _____ 5. Questionnaires in Env. _____ 6. Quest. Serials Agree w/log? Yes No 7. Deck Entries Correct Yes No			7. Deck Entries Correct Yes No 8. Bus Number Yes Missing 9. Times Reasonable Yes No Missing 10. Log OK? _____ Return _____ Return Complete _____ % "R" _____ % Blank _____ %		

INTERVIEWER

_____ PASS IF FAIL, IS THIS 1st? _____ Yes IF YES, RETRAIN ON _____
 _____ FAIL _____ NO IF NO, DISPOSITION _____

SURVEYOR'S TRIP LOG

Route Number _____ Route Name _____
 Block Number _____ Assignment Number _____
 Departure Time _____ This Trip Number _____
 (circle one) AM PM
 Day of Week: _____ Total Trips in
 This Assignment: _____
 Driver's Name: _____ Surveyor Assigned: _____

Direction ☐ 1- east 2- west 3- north 4- south 5-loop 8- other

Beginning Questionnaire Number

--	--	--	--	--	--

--	--	--	--	--	--

--	--	--	--	--	--

1st deck

2nd deck

3rd deck

Ending Questionnaire Number:

--	--	--	--	--	--

--	--	--	--	--	--

--	--	--	--	--	--

Vehicle Number Painted on Bus

--	--	--	--

<div>Start Location:</div> <div></div> <div>at</div> <div></div> <div>Serial Number:</div> <div><div></div><div></div><div></div><div></div><div></div><div></div></div>	Tally of passenger boarding the bus	Black	Non-Black
	Begin Tally		
	End Tally		

Ending questionnaire number:

--	--	--	--	--

Ending Location:

_____ at _____

Time Trip Ending:

(circle one)

--	--	--	--

AM PM

OFFICE USE ONLY (below this line)-----

Remarks _____

Prepared by: _____

Checked by: _____

Report Date

Surveyor Assigned:

Questionnaires Assigned

10

Report Time

Report Location

Date_____

Survey Comments:

Prepared by

Date.

Check by _____

Edit Questionnaires

Questionnaires should be edited by first checking to be certain all questions have been answered. If the bulk or majority of the questionnaire is blank, the questionnaire is to be considered incomplete. A key test will be to see if the origin data are adequate. If the origin is O.K., check the destination. If the origin is missing or is uncodeable, check if access is walking and bus stop data is entered. If yes, origin is satisfied. If destination code is O.K., then questionnaire passes. If destination is missing or uncodeable but egress is walking and bus stop off is codeable, then destination is considered adequate. In summary, the requirements for a questionnaire to be useable are:

- o Bus stop on and walk access are both answered OR origin is codeable.
- AND
- o Bus stop off and walk egress are answered OR destination is codeable.

Then, the procedures listed below should be followed:

1. Sort the questionnaires into numerical sequence.
2. Check to see that the lowest questionnaire serial number is equal to or larger than the beginning serial number shown on the trip log. If one or more questionnaires have serial numbers lower than the beginning serial number on the trip log, check the serial number of the cards assigned to that assignment (on the assignment sheet). If the numbers are included within the range shown on the assignment sheet, set them aside secured with a rubber band with a note saying, "wrong envelope/trip number but possibly belongs to this assignment." If they are not in the serial number range, rubber band them together with a note saying "misplaced cards" and place them in the "misplace card box." Record the number of these cards and their serial range on trip envelope in the lower right-hand corner of the envelope.
3. Check the highest questionnaire serial number. It should be equal to or less than the last serial number minus one shown on the trip log. If it exceeds this number, check the serial number of the preceding questionnaire. Continue until the serial number of a questionnaire is one or more less than the last serial number on the trip log. Secure these cards having high serial numbers with a rubber band and a note saying "high serial numbers--found in assignment # _____, Trip # _____."
4. Sort the Questionnaires into three groups:

- a. Completed Questionnaires
 - b. Blank Questionnaires
 - c. Questionnaires marked with an "R"
5. Secure the blank questionnaires with rubber band and put them into a box marked, "blank." Staple or rubber band the refused questionnaires together and place them into the box marked, "refused."

CODING INSTRUCTIONS

Coding refers specifically to the process of converting interview responses to numbers. Most of the survey is self-coding through the use of the check marks indicating response numbers. Some items, specifically geographic locations, will require coding.

Coding Trip Logs

The trip logs are mostly self-coding. Times need to be coded with a five-digit number. This number is the recorded time plus a "1" if AM is circled, or a "2", if PM is indicated. For example, 8:00 AM should be coded as 0 8 : 0 0 1. The codes for the departure time and the time at end of trip next should already be entered. Data entry should code AM and PM as a 1 or 2 suffix respectively.

Coding Questionnaire

The questionnaires are also highly self-coding. However, geographic locations and other information will have to be coded.

Serial Number

There will be a serial number printed on the upper right-hand side of the first page of the questionnaire.

Numbered Questions

The following question-specific instructions apply to both the English and Spanish versions of the questionnaire.

- Q 1 *"If you have already completed one of these forms, please check here and continue filling out the questionnaire."*

If checked write one in lower right corner of box and circle. If blank, write a zero in lower right corner, e.g. (0).

- Q 2 Look up bus stop in bus stop directory. Be sure you are going in the right

direction.

- Q 3 Self coding. If no response code 0.
- Q 4 If address write 1 in lower right corner and circle; e.g. (1).
If intersection, write 2 in lower right corner and circle, e.g. (2).
If place, write 3 and circle; e.g. (3).
If blank code 9 and circle in lower right corner; e.g. (9).
- Q 5 Self coding.
If 1, circle number of minutes and right justify in three digits, e.g., 3 will be coded (003).
If bus or rapid line given when response is 3, right justify to four digits; e.g. 11 becomes (0011) but 3258 or "green" is just circled.
If no response code (9) in lower right corner.
- Q 6 Self coding, 00 for no response. Enter and circle to right.
- Q 7 Code as in Q 2.
- Q 8 Self coding. Non-response code is 0. Enter and circle to right of question.
- Q 9 Code as in Q 4.
- Q 10 Code same as question 5.
- Q 11 Self coding. No response enter and circle (9) to right of question.
- Q 12 Self coding. No response enter and circle (9) to right of question.
- Q 13 Self coding. Non-response code is (9) entered and circled in lower right.
- Q 14 Self coding. Non-response code is (9) to be entered and circled to right.
- Q 15 Self coding. Non-response code is (9) to be entered and circled to right.
- Q 16 Self coding. Non-response code is 9. Enter and circle in lower right.

Q 17 Self coding. Non-response code is 9. Enter and circle in lower right.

Q 18 Self coding. Non-response code is 9. Enter and circle in lower right.

ROUTE NUMBER ----

Write and circle the full route number (e.g. 15A) at the bottom right of the form after Question 18.

After coding the completed questionnaires, all completed questionnaires should be placed back in the trip envelope.

Appendix D

**District to District Trip
Summaries by Purpose**

Table D-1
District to District Summaries by Purpose—Home-Based Work Trips

District	1	2	3	4	5	6	7	Total
1 CBD	668	0	0	0	355	189	0	1,212
2 Lake County	0	0	0	0	0	0	0	0
3 Geauga County	205	0	0	0	0	0	0	205
4 Median County	400	0	0	0	11	0	0	411
5 non-CBD Cleveland	13,265	0	3	0	12,227	7,631	635	33,761
6 remaining Cuyahoga County (non Cleveland)	21,186	0	15	16	4,194	4,409	574	30,394
7 Lorain County	710	0	0	0	44	228	2	984
Total	35,766	0	18	16	16,476	12,268	1,211	65,755

Table D-2
District to District Summaries by Purpose—Home-Based School Trips

District	1	2	3	4	5	6	7	Total
1 CBD	63	0	0	0	386	34	8	491
2 Lake County	0	0	0	0	0	0	0	0
3 Geauga County	17	0	0	0	3	0	0	20
4 Median County	2,152	0	0	0	13	0	0	2,165
5 non-CBD Cleveland	1,597	0	0	11	6,245	2,014	211	10,078
6 remaining Cuyahoga County (non Cleveland)	11	0	0	0	1,656	2,031	27	3,725
7 Lorain County	121	0	0	0	40	17	0	178
Total	3,898	0	0	11	7,957	4,062	238	16,166

Table D-3

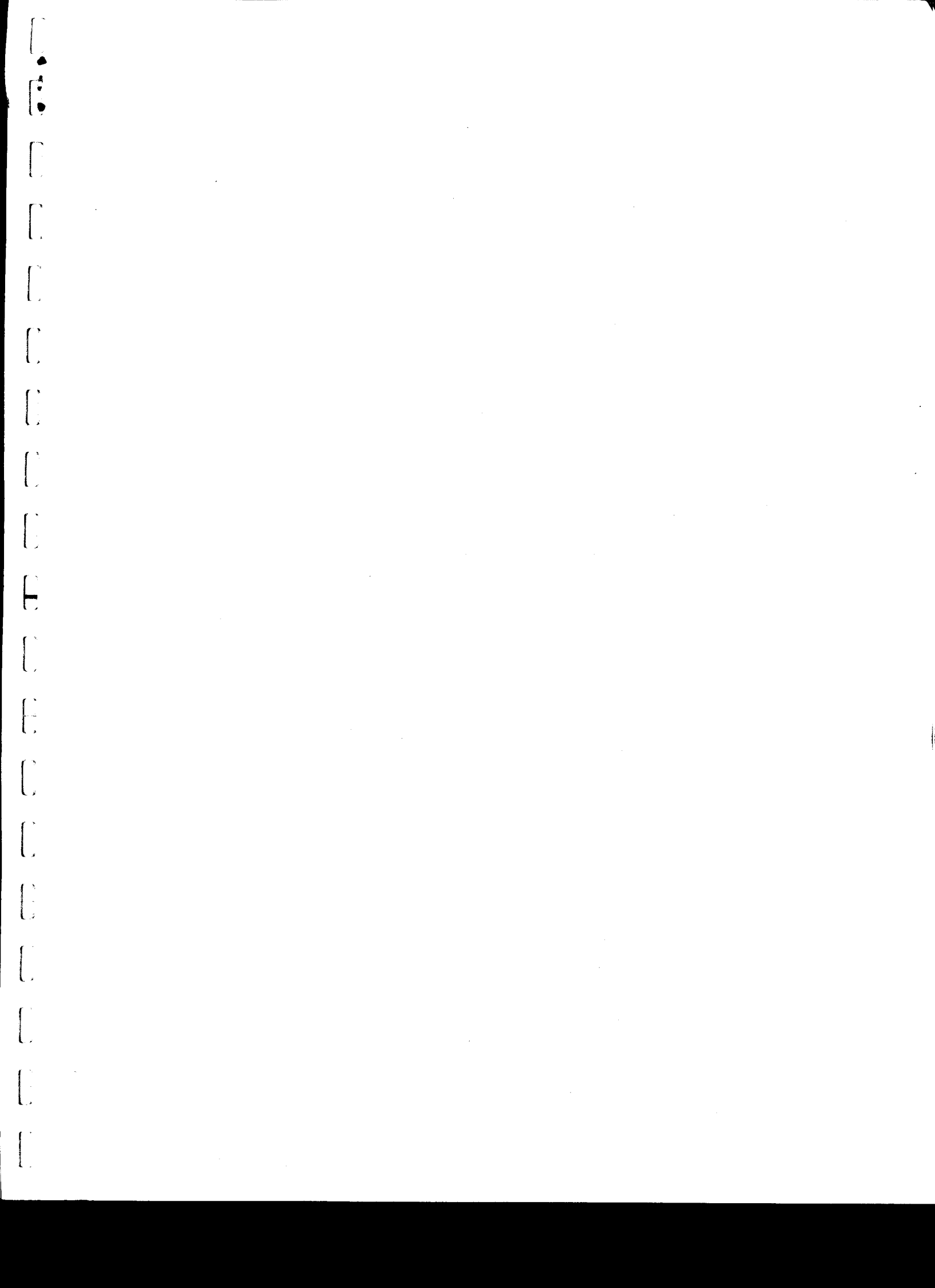
District to District Summaries by Purpose—Home-Based Other Trips

District	1	2	3	4	5	6	7	Total
1 CBD	112	0	0	0	248	123	0	483
2 Lake County	0	0	0	0	0	0	0	0
3 Geauga County	7	0	0	0	8	0	0	15
4 Median County	14	0	0	0	8	30	299	351
5 non-CBD Cleveland	3,996	0	3	0	8,093	2,935	143	15,170
6 remaining Cuyahoga County (non Cleveland)	2,052	0	0	0	2,239	2,620	0	6,911
7 Lorain County	154	0	0	0	88	33	2	277
Total	6,223	0	3	0	10,436	5,618	444	22,724

Table D-4

District to District Summaries by Purpose—Non-Home Based Trips

District	1	2	3	4	5	6	7	Total
1 CBD	820	0	0	0	1,352	615	18	2,805
2 Lake County	0	0	0	0	0	0	0	0
3 Geauga County	0	0	0	0	0	0	0	0
4 Median County	0	0	0	0	0	0	0	0
5 non-CBD Cleveland	1,899	0	14	0	2,787	823	93	5,616
6 remaining Cuyahoga County (non Cleveland)	495	0	10	0	809	1,077	9	2,400
7 Lorain County	0	0	0	0	185	51	0	236
Total	2,394	0	24	0	3,781	1,951	102	8,252





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