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Transit Fare Prepayment Demonstrations in Austin, TX and Phoenix, AZ

Final Report
June 1979

Service and Methods Demonstration Program



U.S. DEPARTMENT OF TRANSPORTATION
Urban Mass Transportation Administration
Research and Special Programs Administration
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16. Abstract <p>This is a final report covering two matched demonstration projects testing transit fare prepayment innovations in Austin, Texas and Phoenix, Arizona. The innovations consisted of two consecutive sales of prepaid tickets and passes at discounts of 20% and 40%, accompanied by expansion of sales outlet networks and intensive advertising and promotional campaigns. The purpose of the demonstrations was to measure the impacts of these innovations on: (1) the volume and mix of sales of the various transit fare prepayment instruments, (2) transit-riding levels, and (3) transit costs and operations. In addition, special attention was to be given to evaluating the relative cost-effectiveness of the special advertising and promotional campaigns conducted in both sites. Although beyond the scope of the demonstrations, some evaluation information was obtained on the cost and effectiveness of regular transit fare prepayment programs, in their role as adjuncts to transit service.</p>					
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PREFACE

This report was prepared by Crain & Associates based on their evaluation of the transit fare prepayment demonstrations in Austin and Phoenix. John Crain designed the evaluation approach. He and Pamela Bloomfield coauthored the report. Ms. Bloomfield conducted essentially all of the ongoing evaluation effort, including coordination and supervision of field data collection operations. Richard Edminster and Guillaume Shearin played supportive roles in planning work elements and analyzing project data. Jerry Latter performed the computer programming and related computations contained within the report.

The report has been prepared for the Transportation Systems Center, which is responsible for the evaluation elements of the UMTA Service and Methods Demonstration Program. Elizabeth Page has acted as the TSC evaluation manager of these projects, and has participated in all administrative and technical details of the work. Dr. Vince Milione and Stewart McKeown served as the UMTA project managers with overall responsibility for the projects, including the experimental design.

The principal management of the Austin demonstration, representing the City of Austin, has been provided by Patricia Gregory, Transportation Administrator, City of Austin. The day-to-day project work was done by five members of the Austin Transit staff: Don Bryant, Howard Goldman, DeDe Slaydon, Chuck Barnes, and Cheri Pendleton. The work of the promotional contractor GSD & M was led by Betsy Todd.

The Phoenix demonstration was managed by Ed Colby, Public Transit Administrator, City of Phoenix. The bulk of the ongoing project work was performed by Jon Wendt, Judy Gaudet, T. J. Ross and Reyna Clack. Don Hildebrandt, Executive Vice-President of Jennings & Thompson, supervised the advertising and promotional

work. Bruce Hernandez of Behavior Research Center, Inc. managed the data collection activities.

The operation of the demonstration projects and the evaluations were carried out by the combined efforts of those listed above. Crain & Associates is responsible for the analysis and conclusions included in this report.

The report was typed by Crain & Associates staff, principally Molly Shinn, Jane Van Dusen and Ruth Campbell.

METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
VOLUME				
teaspoon	teaspoons	5	milliliters	ml
Tablespoon	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cup	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (then subtracting 32)	Celsius temperature	°C

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000 m ²)	2.5	acres	
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³
TEMPERATURE (exact)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F

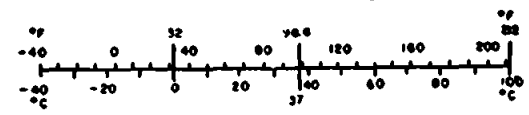


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1. EXECUTIVE SUMMARY

The Austin and Phoenix transit fare prepayment (TFP) demonstrations tested three innovations to determine their effects on usage of TFP instruments and on levels of transit riding in Austin and Phoenix. The three innovations were: price discounts on prepaid tickets and passes; intensive advertising and promotion of the discounted TFP instruments during two sales periods; and expansion of the number of outlets selling TFP instruments. The findings yielded by the demonstrations are conclusive and consistent within each project and between projects. This report documents the following findings regarding the TFP demonstrations in Austin and Phoenix.

1. A small fraction of the transit ridership in both cities purchases TFP instruments: 9% in Austin and 15% in Phoenix. While this group buys the prepaid tickets and passes primarily for reasons of convenience, the vast majority of riders will only buy them for economic reasons. Thus, if the instruments are sold at a discount--i.e., if the cost per ride is lower than the cash fare--transit riders will be induced to purchase them. However, most of these new buyers will drop out of the TFP program if the prices revert to the presale levels. Although there are significant differences between buyers and non-buyers, buyers are well represented in every market segment; TFP instruments are bought and used by persons with varying trip rates and of all socioeconomic backgrounds.
2. TFP instrument users in both cities stop using the TFP instruments at a rate of 6% per month; changes in their personal circumstances and travel patterns appear to constitute the primary reason why they

stop buying. At the same time, new buyers enter the TFP program. The implication of the 6% attrition rate is clear: a transit system must market its TFP program on a continual basis in order to maintain a constant level of purchasers.

3. Sales volumes of TFP instruments increased dramatically during the four sale periods. In Austin, the 40% sale produced a 300% sales increase, and the 20% sale boosted sales by 150%. In Phoenix, sales rose by 125% during the 20% sale and by 270% during the 40% sale. These sales increases are proportional to the levels of discount on the TFP instruments. Thus, a price elasticity coefficient of -7.5 is implied in Austin; -6.5 in Phoenix.
4. All four sales attracted sizable numbers of old and new buyers. The socioeconomic profiles of these two groups do not differ significantly, indicating that the socioeconomic and travel characteristics that normally determine purchasing behavior were unchanged when prices of TFP instruments were discounted. The transit trip rates of the new buyers were lower than those of old buyers but higher than those of transit riders who did not respond to the sale. Thus, the sales allowed the transit operator to increase penetration of the existing market for TFP instruments.
5. The post-sale attrition rate of new buyers was far higher than that of old buyers: after each sale, there was an immediate 50% drop in the number of these first-time purchasers who continued to buy TFP instruments at regular, undiscounted prices. Thereafter, this group exhibited an attrition rate of 11%, twice the "natural"

attrition rate of 6% exhibited by old buyers. However, this pattern of attrition of new buyers is such that one year after they began to purchase TFP instruments at a discount, approximately 15% were still purchasing undiscounted tickets and passes. This is clearly the most significant positive finding yielded by the demonstrations.

6. The results of these demonstrations strongly suggest that increased sales of TFP instruments do not lead to long-term increases in transit riding. During the four sale periods, transit riding did increase; however, this effect was temporary and, therefore, cannot be regarded as a positive finding relative to the demonstration objectives. Furthermore, the transit trip rates of new buyers who were still buying TFP instruments three months after the sales did not increase from before to after the sales; this finding does not support the hypothesis that the purchase of a prepaid ticket or pass will generate an increase in transit riding. The demonstrations attracted only a few new transit riders: about 100 new riders bought discounted tickets during the two demonstrations. Assuming that none of these people would have started to ride transit had there been no demonstrations, an unlikely assumption, the demonstrations' long-term impact on transit riding consisted of a .25% ridership increase in Austin, and a .33% ridership increase in Phoenix.
7. Public awareness of transit was low prior to the demonstrations: 18% of Austin residents and 14% of Phoenix residents used their city's transit service in a typical week. The demonstrations caused slight increases in public awareness; however, these increases did not translate to increased transit usage.

8. The most cost-effective advertising modes proved to be those which targeted regular transit riders and ticket/pass purchasers; e.g., advertising on buses and at TFP outlets. This finding suggests that a transit operator could achieve comparable results in terms of attracting existing riders to TFP with a scaled-down advertising campaign, one which emphasized bus advertising while relying less heavily on the costlier mass media.
9. With regard to TFP sales outlets: although selling TFP instruments through outlets is a logical element of a marketing program, these demonstrations did not prove that expansion of the existing TFP outlet networks in Austin and Phoenix contributed to increases in TFP sales volumes.
10. The demonstrations were effective in focusing attention of the riders and of the general public on public transportation and on the TFP programs in both sites. A significant proportion of transit riders in both cities were converted to the practice of buying TFP instruments due to the demonstrations. Where a transit company desires this spotlighting of their services, this approach--advertising combined with short-term price reductions--would probably be effective. However, the results of this experiment suggest that this focusing of attention may have been obtainable at lower costs than those incurred in Austin and Phoenix. The desired results might be achievable in a single sale, accompanied by a less costly advertising campaign. The 20% discount might be sufficient as a means of obtaining publicity for the transit system and of introducing a sizable number of transit riders to transit fare prepayment.

11. The estimated costs of the Austin and Phoenix demonstrations, excluding evaluation activities, were \$81,660 and \$127,800, respectively. The main effect of the demonstrations was to attract existing transit riders to TFP instruments. Other minor benefits associated with the demonstrations were the attraction of a handful of new riders, and a slight increase in public awareness of transit.
12. The cost of administering the TFP programs prior to the demonstrations was about 5½¢ per TFP instrument boarding in Austin, 2¢ in Phoenix. The results of these projects cast some doubt on the value of TFP programs as they are currently designed; i.e., they may not generate sufficient benefits to the rider, to the transit operator, or to the general public (by improving transit mode split) to justify their costs. At a minimum, these results suggest that more fundamental research is needed to determine the proper role, the benefits and costs, and the most effective designs of TFP programs.
13. This evaluation effort has developed and tested a number of techniques which a transit operator may employ to analyze a TFP program. First, this research has isolated certain principles regarding the attrition of TFP instrument users over time, and, more importantly, a technique for measuring attrition rates. The following analysis also furnishes a methodology for analyzing the pricing structure of a TFP program by comparing the break-even usage values of the various prepaid instruments offered with the trip-making behavior of the transit system's ridership. Finally, this

report presents techniques enabling transit operators to measure TFP program costs and cost-effectiveness in precise terms and to assess program benefits, at least in qualitative terms.

2. INTRODUCTION

2.1 TRANSIT FARE PREPAYMENT; BACKGROUND AND PURPOSES

2.1.1 Background

Within the last decade or so, the concept of transit fare prepayment—the advance purchase of transit rides—has gained popularity among transit operators in the United States. As of 1976, approximately 93% of U.S. transit systems utilized some form of transit fare prepayment (TFP) instrument.* Generally, TFP instruments fall into two categories: those which can be used for a fixed number of transit rides—such as tickets, tokens, and punch cards—and those which can be used for an unlimited number of rides within a fixed time period—such as passes and permits. Many transit systems market more than one type of TFP instrument; in many cases, the instrument prices are discounted relative to cash fares.**

2.1.2 Types of TFP Instruments

Tickets and passes, the two types of TFP instruments

*This statistic, as well as much of the background material which follows, is drawn from Transit Fare Prepayment, The Huron River Group, U.S. Department of Transportation, Washington, DC, August 1976. For a more far-reaching examination of the various types of TFP instruments and their use, the reader is referred to this document.

**In the case of passes, the savings realized by the user depends upon the frequency of use within the fixed time period: the higher the number of usages, the lower the cost per trip.

tested in the Austin and Phoenix demonstration projects, are described below. In addition to tickets and passes, TFP instruments can take the form of tokens (metal disks); permit cards, which require the rider to deposit cash in addition to flashing the permit; and magnetic stored fare cards, on which a number of rides or a specified dollar value is magnetically encoded.

Tickets take several forms. Most commonly, they consist either of tear-off paper slips or cards, each of which is valid for one transit ride, or of cards containing a specified number of holes to be punched. Usually, one hole is punched for each ride taken; when all holes have been punched, the card is worthless. In most transit systems, tickets carry no expiration data.

Passes consist of paper or plastic cards which entitle the user to an unlimited number of transit rides until the date of expiration, which is printed on the passes. Because the per-trip cost of passes depends upon frequency of use within the validity period, passes are usually attractive only to frequent transit riders, i.e. commuters.

2.1.3 Note on Postpayment

Postpayment, or credit payment, of transit rides is a third alternative to cash payment and transit fare prepayment. Under such a system, the passenger inserts a credit card into an automatic card-reader on the vehicle; at the end of the month, the card-holder is billed for the rides taken during that month. Transit fare postpayment is still an experimental concept which has not yet been adopted and accepted on a large scale by U.S. transit systems.

2.1.4 Alleged Benefits

Transit fare prepayment programs are generally alleged

to offer certain benefits to the transit operator, to the riders using the TFP instruments, and to the larger community. In theory, the transit operator realizes a cash flow benefit, as well as lowered cash management costs, from the advance sale of transit rides. Depending upon the type of transit system, certain TFP instruments may also reduce passenger boarding times. Benefits to riders consist of convenience, especially where transit systems require that cash fares be paid in exact change, and savings, depending upon the pricing of the TFP instruments relative to cash fares. In addition, two community benefits are often attributed to prepayment programs: an induced mode shift from autos to public transit, with an attendant reduction in traffic congestion, pollution, energy consumption, etc.; and a social welfare benefit, in that social welfare organizations can prepurchase TFP instruments for distribution to needy clients.

Finally, conventional wisdom among transit operators holds that transit fare prepayment plans generally offer positive ridership benefits, at least in terms of retention of ridership, while incurring insignificant administrative costs. This report will examine some of these alleged transit fare prepayment benefits as they apply to the two transit systems under scrutiny.

Over and above research on the costs and benefits of transit fare prepayment programs, more general research on non-cash fare payment mechanisms is needed. The keynote speech at the UMTA Pricing Forum held in Virginia Beach in May 1979 stressed the importance of developing alternatives to cash fare payment systems, in order to investigate potential solutions to the shortcomings of flat fare and exact fare payment systems.

2.2 THE AUSTIN DEMONSTRATION

2.2.1 Project Overview

Early in 1976, the City of Austin was approached by representatives of UMTA, U.S. DOT regarding Austin's interest in a demonstration project concerning transit fare prepayment. TFP instruments would be promoted through price discounts, increased advertising, and additional sales outlets. The resulting effects on TFP instrument usage and transit riding would be measured.

2.2.2 The TFP Program

Austin Transit uses several types of TFP instruments. (See Table 2-1.) Passes are valid for a calendar month; the multi-ride tickets are usable at any time after purchase.

TABLE 2-1.

AUSTIN TFP INSTRUMENTS

20-Ride Punch Ticket	Can be used to ride during peak hours (two punches) or off-peak hours (one punch). No expiration date.
Monthly Pass	Good for unlimited riding for one month.
Commuter Pass	Good for unlimited riding during peak periods for one month.
Shopper Pass	Good for unlimited riding during off-peak periods for one month.
10-Ride Student Ticket	Usable only by students; one punch per ride. No expiration date.

Austin Transit's tickets and passes, with the exception of the student ticket, were redesigned prior to the first TFP sale; Figures 2-1 and 2-2 show the old and the redesigned instruments.

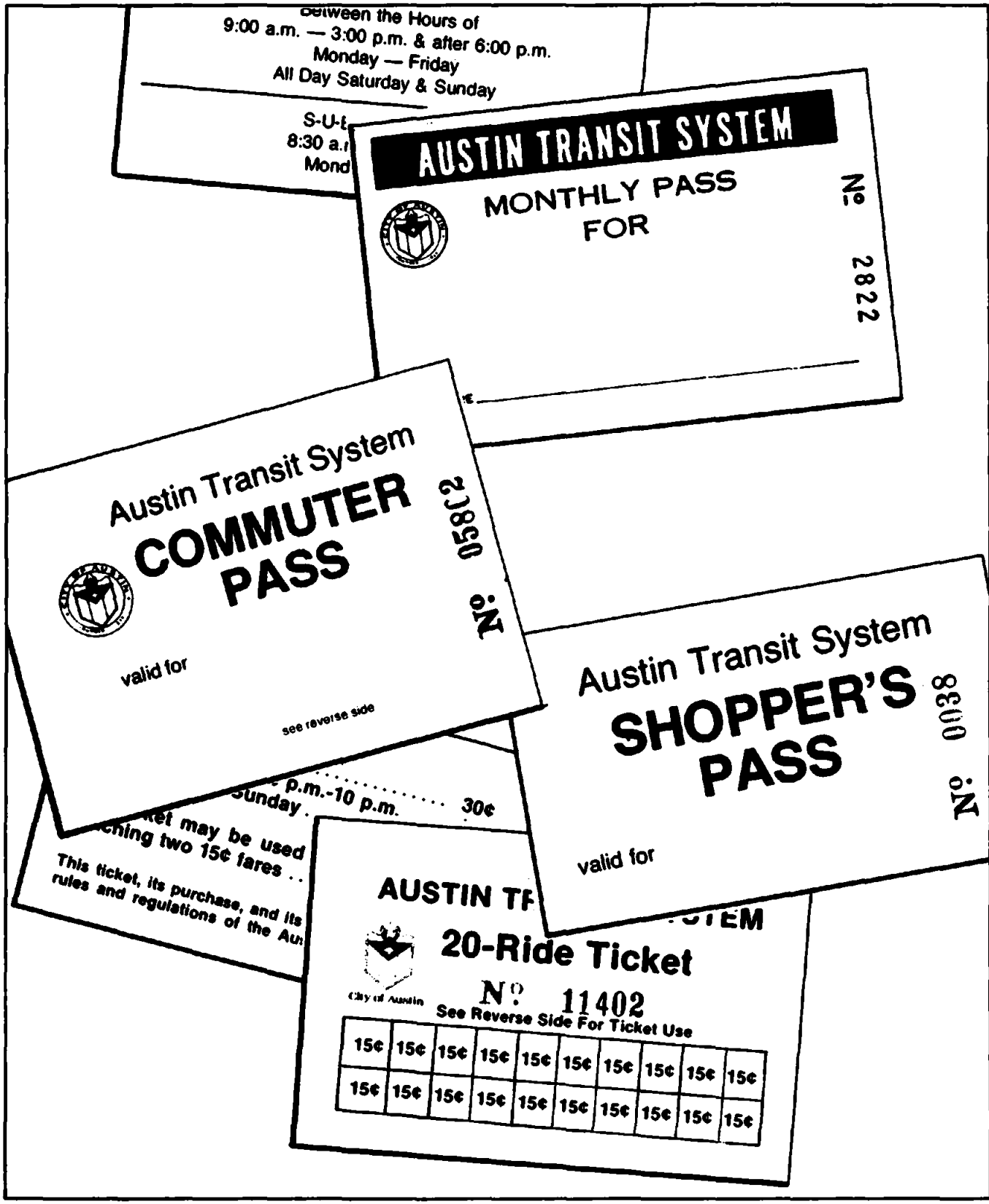


FIGURE 2-1. THE OLD AUSTIN TFP INSTRUMENTS

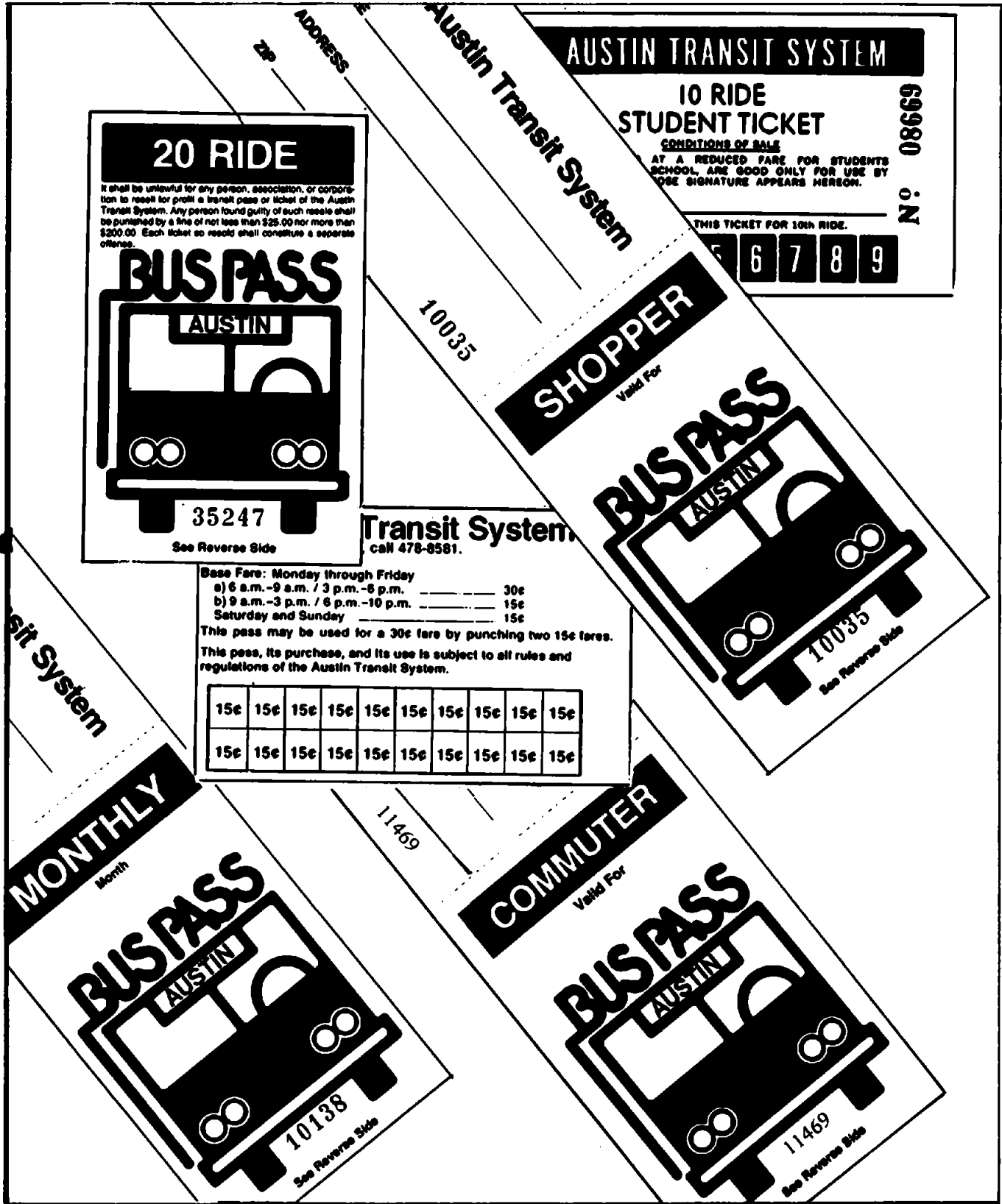


FIGURE 2-2. THE REDESIGNED AUSTIN TFP INSTRUMENTS

2.2.3 The Demonstration Grant

In September 1976, the City of Austin applied to the U.S. Department of Transportation for this Service and Methods Demonstration (SMD) grant under Section 6 of the Urban Mass Transportation Act of 1964, as amended. The total amount of the proposed grant was to be \$102,534. However, in November 1976, revisions to the grant application in the area of data collection were made, necessitating additional grant funding; thus, the overall amount of the grant was increased to \$125,081. The federal share consisted of \$106,319, and the local share authorized by the Austin City Council was \$18,762.

2.2.4 Project Innovations

The three primary project innovations tested during the Austin demonstration were as follows:

1. Tickets and passes were sold at a discount during each of two one-month sale periods. In October 1977, the tickets and passes were sold at a 40% discount; in March 1978, they were sold at a 20% discount. The tickets had no expiration date. The student 10-ride ticket was not included in the sales.
2. Over the course of the demonstration, the number of information and sales outlets was increased from 26 to about 47.
3. Intensive promotion of the discounted tickets and passes was conducted before and during each sale; the media employed included television, radio, newspapers, billboards, posters, and brochures.

2.3 THE PHOENIX DEMONSTRATION

2.3.1 Project Overview

In response to a proposal made by representatives of UMTA, U.S. DOT, the City of Phoenix applied for a demonstration grant to test transit fare prepayment innovations in March 1977; UMTA approved the grant in July 1977. The objectives of the project were identical to those of the companion project in Austin but for a variety of reasons, the experimental designs differed slightly. (These differences are discussed later in this chapter.)

2.3.2 The TFP Program

Until mid-1978, Phoenix Transit sold three types of TFP instruments: the 10-ride ticket, introduced in December 1977; the 20-ride ticket; and the monthly pass. In July 1978, the 20-ride ticket was discontinued and the Annual Pass was introduced. (See Table 2-2.) Passes are valid for a calendar month (or in the case of the Annual Pass, a calendar year); the multi-ride tickets may be used at any time after purchase.

TABLE 2-2.

PHOENIX TFP INSTRUMENTS

"Big 10" Ticket	Sold in books of 10 tear-off Regular or Express tickets; no expiration date
20-Ride Ticket	One punch per ride; discontinued in July 1978
Monthly Pass	Good for unlimited riding for one month
Annual Pass	Good for unlimited riding for one year
20-Ride Student Ticket	One punch per ride; usable by students under the age of 21

2.3.3 The Demonstration Grant

The grant for the Phoenix demonstration totaled \$148,075: 80% (\$118,460) was funded by UMTA and 20% (\$29,615) by the City of Phoenix. The initial budget allocated \$40,000 for the marketing campaigns and \$27,000 for data collection activities. Subsequently, an additional \$20,000 was added to the marketing budget to pay for television advertising during the two sale periods; this line-item alteration did not affect the overall budget. The project was scheduled to run for 19 months: from July 1977 through January 1979.

2.3.4 Project Innovations

The three primary project innovations tested during the Phoenix demonstration were as follows:

1. Tickets and passes were sold at discounts during each of two one-month sale periods. From January 23-February 28, 1978, tickets and passes were sold at a 20% discount; and from September 28-October 28, 1978, they were sold at a 40% discount. The tickets were valid for two months; monthly passes for both months of the ticket validity period were sold at a discount. Thus, February and March monthly passes were discounted by 20%; October and November monthly passes by 40%. Only the 10-ride ticket, the regular 20-ride ticket, and the monthly pass were included in the sales.* Figure 2-3 shows some of these discounted instruments.
2. Immediately prior to the first TFP sale in Phoenix, the number of sales outlets was increased by 28: from 89 to 117.
3. Intensive promotion of the discounted tickets and passes was conducted before and during each sale; the media employed included television, radio, newspapers, billboards, utility bill mailers, and posters.

*Prior to the second sale, the 20-ride ticket was discontinued.

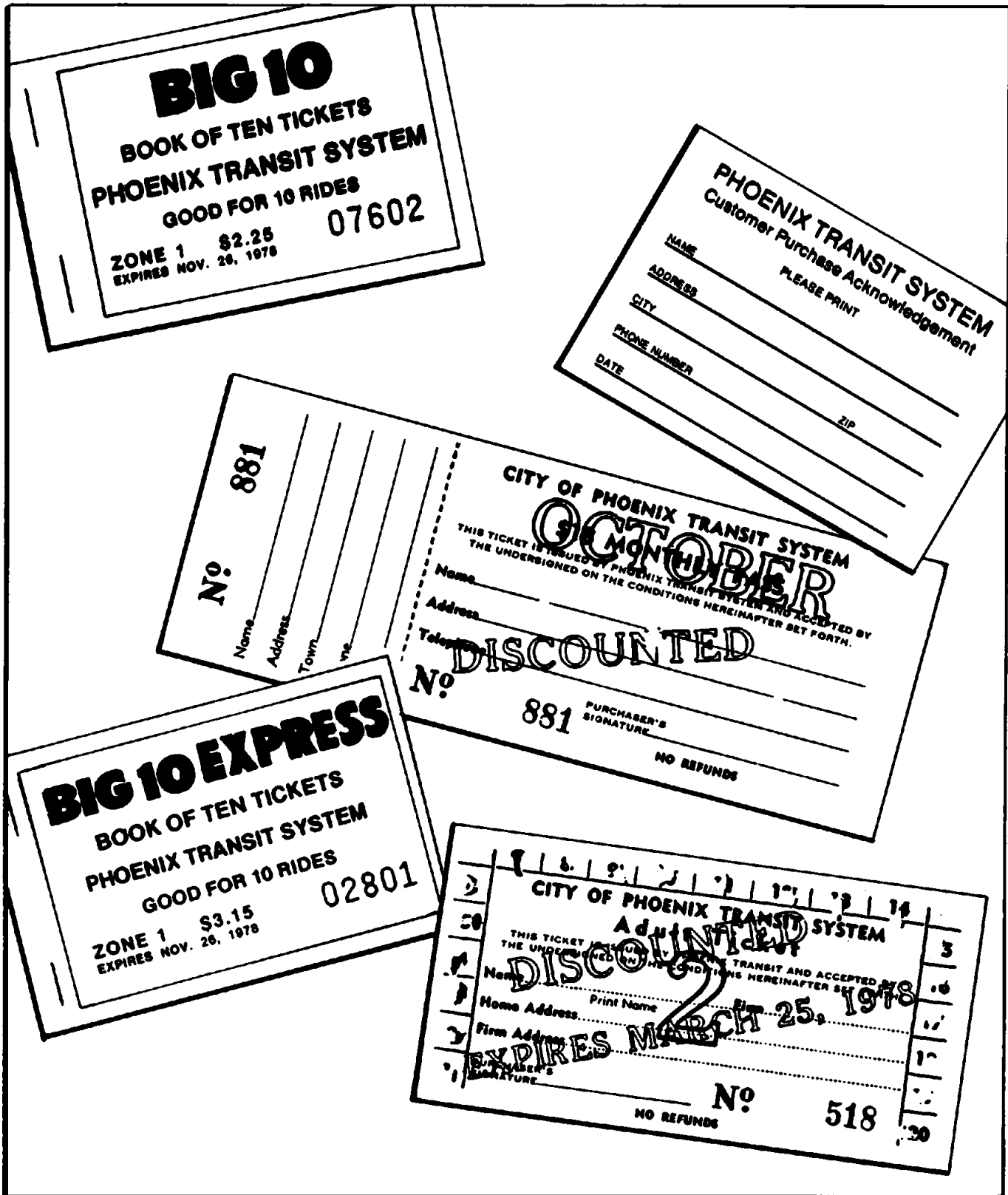


FIGURE 2-3. THE PHOENIX TFP INSTRUMENTS

2.4 PROJECT OBJECTIVES

The purpose of the matched projects was to measure the impacts of the project innovations described above on:

1. The volume and mix of sales of the various TFP instruments,
2. Transit-riding levels, and
3. Transit costs and operations.

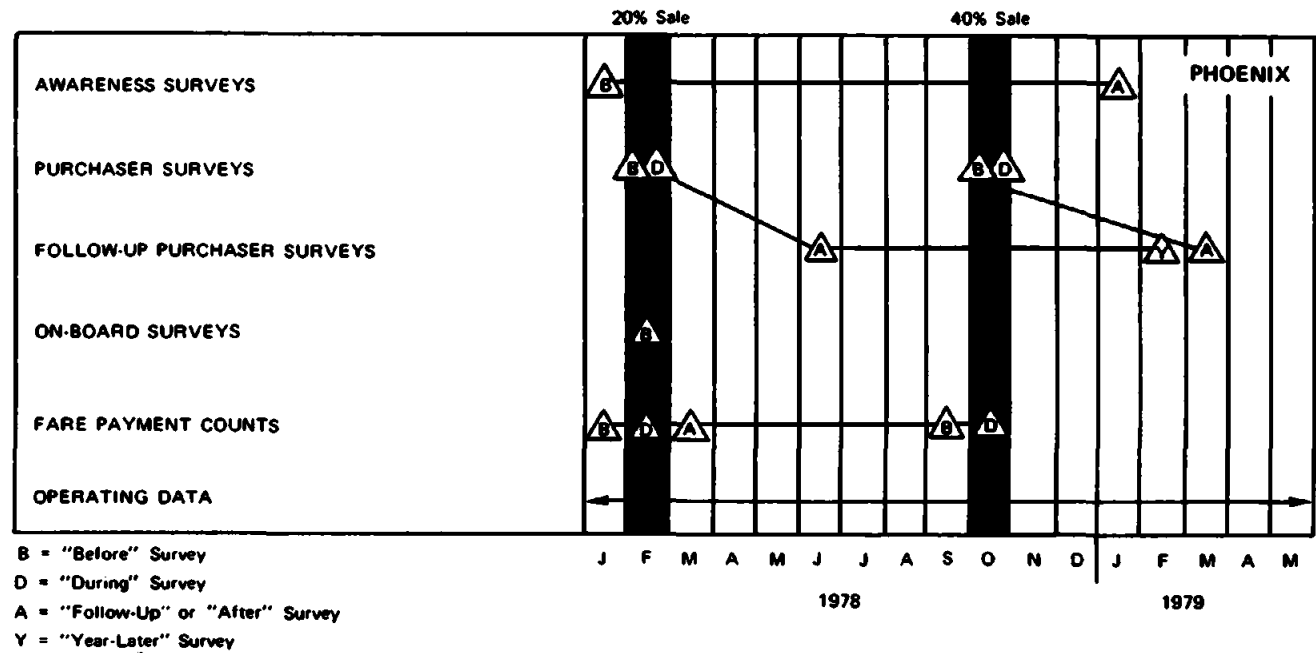
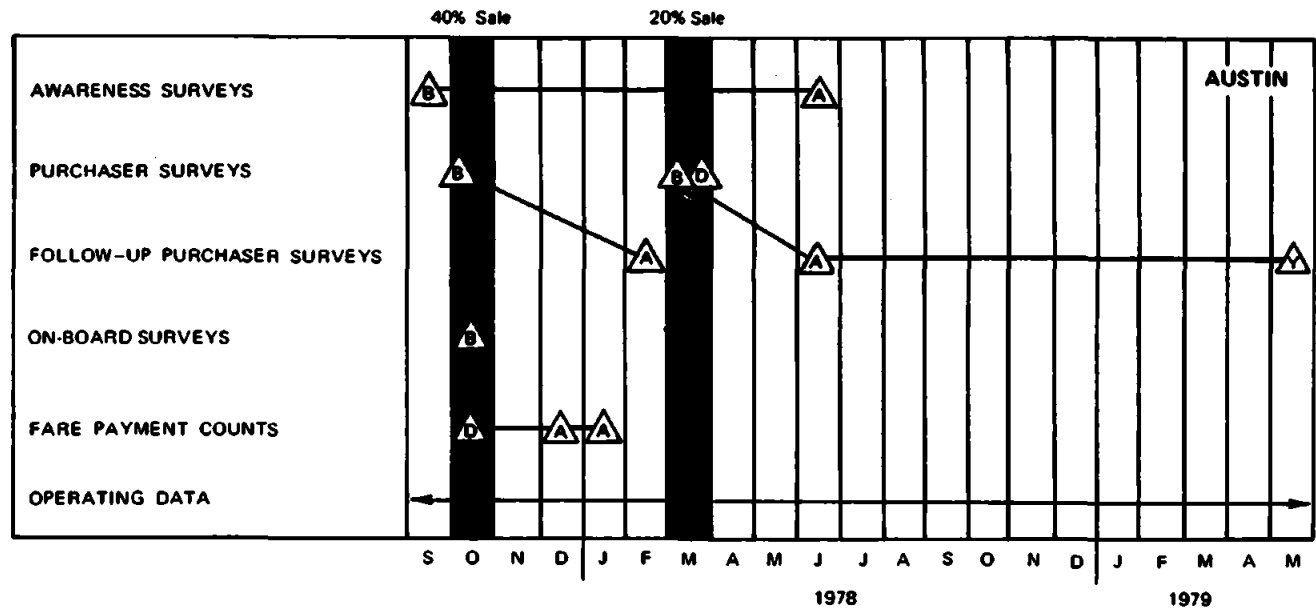
In addition, special attention was to be given to evaluating the relative cost-effectiveness of the special advertising and promotional campaigns conducted in both sites. Although beyond the scope of the demonstrations, some evaluation information was obtained on the cost and effectiveness of regular TFP programs, in their role as adjuncts to transit service. This information is included in the following analysis.

2.5 THE EXPERIMENTAL DESIGN

2.5.1 Description

The evaluation approach had two major components. First, the operating statistics of each transit system were monitored in order to track significant changes in TFP sales patterns and/or transit ridership. Second, a series of surveys was conducted; each was designed to measure changes in the purchasing and/or transit-riding behavior of affected segments of the population in each site. This evaluation approach entailed nine specific data collection activities; these are listed in Table 2-3. Figure 2-4 shows the schedule of these data collection activities in Austin and Phoenix. The purposes and methodology of each survey are provided in Appendices C through K of this report.

The Purchaser Surveys constitute the heart of the experimental design. All persons who bought a TFP instrument during either sale were asked to complete a ticket stub with their names, addresses, and telephone numbers. A sample of these were called on the evening of their purchase; the survey recorded their socio-economic attributes as well as the specific trips they had taken



B = "Before" Survey
 D = "During" Survey
 A = "Follow-Up" or "After" Survey
 Y = "Year-Later" Survey

FIGURE 2-4. DATA COLLECTION SCHEDULE

TABLE 2-3. THE DATA COLLECTION PROGRAM

<u>Data Collection Activities</u>	<u>Main Purpose</u>
● Collection of Monthly Operating Data	● To measure changes in ridership and/or TFP sales volumes related to the project.
● General Public Awareness Survey	● To evaluate the predemonstration state of public awareness of, and attitudes toward, the transit system and the existing TFP program in each site.
● On-Board Survey	● To assess the socioeconomic profile of existing riders, and to determine why cash payers don't use TFP instruments.
● On-Board Fare Payment Counts	● To obtain before-sale, during-sale, and after-sale ridership counts by fare payment method, used to estimate total ridership.
● Purchaser Surveys	● To determine the socioeconomic profile and transit behavior of buyers responding to sale: why they responded, what they purchased, and their presale and during-sale trip-making behavior.
● Bulk Buyer Interviews	● To evaluate the effects of the sales on the buying patterns of institutions which purchase TFP instruments in bulk.
● Follow-Up Purchaser Surveys	● To determine the proportions of old and new buyers who were still buying four months after each sale, the reasons that non-buyers stopped buying, and the postsale trip-making behavior of sale buyers.
● Follow-Up Awareness Survey	● To evaluate changes in public awareness of and attitude toward the transit system and the TFP program in each site; and to determine the level of public awareness of the two promotional campaigns conducted in each site.
● Year-Later Follow-Up Survey	● To determine the proportions of old and new buyers who were still buying approximately one year after their initial sale purchases of TFP instruments.

over the previous 48 hours. This group of people is referred to in this report as the "before" purchaser sample, since the trips about which they were asked were made before they had purchased and used a discounted TFP instrument. Another sample of purchasers was called a few days after their purchases; i.e., after they had begun to use their discounted TFP instruments. We refer to these people as the "during" sample.

Approximately four months after the sale periods, the Follow-Up Purchaser Surveys were conducted. The "before" sample from the Purchaser Survey was reinterviewed to determine whether they were still using TFP instruments, and to record their travel behavior over the previous 48 hours. These data permitted a determination of the effects of the sales on the samples' TFP purchasing behavior and transit trip-making behavior.

The Year-Later Follow-Up Surveys constituted an extension of the Follow-Up Purchaser Surveys. Those from the "before" sample who were still using TFP instruments four months after the sale periods were interviewed a third time 12-14 months after their initial purchases of discounted TFP instruments. They were asked whether or not they were still using TFP instruments: if so, which type; if not, why not.

All other data collection activities were supplemental to the above surveys; they provide supportive data. The Bulk Buyer Interviews were an extension of the Purchaser Survey. In Austin and Phoenix, a number of business organizations and human service agencies purchase blocks of tickets for distribution or resale to employees or clients. The interviews were intended to measure the effects, if any, of the sales on the purchasing decision of these institutions and the transit-riding behavior of their employees or clients.

The monthly operating statistics collected from each transit system include total service revenues (fares plus TFP sales revenues) and TFP sales volumes by instrument type. The intent of gathering these time-series data was to track changes in these data caused by the demonstration.

During the first sale in each site, an On-Board Survey was conducted. This survey measured the characteristics of both regular (presale) riders and new riders attracted by the sale. One purpose of obtaining this information was to define the "before" state of each system's ridership for comparison with: (a) "before" conditions of the companion project, and (b) "after" conditions in the site. In addition, a major objective of the On-Board Survey was to answer a marketing question: why don't regular transit riders use TFP instruments?

In addition, a series of on-board Fare Payment Method Counts* was launched in each site. Survey workers rode buses on a selected set of trips and recorded each boarding and fare payment method. The intent of this procedure was to produce counts of riders before, during, and after the sales; and to generate data showing the relative frequency of fare payment methods, in order to determine whether the fraction of people using TFP instruments rose during and after the sales.

Finally, a General Public Awareness Survey was conducted in Austin and Phoenix prior to the start of the first advertising campaign; a Follow-Up Awareness Survey was administered several months after the second sale. These surveys were intended to measure the impacts of the demonstrations on public awareness of and attitudes toward the transit system and TFP program in each site, and to gauge public awareness of the two promotional campaigns.

*It is important to note at the outset of this report that the evaluation strategy was changed during the course of the project. It became clear after the first sales in Austin and Phoenix that the demonstration would have little effect on ridership levels; thus, the time-series data of service revenues and the on-board fare payment counts became less important, as these procedures could not detect very minimal ridership effects. Consequently, the process of attempting to use these fare payment counts to isolate factors to convert service revenues to ridership counts was discarded.

2.5.2 Differences Between the Projects

The Austin and Phoenix projects differed from each other in two important respects. They are:

1. The reverse order of the sales; and
2. The differing validity periods for the discounted TFP instruments.

Each of these is discussed in further detail below, with the advantage of hindsight.

The sequence of sales was reversed in the two sites: in Austin, the 40% sale preceded the 20% sale; in Phoenix, the smaller sale was first. As this report will show, the first, 40% sale in Austin attracted many new buyers. When the second, 20% sale took place, there were relatively few new buyers to attract; they had become "old" buyers by responding to the first sale. Thus, our ability to assess the number of new buyers induced by increasing levels of discount was diminished. The analysis which follows indicates that the percentage of new buyers obtained in the 20% sale would have been higher if the larger discount sale had not come first. This is an important point, as the data contain some implications that many of the demonstration's effects, in terms of general publicity as well as the introduction of new buyers to TFP usage, might be obtainable at lower discount levels.

The validity periods for the discounted TFP instruments sold in Austin and Phoenix also differed. In Austin the October and March calendar passes sold during the two sale periods were, of course, valid for one month; the discounted 20-ride tickets had an unlimited validity period. In Phoenix, the discounted 10-ride and 20-ride tickets had a two-month validity period; therefore, for purposes of comparability, discounted monthly passes were sold for both months of the validity period. Thus, passes were sold at a 20% discount in February and March, 1978, and at a 40% discount in October and November, 1978. As usual, each pass was valid for one month.

It should also be noted that both sites have imprecise methods of collecting and recording time-series data reflecting service revenues and TFP instrument sales. The operating data regularly recorded by Austin Transit -- service revenues and TFP sales by instrument -- are accurate. However, the posting of these data for a given month does not accurately reflect the exact sales activity of that month. For example, some of the recorded revenues for July may reflect sales of TFP instruments in June. Therefore, the month-to-month variations in the recorded data cannot be interpreted as changes in transit-riding or TFP purchasing behavior; because of the difficulty of identifying small or short-lived impacts, only larger effects that remain over a substantial period can be identified.*

Phoenix Transit's records reflect consignments of TFP instruments to outlets, rather than sales by those outlets. As the large outlets tend to order very large consignments on an infrequent basis, the outlet consignment data for a given month do not reflect sales during that month, or even sales for the previous month. Thus, as in Austin, the month-to-month variations in the time-series data do not necessarily reflect changes in transit-riding behavior. Chapter 4 of this report contains graphed Austin and Phoenix time-series data; where possible, regression lines showing long-term sales trends have been computed and plotted.

*This difficulty does not invalidate the evaluation, as methods to circumvent this problem were devised.

3. DEMONSTRATION SETTING

3.1 AUSTIN DEMONSTRATION SETTING

3.1.1 Geographic and Demographic Characteristics

Austin is located on the Colorado River; it is bounded on the north and west by the Edwards Escarpment, and on the south and east by rolling plains. A seven-lake chain known as the Highland Lakes stretches for 150 miles to the northwest of Austin. The city of Austin covers approximately 109 square miles; elevations within the city range from 400 to 900 feet above sea level.

The temperature in Austin averages 68.1 degrees. Winters are mild; on average, temperatures below freezing occur only 23 days per year. Daytime summer temperatures are high, reaching an average daily maximum of 95.9 degrees in August. Average annual rainfall is 32.5 inches, with precipitation distributed fairly evenly throughout the year. Snow accumulation is insignificant; Austin may experience several successive seasons with no measurable snowfall.

Austin's estimated population totaled 308,087 in 1976, a full 22% increase over the 1970 population of 251,808; while Austin is the 46th largest city in the nation, it ranks sixth in projected growth. From 1960-1970, the SMSA's population increased by 39%, while enrollment at the University of Texas Austin campus doubled to approximately 40,000. A slight shift in ethnic composition occurred during the decade: Anglo and non-white percentages have decreased to a modest extent, while the Mexican-American proportion has risen by 21.8%. As of 1970, Anglo-Americans comprised 71.3% of the population; Mexican-Americans, 15.6%; and non-whites, 12.8%. Many of the minority residents of Austin are concentrated in the southern and eastern Census tracts.

Austin's rapid expansion has produced land use changes similar to those that have occurred in other growing cities. Two distinct patterns of change are detectable:

1. Low-density residential and industrial development has spread to fringe areas in northwest and south Austin; and
2. Central neighborhoods have been redeveloped with higher-intensity land uses.

While much single-family housing is being constructed in outlying neighborhoods, central city areas have experienced single-family housing losses. Between 1960 and 1970, the proportion of dwelling units which are apartments increased to 26.3%, probably because of University growth.

AUSTIN HOUSING INVENTORY BY HOUSE TYPE

	<u>1960</u>	<u>1970</u>
Single Family	84.3%	67.1%
Duplex	6.3	6.6
Apartments	9.4	26.3

Source: Austin Tomorrow: Housing Census Tracts: 1970, U.S. Bureau of the Census, March 1972.

The expansion of fringe development along major highways, coupled with residential growth in the hills west of Austin, have stimulated continued strip development along arterials and the proliferation of suburban shopping centers. These patterns of development serve to de-emphasize the urban core and encourage automobile travel.

Along with population, total employment has expanded over the last decade. The manufacturing sector has grown substantially: in 1967, 8,080 manufacturing workers were employed; by 1971, the manufacturing sector employed 12,300 people. In addition, non-manufacturing employment increased by 96% between 1960 and 1970. As might be expected in a state capital, 35% of total Austin employment was accounted for by the government

sector in 1971. During the period from 1977 to 1979, the unemployment rate in the Austin SMSA ranged from 3.4% to 4.3%. Although suburban land development has expanded, the city's core area, comprised of the central business district, the State Capitol Complex, and the University of Texas, continues to generate substantial travel. While manufacturing and government sectors have expanded, farm employment has steadily fallen as increasingly more rural land is diverted to residential uses. Classified by occupational category, two employment groups show especially rapid expansion: the "professional, technical, and kindred" and the "clerical and kindred workers" classifications.

Austin and most of Texas rank near the bottom of the scale which measures relative cost of living in the United States. In a recent study conducted by the U.S. Department of Labor, Austin exhibited the lowest cost of living among the 40 major cities examined. Correspondingly, in 1970 the median national family income was \$13,700, whereas the median Austin family income was \$9,180. The median incomes of Mexican-American and Black families in Austin were substantially lower than the overall Austin median, as shown below:

1970 MEDIAN FAMILY INCOME BY ETHNIC GROUP

	<u>Income</u>	<u>Percent of Anglo Income</u>
Anglo	\$10,385	100.0%
Black	5,563	53.6
Mexican-American	7,122	68.6
Total	9,180	

Source: Austin Tomorrow: Housing Census Tracts: 1970, Bureau of the Census, March 1972.

Increased auto ownership has accompanied rising incomes: from 1970-1972 alone, auto ownership increased by 19.7%. In 1960, the ratio of Austin residents to autos was 2.86; by 1972, it had declined to 2.06. Approximately 200,000 motor vehicles are registered in Travis County.

3.1.2 Transportation Characteristics

Two mass transit systems currently operate within the city of Austin. The municipally-owned Austin Transit System is the principal mass transportation carrier within the Austin urban area. In addition, Transportation Enterprises, Inc. operates the University of Texas Shuttle Bus System, which provides an extensive, scheduled shuttle bus service between the University of Texas area and various residential areas. This service operates a total of 52 buses over a number of short headway routes. Only persons possessing a valid student identification card may ride. The shuttle system is supported by compulsory student fees; no fare is charged. Thus, the system is available to quite a large market (43,000 students as of 1978) which might otherwise be considered transit dependent. Inter-city bus service is furnished by Greyhound, Kerrville Bus Lines, and Continental Trailways.

The Austin Transit System is operated under a management contract between the City of Austin and American Transit Corporation, a subsidiary of American Chromalloy Corporation. Service is provided on 24 routes, over 328 miles of city streets, by 63 regular transit route buses as well as five specially-equipped vans which serve mobility-impaired persons on a demand-response basis. Until the late spring of 1978, the buses operated at headways of 30 and 60 minutes during the day,* and 60 minutes in the evening and on Sundays.

Listed below is the predemonstration fare structure for Austin Transit.** This fare structure does not include zone fares and allows a two-hour free transfer. Half-fares are in effect for senior citizens and mobility-impaired persons

*In April 1978, the daytime headways were shortened to a range of 20 to 40 minutes.

**In December 1978, fares were increased and three new punch tickets were introduced.

during off-peak periods, and for students at all times. In April 1974, reduced fares during off-peak hours were established for all transit passengers for the purpose of increasing off-peak transit ridership without requiring additional capital expenditures. According to Austin Transit survey data, peak period ridership constitutes approximately 54% of total ridership.

Adult Fare (peak hours)*	\$.30
Adult Fare (off-peak hours)**	.15
School Children (peak hours)	.15
School Children (off-peak hours)	.07
10-Ride Student Ticket	1.50
20-Ride Ticket	3.00
Commuter Pass (peak hours)	10.00
Monthly Pass	15.00
Shopper Pass (off-peak hours)	6.00

From 1963 to 1973, ridership on Austin Transit declined steadily; however, this trend was arrested in 1973 when system patronage increased by 29% over the previous year. Austin Transit management attributes this increase, in large part, to the Capital Improvements and Technical Studies grant awarded by UMTA to the City of Austin in 1972. This grant enabled the City to purchase 40 new buses, thereby providing more direct service, expanding service hours, and instituting Sunday service.

Notwithstanding the turnaround cited by Austin Transit in 1973, data shown in this report of total service revenues suggest a mild decline from 1975 through the present. Revenues currently cover only 38% of expenditures. Austin Transit hopes to increase this proportion by:

1. Increasing the frequency of service during peak periods on routes exhibiting high ridership, using eight new buses; and

*6:00-9:00 AM and 3:00-6:00 PM on weekdays.

**9:00 AM - 3:00 PM and 6:00-11:00 PM on weekdays,
and 6:00 AM - 9:00 PM on Saturdays and Sundays.

2. Modifying routes that are underutilized.

Prior to the demonstration, daily ridership on Austin Transit averaged approximately 22,000. Revenues from sales of transit fare prepayment instruments accounted for approximately 5% of total revenues.

The demographic characteristics of the typical Austin Transit user, as reported by Austin Transit, vary depending upon the day of week. On weekdays, transit riders tend to be white, female, age 18-24, and single; they do not own cars, earn less than \$325.00 per month, and use the system to go to and from work each day. On Saturdays, the average rider is likely to be a white or black 18-24 year-old female. Again, she is single, does not own a car and earns less than \$325.00 per month; her primary purpose for using the bus is to go shopping. Finally, the typical transit rider on Sundays is more apt to be a single white male between the ages of 18 and 24 who does not own a car and earns less than \$325.00 per month. He utilizes Sunday transit service for the purpose of getting to and from work.*

3.1.3 Exogenous Variables

Included below is a discussion of the events, in chronological order, that were external to the project and could have produced ridership effects that are difficult to distinguish from effects caused by the project. Some of these events did have such effects, although they appeared to be minor. However, because the overall results of the demonstration are so pronounced, none of these exogenous factors in any way produced effects which confused the evaluation process.

1. In August of 1977, the Austin City Council approved a \$21.3 million Public Transportation Plan calling for new buses, improved public access to local and area terminals, and a more centralized route system

*Based on results of an on-board survey conducted by Austin Transit in March 1977.

within ten years. Under the plan, radial bus routes would serve Austin and downtown; cross-town routes would link neighborhoods; and feeder routes would connect outlying areas with city terminals. Preferential treatment for buses via a number of transportation system management strategies is also encompassed by the Plan, which was covered in detail by the Austin newspapers.

2. On October 9, 1977, during the first TFP sale, several route and schedule changes took effect. Specifically, all routes which had operated at 30-minute intervals after 7:30 P.M. began to operate at 60-minute intervals as of that date. Schedules for Park and Ride express buses were altered, and one cross-town route was discontinued. Finally, service on the Lake Austin route was cut back.
3. In February of 1978, the Director of the City's Urban Transportation Department announced plans for construction of a public transportation center at the corner of North Lamar Boulevard and Anderson Lane within two years. Plans for the center, which would serve as an area terminal with parking for cars and bicycles, were publicized in the local newspapers. The terminal is one of four proposed under the Austin Public Transportation Plan.
4. The Congress Avenue Bridge, a major traffic route over Town Lake linking the Town Lake area to the central business district of Austin, was scheduled to close for reconstruction in April of 1978. Prior to this time, access to the downtown area was primarily limited to five bridges over which more than 200,000 trips were made daily to businesses and agencies throughout Austin. Each of these bridges, except the MoPac Bridge, operated at or near capacity, and the traffic increased as the city continued to develop. The City of Austin estimated that 34,000 persons would be displaced from the bridge and would have to begin carpooling, riding transit, or driving alternative routes.

For months preceding the projected April closing of the bridge, frequent newspaper articles apprised Austin residents of the forthcoming traffic circulation changes and warned of the terrible congestion problems expected to accompany the changes. Major Austin employers were urged to stagger employee work hours; commuters were urged to form carpools. Austin Transit announced an increase in the level of service on peak period bus routes and the installation of a contra-flow bus lane-- as well as new traffic signals and stop signs--in the

area immediately adjacent to the Congress Avenue Bridge. However, in April 1978, the bridge closing was delayed until the first week of September. As a result of the postponement, the planned installation of a reversible lane system in the bridge vicinity was also delayed.

5. During the week of April 3, 1978, an Austin city bus driver attacked two female passengers on late night service runs, raping one woman and attempting to rape the second. By April 7, the driver had been arrested and was being held in the city jail under a \$10,000 bond. Austin Transit suspended the driver from his job pending resolution of the case. The incidents received heavy media coverage in Austin.
6. On April 30, 1978, Austin Transit initiated a number of route and schedule modifications consisting mainly of increased frequency of buses on the most heavily-utilized routes, and less frequent service on other routes. As a result of the changes, daytime bus headways--which formerly ranged from 30 to 60 minutes, depending upon the route and time of day--were shortened to 20 to 40 minutes. In addition, the new schedule divided bus service into peak, off-peak and reduced hours.

3.2 PHOENIX DEMONSTRATION SETTING

3.2.1 Geographic and Demographic Characteristics

The Phoenix urbanized area is situated in a large valley in the desert of central Arizona. In 1978, the incorporated area encompassed 624 square miles, only seven percent of the total land area in Maricopa County, but contained 1,246,000 persons, almost 90 percent of the county's total population. The physical features of the region range from desert wilderness to urban development; correspondingly, land uses range from agriculture, to industry, to residential and commercial development. The chart below summarizes the land use characteristics of Maricopa County, which embraces nine cities in the Phoenix region.

LAND USE DATA FOR MARICOPA COUNTY (1973)

<u>Land Use</u>	<u>Area in Square Miles</u>	<u>% of Total County Area</u>
Urban development	323	3.5
Agricultural areas	882	9.6
Major park and Recreation areas	1,305	14.1
Airports and military	1,260	13.7
Mountains and desert	<u>5,456</u>	<u>59.1</u>
Total County Area	9,226	100.0

Source: Maricopa County Planning and Zoning Department, A Report on Future General Land Use for Maricopa County, April 1974.

The climate of the Phoenix region is dry, mild, and sunny, with very hot summers; rainfall is quite variable and unreliable. Snow is rare at low elevations, but common in winter in the mountains. Mean annual temperatures range from 50° in January to around 90° in July.

The Phoenix area, the center of State government, constitutes one of the major centers of economic activity in the southwestern United States; it serves as an important center for trade and distribution as well as for storage and transfer of goods being shipped from one region to another. In addition, the region is known for its resorts, tourist facilities, and retirement communities. The city of Phoenix is the capital of Arizona and the County seat of Maricopa County.

Phoenix is characterized by an extraordinarily rapid rate of growth. From 1960-1970, the population of Maricopa County increased by 46%; from 1970-1975, by 29%. In recent years, the number of persons in the 65 and over age group has increased at a higher rate than the population as a whole, a reflection of the area's popular image as an attractive retirement and rehabilitation location.

The abundant supply of undeveloped land in Phoenix has resulted in outward, rather than upward, expansion. The City annexed large pieces of land during the 1960's; currently, however, the population is increasing most rapidly in the neighboring cities. This growth pattern has resulted in low population densities throughout the urbanized area, as well as extreme dispersion of employment sites: 40% of the land within the city limits, 274 square miles, is undeveloped; and only 10% of the city's workers are employed in the central business district.

Despite the absence of an extensive freeway system, Phoenix is a relatively easy area in which to move about. The city is served by a "major street system"; each one square mile grid is bounded on all sides by wide boulevards. These "major streets" are easily accessible; congestion is confined to short morning and evening peak periods.

The project area is comprised of the cities of Phoenix, Glendale, Scottsdale and Tempe within the Phoenix metropolitan area.* In 1975, the combined population of these cities was approximately 908,190. The median family income for the four cities in 1970 was \$10,752, as compared with the county median of \$9,856 and the national median of \$13,700. Of the four cities, Scottsdale has the highest median family income: \$12,728. During the period from 1976 to 1979, the cost of living in the Phoenix metropolitan area increased sharply. In 1976, Phoenix ranked twentieth of the forty major cities surveyed by the U.S. Department of Labor; by 1979, Phoenix had moved up to sixth place. During the same period, the unemployment rate for the Phoenix SMSA ranged from 4.7% to 5.1%. Table 3-1 compares selected demographic characteristics of the cities in Maricopa County.

TABLE 3-1.

SELECTED DEMOGRAPHIC CHARACTERISTICS OF COMMUNITIES IN THE PHOENIX REGION

	<u>1960 POPULATION</u>	<u>1975 POPULATION</u>	<u>PERCENT GAIN OR LOSS</u>	<u>MEDIAN YEARLY FAMILY INCOME FOR 1969</u>	<u>YEAR-ROUND HOUSING UNITS</u>
Maricopa County	663,510	1,246,500	+ 87.9	\$ 9,856	316,989
CITIES:					
Avondale	6,151	6,526	+ 6.1	6,086	1,740
Chandler	9,531	20,034	+110.0	8,283	4,400
Glendale	15,696	67,298	+ 99.3	9,233	10,775
Mesa	33,772	100,763	+198.4	9,633	19,911
Peoria	2,593	7,758	+199.2	6,832	1,393
Phoenix	439,170	669,705	+ 52.5	9,956	194,870
Scottsdale	10,026	78,065	+678.6	12,728	21,373
Tempe	24,897	93,822	+276.8	11,092	18,244
Tolleson	3,886	3,718	- 0.4	6,260	972

SOURCE: Valley National Bank, "Arizona Statistical Review," 1974. MAG Planning Data, 1975.

*The city of Mesa was included in the project area in the original grant application; however, it was subsequently excluded, due to the discontinuation of its fixed-route transit service prior to the demonstration. The City of Mesa now operates a shared-ride taxi plan.

3.2.2 Transportation Characteristics

Within the Phoenix urbanized area, transit service is provided on 37 fixed transit routes operated by the Phoenix Transit System in Phoenix, Glendale, Scottsdale and Tempe. Transit operations are conducted by the Phoenix Transit System, a subsidiary of American Transit Corporation. The other cities within the project area contract with the City of Phoenix for fixed-route service. The City Councils of each city determine transit policies, including service levels and fare structures.

The service area of the Phoenix Transit System covers approximately 150 square miles. The bus fleet totals 186 standard transit buses, of which 147 - 151 are required in order to provide service. Transit service is furnished during the hours between 5:30 AM and 7 PM Monday through Friday, and 5:30 AM and 6:15 PM on Saturday; late-night and Sunday service is not available. Most routes originate at the downtown bus terminal and extend to outlying areas. Headways range from 10 minutes, on a few routes during the peak periods, to a maximum of 60 minutes.

In addition to operating the fixed-route service, Phoenix Transit System provides charter bus service to restaurants, resorts, and organizations within the project area. This service is provided after regular operating hours and on weekends. In the fiscal year ending June 30, 1977, 20% of Phoenix Transit System's revenues, or \$457,841, came from charter sales.

Given the spatial characteristics of the Phoenix area, the quality of the road system, and the level of transit service provided, one might expect transit to be perceived as a relatively unfavorable mode of travel. This is, in fact, the case. Despite a record of annual increases in ridership, only .7% of all trips are made via public transportation. Although it is estimated that 525,000 persons live within one-quarter mile of a Phoenix Transit System route, only 30,000 trips per day are taken by bus.

For the 1978 calendar year, the average daily ridership was estimated at 33,362 passengers.

Until mid-1978, the Phoenix Transit fare structure was quite complex. In July 1978, this structure was substantially revised: the base fare was raised from \$.35 to \$.40; zone fares were eliminated; regular 10-ride and 20-ride ticket book prices were discounted relative to cash fares; an Annual Pass was introduced; and the prices of prepaid tickets sold to special user groups were raised. Table 3-2 shows the previous and revised fare structures,* which allow a free two-hour transfer from one route to another. Phoenix Transit charges a higher fare on three express routes; in addition, a \$.50 boarding fee is charged in Scottsdale, by action of the Scottsdale City Council.** Identification cards are issued to elderly and handicapped persons; on boarding the bus, these passengers display their permits to the driver and pay a discounted cash fare. Students between the ages of 11 and 21 may purchase discounted 20-ride tickets at their schools. The Salvation Army purchases discounted one-ride tickets from Phoenix Transit for \$.20 each, for distribution to program clients.

Until December 1977, Phoenix Transit sold two types of regular TFP instruments: 20-ride punch tickets and monthly passes, permitting unlimited travel during the calendar month stamped on the pass. In December, the "Big 10", or 10-ride, ticket book was introduced and heavily promoted. Then in September 1978, soon after the revised fare structure took effect, the regular 20-ride ticket was discontinued. Thus, Phoenix Transit now sells only monthly passes and 10-ride tickets through sales outlets; the instruments are sold at the downtown bus terminal, City Hall, Phoenix Transit offices, and approximately 120 bank branches throughout Phoenix, Glendale, Scottsdale and

*As noted elsewhere in this report, the fare structure was changed in the middle of the demonstration, during the period in between the two TFP sales.

**In late 1978, Tempe instituted a similar boarding fee.

TABLE 3-2.

PHOENIX TRANSIT FARE STRUCTURE

<u>FARE TYPE</u>	<u>Pre-July 1978</u>	<u>Current</u>
<u>Cash Fares</u>		
Adult	Zone 1 \$.35 Zone 2 \$.40	\$.40
Adult, Scottsdale	\$.50	\$.50
Express	Zone 1 \$.50 Zone 2 \$.55	\$.55
Child	Zone 1 \$.15 Zone 2 \$.20	\$.20
Child, Express and Scottsdale	\$.25	\$.25
Elderly and Handicapped	Zone 1 \$.15 Zone 2 \$.20	\$.20
Elderly and Handicapped, Scottsdale	\$.25	\$.25
Foodstamp Card Holder	Zone 1 \$.15 Zone 2 \$.20	\$.40
<u>TFP Instruments</u>		
Adult 10-ride ticket	Zone 1 \$ 3.50 Zone 2 \$ 4.00	\$ 3.75
Adult 10-ride ticket, Express	Zone 1 \$ 5.00 Zone 2 \$ 5.50	\$ 5.25
Adult 20-ride ticket*	Zone 1 \$ 7.00 Zone 2 \$ 8.00	\$ 7.50
Monthly pass	Zone 1 \$18.00 Zone 2 \$20.00	\$18.00

*Discontinued in September 1978.

TABLE 3-2. (cont.)

<u>FARE TYPE</u>	<u>Pre-July 1978</u>	<u>Current</u>
Annual pass		\$150.00
Student 20-ride ticket	Zone 1 \$ 3.50 Zone 2 \$ 4.00	\$ 4.00
Student 20-ride ticket, Scottsdale	\$ 4.50	\$ 4.50
Elderly and Handicapped 10-ride ticket		\$ 2.00
<u>Complimentary</u>		
Blind	0	0
Police	0	0
Fire	0	0
Court Witness	0	0

Tempe.* In addition, at least six businesses purchase TFP instruments in bulk from Phoenix Transit for resale, often at a discount, to their employees. The Annual Pass is sold only at the bus terminal.

As Table 3-2 shows, the 10-ride ticket book cost the same, per trip, as the regular cash fare prior to July 1978; there was and is no validity period on this instrument. The monthly pass had a breakeven value of 45 rides on regular routes, or 33 rides on express routes. Historically, pass usage has been low; until early 1978, Phoenix Transit sold approximately 75 passes per month. Over the course of the demonstration period, pass usage has increased significantly. Appendix B of this report contains the monthly consignments of all TFP instruments, from November 1974 through April 1979, by type of instrument. As discussed in Chapter 2, Phoenix Transit has not maintained records of actual ticket and pass sales.

3.2.3 Exogenous Variables

The external events whose ridership effects would be difficult to distinguish from those caused by the demonstration in Phoenix are summarized below. While most did not have effects which confounded the evaluation process, two events did have significant impacts on the evaluation: The July 1978 fare change and the subsequent discontinuation of the 20-ride ticket.

1. In mid-December of 1977, a multi-media marketing program introduced the "Big 10" ticket book; this campaign was financed with non-section 6 funds. Promotional activities included newspaper and radio advertising, bus cards, and point-of-purchase displays at outlets; in addition, the local news media provided extensive coverage of the campaign and related public relations activities. The "Big 10" campaign continued through mid-January of 1978.
2. Also in January, 1978, immediately prior to the first TFP sale, 20 policemen were sent to the downtown bus terminal to quell a near-riot of

*Most banks sell only the 10-ride ticket.

school-age youths, who had become accustomed to using the terminal as a hang-out. In response to the disturbance, the terminal was closed for three hours each afternoon for four days. This series of events received substantial, unfavorable press coverage.

3. During the first TFP sale, in March 1978, Phoenix suffered heavy floods over a 10-day period. Four bridges were washed out, two roads were closed, and transit routes in the Salt River Area were altered. This disaster caused extreme disruptions in transit service, and correspondingly, some indeterminate downward effect on transit riding. Subsequently, a number of transit riders called Phoenix Transit to complain that due to the events, they would be unable to use up their sale tickets by the expiration date of March 24. Thus, with the approval of UMTA, bus signs were posted announcing a 10-day extension of the validity period for sale tickets. The monthly pass was not affected by this action.
4. On July 3, 1978, the Phoenix Transit fare structure was revised and simplified: the regular cash fare was increased, and most TFP instruments were repriced such that they were slightly discounted relative to the new cash fare. An advertising campaign to introduce the new fares was launched on June 29; advertising media employed included nine metropolitan and suburban newspapers, 12 radio stations, and bus cards.
5. On August 28, 1978, a number of changes in the level of service furnished by Phoenix Transit took effect. All of the changes, which involved ten bus routes, constituted route extensions or shortened headways.
6. In September 1978, prior to the second TFP sale, the 20-ride ticket was discontinued. This decision was made because two major banks had dropped the 20-ride ticket earlier in the summer; by August, 50% of all Phoenix Transit outlets no longer sold the 20-ride ticket. All outlets were informed of the discontinuation and advised to return all unsold 20-ride tickets to Phoenix Transit for credit.

Because the second, 40% sale in Phoenix took place after the fare change described above, the effects of the latter must be taken into account in the interpretation of the during-sale and post-sale ridership and TFP instrument sales levels observed during the second half of the Phoenix demonstration. This issue will be addressed in greater detail later in this report.

4. DEMONSTRATION OPERATIONS

4.1 PROJECT IMPLEMENTATION AND OPERATIONS

4.1.1 Austin Project Operations

The demonstrations in both cities were comprised of three distinct phases: an organizational phase, an operational phase, and a wind-up phase. (See Figure 4-1). In Austin, the four-month organizational phase of the grant was initiated in May of 1977, when the Austin City Council accepted the UMTA Demonstration Grant for Transit Fare Prepayment. During the month of May, a number of project-related activities were carried out; specifically;

1. As part of a reorganization and evaluation of existing programs and activities, an intensive effort was undertaken to strengthen relations with sales outlets; 85% of the outlets were contacted;
2. The groundwork was laid for the procurement of the promotion subcontractor, and guidelines established for the Request for Proposal;
3. Preliminary collection of background information regarding the Austin area and Austin Transit was begun;
4. An analysis of past TFP instrument sales was conducted; and
5. A plan for expanding the number of transit information and TFP sales outlets was completed.

The expansion of information and ticket outlets was initiated in June. In addition, during the months of May and June, Austin Transit and the City of Austin developed the Request for Proposal (RFP) for the promotional subcontractor. On June 28, RFP's were distributed to 22 local advertising agencies; on July 1, a pre-proposal meeting of prospective bidders was held to clarify the RFP and respond to questions. Subsequently, ten agencies submitted proposals. A five-person committee evaluated the ten proposals; then, on August 4, the Austin City Council approved the firm of Gurasich, Spence, Darilek and McClure (GSD&M) as the promotional consultant to the demonstration. A contract between the City and GSD&M was executed on August 29.

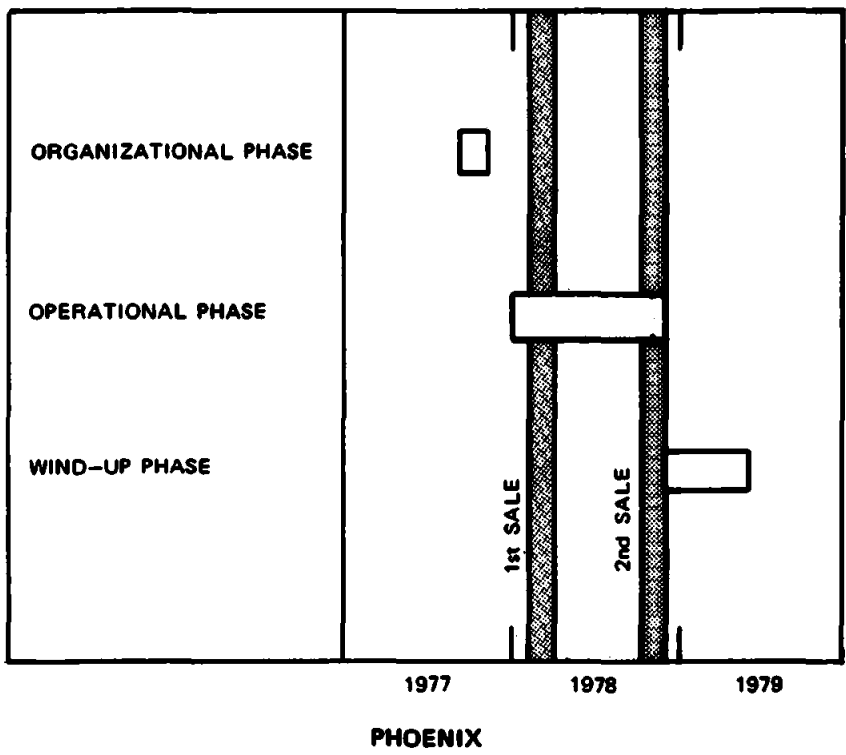
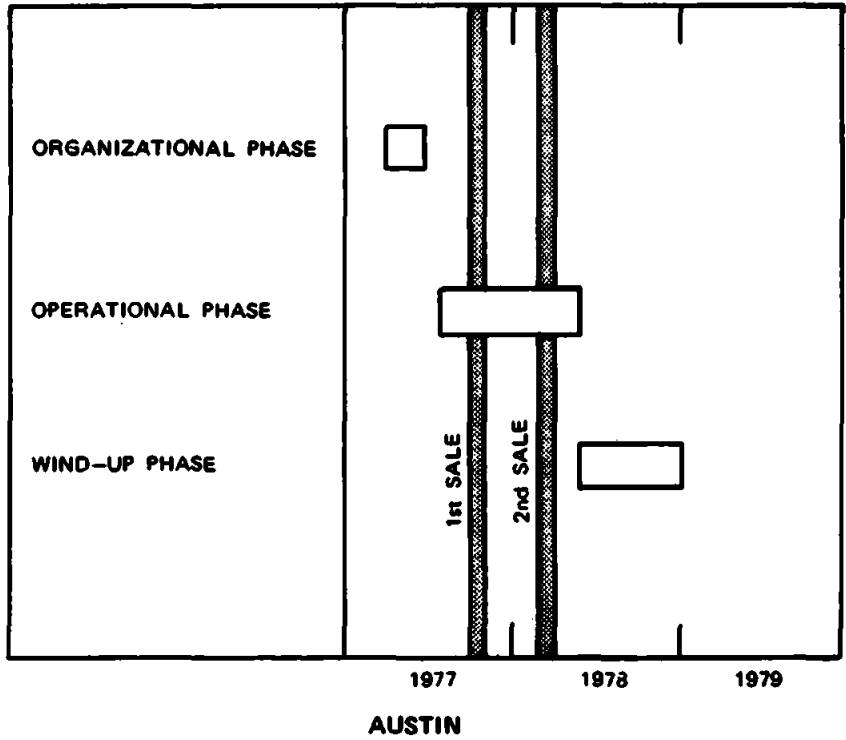


FIGURE 4-1. MASTER SCHEDULE

In late August, Crain & Associates was selected as evaluation contractor for the Austin demonstration. Due to the shortage of time remaining before the first data collection activity--the General Public Awareness Survey, scheduled for late September--the Austin Evaluation Plan was not finalized prior to the first sale. Rather, work on development of the survey materials to be used during the first sale began immediately.

The operational phase of the project involved implementation of the promotion plan, sales of the reduced-price TFP instruments, and general data collection. The first sale of TFP instruments, discounted by 40%, began in late September; the discounted monthly pass was valid for the month of October, whereas the 20-ride ticket had an unlimited validity period. Special campaigns to promote the sale were mounted, using television, radio, newspaper, billboard and poster advertising. In addition, the passes and tickets themselves, as well as the brochure information describing them, were redesigned as part of the overall promotional effort. The media promotion for the first TFP discount period ended on October 6; the sale of discounted TFP instruments ended on October 31. The second promotion of TFP instruments, discounted by 20%, took place in March 1978. Section 4.3 discusses the promotional campaigns in further detail.

The third, wind-up phase of the Austin project involved the continued monitoring of operational and economic data.

The schedule of the Austin demonstration was as follows:

1. Advertising and promotion of Sale I started. 9/26/77
2. Tickets and passes went on sale; validity period for discounted tickets started immediately (as of purchase date). 9/26/77
3. Validity period for discounted passes began. 10/ 1/77
4. End of sale; end of validity period for discounted monthly, commuter and shopper passes. 10/31/77
5. Advertising and promotion of Sale II started. 2/17/78
6. Tickets and passes went on sale. Validity period for discounted tickets started immediately (as of purchase date). 2/22/78

7. Validity period for discounted passes began. 3/ 1/78
8. End of sale; end of validity period for discounted monthly, commuter, and shopper passes. 3/31/78

4.1.2 Phoenix Project Operations

Grant approval for the Phoenix project was received from UMTA in July 1977, the starting month of that project's organizational phase. The City of Phoenix had initially proposed a schedule one month behind the Austin schedule; i.e., the first sale would be in November 1977, and the second in April 1978. The disadvantage of a later schedule was that the two sales would be split over two different local fiscal years and hence, two very different service levels, thereby complicating the analysis process. However, the amount of time available to plan a November sale proved insufficient; therefore, the sales were scheduled for February and October of 1978.

Also in August 1977, the City of Phoenix convened a Selection Committee to evaluate the two proposals received in response to the Request for Proposal (RFP) for the promotional subcontractor. The firm of Jennings & Thompson, Inc. (J & T) was selected. Under the terms of the proposal, data collection activities were to be subcontracted; the Phoenix firm of Behavior Research Center (BRC) was hired to perform this function.

Throughout the rest of 1977, plans for the demonstration were finalized. It was decided to set a two-month validity period on tickets and to sell monthly passes for both months at a discount. However, the actual period during which both tickets and passes were sold at a discount lasted only four weeks, as in Austin.

In December 1977, City of Phoenix staff members met with representatives of six local banks serving as Phoenix Transit outlets. At that time, the bank branches selling TFP instruments were identified, and procedures for distribution of TFP instruments to these branches were refined. Also in December, the "Big 10" ticket was introduced and heavily promoted.

As in Austin, the operational phase of the Phoenix project involved implementation of the promotion plan, sales of the reduced-price TFP instruments, and general data collection. The

first sale of TFP instruments, discounted by 20%; began in late January of 1978 and continued through February; the second sale, during which the instruments were discounted by 40%, began in late September and continued through October. Both sales were promoted via television, radio, newspaper, point-of-purchase and bus advertising; in addition, during each sale a promotional brochure was inserted in the utility bills mailed to 250,000 households in Phoenix and Scottsdale. Billboard advertising was used during the first sale only.

The third, wind-up phase of the Phoenix project, as in Austin, entailed the continued monitoring of operational and economic data.

The schedule of the Phoenix demonstration was as follows:

- | | |
|--|----------|
| 1. Direct mail advertising of Sale I started. | 1/ 2/78 |
| 2. Media advertising and promotion of Sale I started; discounted (20%) tickets and February monthly passes went on sale. | 1/23/78 |
| 3. Validity period for discounted tickets began. | 1/30/78 |
| 4. Validity period for discounted February passes began. | 2/ 1/78 |
| 5. Discounted (20%) March monthly passes went on sale. | 2/20/78 |
| 6. End of sale; end of validity period for discounted February passes. | 2/28/78 |
| 7. Validity period for discounted March passes began. | 3/ 1/78 |
| 8. End of validity period for discounted tickets. | 3/25/78* |
| 9. End of validity period for discounted March passes. | 3/31/78 |
| 10. Advertising and promotion of Sale II started. | 9/23/78 |
| 11. Discounted (40%) tickets and October monthly passes went on sale. Validity period for discounted tickets began. | 9/28/78 |
| 12. Validity period for discounted October passes began. | 10/ 1/78 |
| 13. Discounted (40%) November monthly passes went on sale. | 10/24/78 |
| 14. End of sale of discounted tickets. | 10/28/78 |

*Due to the effects of heavy March floods on transit routes and schedules, the validity period for tickets was extended 10 days, to April 5. See Section 2.3.2, "Exogenous Variables."

15. End of sale of discounted passes; end of validity period of discounted October passes.
16. End of validity period of discounted tickets. 11/26/78
17. End of validity period of discounted November passes. 11/31/78

4.2 PRICE DISCOUNT LEVELS

Table 4-1 shows the undiscounted and sale prices of the TFP instruments placed on sale in Austin. The student 10-ride ticket was not included in the demonstration, and hence, does not appear in the analysis contained in the following chapters. Table 4-1 also shows the undiscounted and sale prices of the Phoenix TFP instruments placed on sale; note that the fare structure was substantially revised in July 1978, between the two sales. (Section 3.2 contains the details of this revision.) In Phoenix, the student 20-ride ticket, the elderly and handicapped 10-ride tickets, and the Annual Pass were not included in the demonstration and are not treated in the analysis which follows.

Table 4-1 shows the breakeven points for the passes in both sites, based on undiscounted and sale prices. The breakeven point is defined as the number of times the rider must use a pass in a given month in order for the cost of the pass to equal the cost of paying cash fares for the same number of rides during that month. The breakeven concept is not applicable to tickets, which are limited to a specified number of transit rides.

In general, most monthly passes sold by U.S. transit systems are priced at or slightly below the equivalent of 40 rides per month at the cash fare covered by the pass.* At the undiscounted price, then, the monthly pass sold in Austin has an unusually high breakeven point of 50 rides during peak periods, 100 rides during off-peak periods. Similarly, the Phoenix monthly pass

*Transit Fare Prepayment, The Huron River Group, U.S. Department of Transportation, Washington, D.C., August 1976, p. 66.

TABLE 4-1. PRICE DISCOUNTS BY TFP INSTRUMENT TYPE

AUSTIN

TFP Instrument	Undiscounted		40% Sale			20% Sale		
	Price	Break-even	Price	Break-even	Discount	Price	Break-even	Discount
20-Ride Ticket	\$ 3.00	-	\$ 2.00	-	33%	\$ 2.50	-	17%
Monthly Pass	15.00	50/100*	9.00	30/60	40	12.00	40/80	20
Commuter Pass	10.00	33/N.A.**	6.00	20/N.A.	40	8.00	27/N.A.	20
Shopper Pass	6.00	N.A.**/40	3.00	N.A./20	50	4.00	N.A./27	33

*Peak/off-peak breakeven values are shown, divided by slash marks.

**The Commuter Pass is valid only during peak periods; the Shopper Pass is valid only during off-peak periods.

PHOENIX

TFP Instrument	Undiscounted		20% Sale			TFP Instrument	Undiscounted		40% Sale		
	Price	Break-even	Price	Break-even	Discount		Price	Break-even	Price	Break-even	Discount
Regular 10-Ride Ticket						Regular 10-Ride Ticket	\$ 3.75	-	\$ 2.25	-	40%
(Zone 1)	\$ 3.50	-	\$ 2.50	-	29%						
(Zone 2)	4.00	-	3.25	-	19						
Express 10-Ride Ticket						Express 10-Ride Ticket	5.25	-	3.15	-	40
(Zone 1)	5.00	-	4.00	-	20						
(Zone 2)	5.50	-	4.40	-	20						
20-Ride Ticket						20-Ride Ticket	(Discontinued September, 1978)				
(Zone 1)	7.00	-	5.00	-	29						
(Zone 2)	8.00	-	6.50	-	19						
Monthly Pass						Monthly Pass	18.00	45/33*	10.75	27/20*	40
(Zone 1)	18.00	51/36*	14.00	40/28*	22						
(Zone 2)	20.00	50/36*	16.00	40/29*	20						

*Regular/express breakeven values are shown, divided by slash marks.

has a high breakeven point if used on regular routes; express route usage lowers this breakeven point, as the table indicates.

Finally, Table 4-1 shows the discount levels at which each TFP instrument was sold. Because the discounted prices were rounded to the nearest half-dollar in some cases, the exact percentage reductions varied among the instruments in both cities.

4.3 ADVERTISING AND PROMOTION

Prior to each TFP sale, a program of intensive advertising and promotion was conducted in both cities. The program was comprised of three components: (a) promotional efforts to generate free publicity through news coverage; (b) paid advertising; and (c) public service advertising, furnished by the local media at no cost to the projects.

Both demonstrations received extensive news coverage prior to the first TFP sale. In Austin, television stations and newspapers reported the UMTA grant in May 1977; then, in late September, the City of Austin held a press conference to announce the first TFP sale and to proclaim October "Ride the Bus Month"; the Mayor and the members of the City Council were named "honorary bus operators." In the early stages of the sale, local transit officials appeared on radio and TV talk shows and on a TV news program to explain the sale. During October, there were newspaper reports on the success of the bus passes. The second TFP sale received less coverage, although representatives of Austin Transit did appear on a local TV talk show.

In Phoenix, the introduction of the "Big 10" ticket book in December, 1977 received news coverage from the local media. Then on January 23, 1978, immediately prior to the first TFP sale, the Mayor of Phoenix held a press conference to announce the sale. The theme of the conference was: "Have a coffee break on us, " since the 20% savings on TFP instruments represented the cost of a cup of coffee and a donut. The Mayor's participation had two main goals: to demonstrate top-level commitment to the transit project, and to ensure good media coverage of the event, which did in fact receive excellent television and

radio publicity. The second TFP sale, held in September, was also launched with a Mayoral press conference; television, and radio stations covered the event, as did the local newspapers.

Table 4-2 shows the mix of elements comprising each program of paid advertising conducted by the two cities. For each advertising mode, two dollar values are listed: actual project expenditures, and an estimated "fair market value" of the advertising used. In many cases, this value was significantly higher than the actual cost to the project, due to donated advertising by the electronic media (to be discussed later in this chapter) and outdoor advertising companies, as well as City contributions of labor, printing and postage. Figures 4-2 and 4-3 present the two sides of the Austin promotional brochure; Figures 4-4 and 4-5 show the utility bill mailer and newspaper advertisement used in Phoenix.

The first promotional campaign in Austin concentrated on educating the Austin public regarding the existence and use of bus tickets and passes. Then, after the first sale, Crain & Associates presented a major review of the survey results in Austin. These first-round returns indicated that certain market segments were more likely than others to be motivated by the advertising message; these segments were women, minorities, and older people. The primary advertising medium employed during both sales was television; during the second sale, television programming more likely to appeal to the target groups as well as general audience appeal programming, were designed with a special emphasis on attracting new riders. Similarly, during the second sale the radio spots were designed to motivate non-riders to purchase the passes and try the bus. The advertisements featured a businessman, a student, a female Mexican-American, and an older person, all of whom described the advantage of getting around on the bus using a bus pass. The spots aired by each station were chosen to appeal to that station's audience; in addition, Spanish language radio advertising was purchased on Austin's only Spanish language radio station. Austin has no radio station specifically programmed for blacks, but air time was purchased on those stations determined to have a larger share of black listeners.

TABLE 4-2.

ADVERTISING EXPENDITURES

AUSTIN

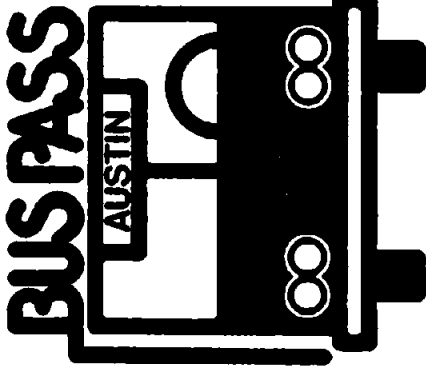
	<u>40% Sale</u>		<u>20% Sale</u>		<u>Total</u>	
	<u>Expend- itures</u>	<u>Market Value</u>	<u>Expend- itures</u>	<u>Market Value</u>	<u>Expend- itures</u>	<u>Market Value</u>
Television	\$ 8,618	\$13,318	\$ 7,724	\$13,724	\$16,342	\$27,042
Radio	3,488	5,788	3,048	4,748	6,536	10,536
Newspaper	2,490	2,490	1,525	1,525	4,015	4,015
Billboards	1,829	2,329	2,591	4,170	4,420	6,499
Brochures (avail- able on buses and at outlets)	3,150	3,350	1,645	1,645	4,795	4,995
Bus Advertising	368	368	367	367	735	735
Advertising at Outlets	291	331	290	330	581	661
TOTAL	<u>20,234</u>	<u>27,974</u>	<u>17,190</u>	<u>26,509</u>	<u>37,424</u>	<u>54,483</u>
Materials & Fees	1,238	1,238	1,237	1,237	2,475	2,475
TOTAL EXPENDITURES	<u>\$21,472</u>	<u>\$29,212</u>	<u>\$18,427</u>	<u>\$27,746</u>	<u>\$39,899</u>	<u>\$56,958</u>

PHOENIX

	<u>20% Sale</u>		<u>40% Sale</u>		<u>Total</u>	
	<u>Expend- itures</u>	<u>Market Value</u>	<u>Expend- itures</u>	<u>Market Value</u>	<u>Expend- itures</u>	<u>Market Value</u>
Television	\$10,000	\$10,600	\$10,040	\$11,840	\$20,040	\$22,440
Radio	5,430	9,972	6,632	11,932	12,062	21,904
Newspaper	4,921	4,921	6,334	6,334	11,255	11,255
Billboards	4,750	6,650	---	---	4,750	6,650
Utility Bill Mailers	340	3,940	500	4,100	840	8,040
Bus Advertising	659	659	1,000	1,000	1,659	1,659
Advertising at Outlets	400	400	800	800	1,200	1,200
Shopping Center Promotion	---	---	1,140	1,140	1,140	1,140
TOTAL	<u>26,500</u>	<u>37,142</u>	<u>26,446</u>	<u>37,146</u>	<u>52,946</u>	<u>74,288</u>
Materials & Fees	3,000	3,000	2,000	2,000	5,000	5,000
TOTAL EXPENDITURES	<u>\$29,500</u>	<u>\$40,142</u>	<u>\$28,446</u>	<u>\$39,146</u>	<u>\$57,946</u>	<u>\$79,288</u>

PAY LESS. RIDE MORE.

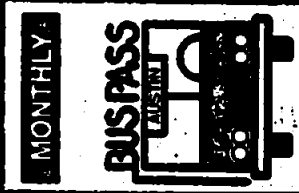
20 RIDE



PAGUE MENOS. VIAJE MAS.

Monthly Pass.

valid for one calendar month. Good for unlimited boarding privileges on all routes. For greatest savings, purchase during last few days of preceding month.



\$15 / Month

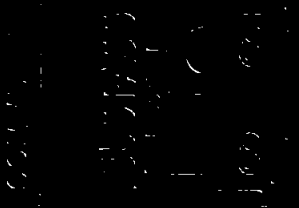
ahorros, este pase debe ser comprado en los últimos días del mes anterior al mes en que ha de ser usado.

Monthly Pass.

valido desde el primer día hasta el último día de cada mes. El portador de este pase tiene el derecho de tomar el autobús cuantas veces desee y su pase es válido en todas las rutas. Para obtener los mayores ahorros, este pase debe ser comprado en los últimos días del mes anterior al mes en que ha de ser usado.

Commuter Pass.

valid for one calendar month. Good for boarding during peak hours only on regular routes. For greatest savings, purchase during last few days of preceding month.



\$10 / Month

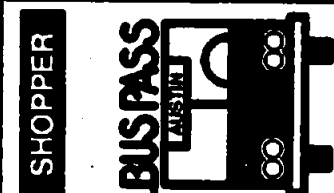
regulares. Para obtener los mayores ahorros, conviene comprar este pase en los últimos días del mes anterior al mes en que ha de ser usado.

Commuter Pass.

valido desde el primer día hasta el último día de cada mes. El portador de este pase tiene el derecho de tomar el autobús solamente durante las horas de tráfico máximo (peak hours) en las rutas regulares. Para obtener los mayores ahorros, conviene comprar este pase en los últimos días del mes anterior al mes en que ha de ser usado.

Shopper Pass.

valid for one calendar month. Good for unlimited boarding privileges during off-peak hours on all routes. For greatest savings, purchase during last few days of preceding month.

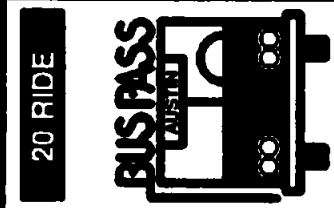


\$6 / Month

menor tráfico (off-peak hours). Para obtener los mayores ahorros, conviene comprar este pase en los últimos días del mes anterior al mes en que ha de ser usado.

20-Ride Pass.

a punch ticket with 20 squares, each good for a 15¢ fare during peak hours. Ticket punched twice for 30¢ fare. Purchase any time, as needed.



\$3

20-Ride Pass.

boleto perforable con 20 cuadrados, cada uno válido para un pasaje de 15¢ durante las horas de tráfico máximo (peak hours) el boleto será perforado dos veces por el pasaje de 30¢. Puede ser comprado en cualquier momento, según sea necesario.

Peak hours

Durante las horas de tráfico máximo
Mon - Fri 6 am - 9 am
Sat & Sun 9 am - 3 pm
after 6 pm

Off-peak hours

Durante las horas de menor tráfico
Mon - Fri 9 am - 3 pm
Sat & Sun all day
after 6 pm

Austin Transit System

For additional information call 478-8531.
Para obtener información adicional llame al 478-8531.

FIGURE 4-2. AUSTIN PROMOTIONAL BROCHURE

Take the Phoenix Bus for a ride.

We're going to let you take advantage of us.

From January 30 until February 25, you can save 20% on our 20-ride passes. And our monthly passes. Even on our new Big 10 ticket books.

Why are we being so easy?

Because we'd really like you to try riding the bus.

And if you take us up on it, you'll find a lot of nice things happening.

You'll say goodbye to those mornings of warming up your car. You'll save money on gas.

You'll be able to read the paper while you ride.

You can make some new friends. Or just enjoy seeing our beautiful city.

And you just might notice that you're a lot more relaxed when you don't have to battle the traffic.

Go ahead. Take us for a ride while we're 20% cheaper.

You might like it.

**Ticket books
and passes
20% off.**



FIGURE 4-4. PHOENIX UTILITY BILL MAILER

THE BEST ECONOMY CAR ON THE MARKET IS NOW ON SALE.



From September 28 until November 26, you save 40% on Phoenix Transit's Adult Big 10 Ticket Books, Monthly Passes and Big 10 Express Ticket Books.

Why? Because we believe that if you try riding the bus, you'll really like it.

You see, when you ride the bus, a lot of good things happen. Like saving money on gas. Giving up traffic hassles. Reading the paper. Making new friends. Thinking. Sleeping. Or just sitting back watching the world go by.

Try the bus, now, while you can save up to \$7.25.

Discounted tickets and monthly passes will be on sale from September 28 through October 28. Ticket books are valid September 28 through November 26. Discounted monthly passes are for the months of October and November only.

Monthly Passes, Big 10 Ticket Books & Big 10 Express Tickets available at the Phoenix

Bus Terminal, 1st Street and Washington. Big 10 & Big 10 Express Tickets available at most offices of: Valley National Bank, First National Bank, The Arizona Bank, United Bank, Great Western Bank and Continental Bank. For more information call 257-8426.



THE PHOENIX BUS

FIGURE 4-5. PHOENIX NEWSPAPER ADVERTISEMENT

Jennings & Thompson/FCB
PHOENIX TRANSIT
Job # 10473—(15 col. x 12") b/w
Newspapers—Start 9/25

In Phoenix, the advertising and promotion activities during the first sale were designed to attract the Phoenix public to the bus system; heavy emphasis was placed on the 20% discount on tickets and passes. Advertising for the second sale continued to emphasize the benefits of riding the bus: e.g., saving money on gas, avoiding traffic jams, and so forth. As in Austin, television and radio constituted the primary media employed. In addition, brochures advertising each sale were enclosed with the monthly bills sent out by the Water Department to approximately 300,000 households in the Phoenix metropolitan area. The costs of printing, insertion and postage were absorbed by the City of Phoenix.

All radio and television stations are required to run a specified number of donated public service announcements (PSA's) each week. (The number varies, depending upon the station.) This requirement is due to the fact that all radio and television stations are in the public domain. In Austin, GSD&M, the advertising contractor, obtained one PSA for each paid advertisement regarding the transit sales. ("One for one" is the trade term for this arrangement.) In addition to the 30-second paid advertisement, then, GSD&M prepared a 30-second paid PSA which explained the various bus passes. As long as they ran the PSA's at least as many times as the paid announcements, the radio and television stations could run them whenever they pleased. Also they could and did substitute a "courtesy spot" for a PSA; this term refers to the airing of the paid announcement extra times. In Phoenix, J&T, the advertising contractor, also obtained donated television and radio spots from the local media; in addition, the outdoor advertising company from whom the billboard advertising of the first sale was purchased donated eleven extra billboards. During both sales, the paid radio advertisements were matched "one for one" with donated advertisements; the number of donated television advertisements over both sale periods totaled 22, or 12% of the purchased television advertisements.

4.4 OUTLET EXPANSION

In Austin, the various TFP instruments have been sold to the public since early 1973 through various sales outlets. The outlets (stores, banks, and so forth) perform this function without charge, as a service to the City and the community.

Austin Transit supports these outlets in various ways. Transit staff make regular visits to the outlets, at which time the inventory of tickets and passes is replenished, the cash obtained from purchases is collected, and tickets sold are totaled by type and reconciled against cash balances. In addition, various posters, displays, price lists and so forth are furnished to the outlets.

In early 1977, Austin Transit launched an aggressive outlet expansion program to meet the requirements of the demonstration. By late 1977, the types of outlet locations in Austin included:

Public libraries and museums	11
Commercial establishments	5
Banks	6
Municipal buildings	3
Nonprofit civic agencies	9
Schools and churches	3
Malls	1
Neighborhood and recreation centers	4

Throughout both TFP sales, the number of sales outlets remained stable at around 50. After the second sale, the number of outlets dropped slightly: a handful of outlets concluded that the level of activity generated by the demonstration -- i.e., the numbers of people buying during the sales, the questions being asked, the evaluation data being collected -- was more than they had bargained for. This "outlet revolt" was short-lived, however; after the loss of six outlets, the relationship between Austin Transit and the remaining outlets returned to normal.

In Phoenix, tickets and passes were sold only through the bus terminal until mid-1974, when local banks began to sell the TFP instruments through 82 branches; in mid-1975, six more branches were added. As in Austin, the outlets perform this function as a public service; Phoenix Transit consigns and delivers tickets and passes to the six participating banks, which then reimburse Phoenix Transit for the instruments sold.

In January 1978, immediately prior to the first TFP sale in February, the number of TFP sales outlets was increased by 28, to 117 (including the terminal). This number remained stable throughout the demonstration period.

Figure 4-6 shows the long-term growth in the number of TFP sales outlets in Austin and Phoenix from 1973 through 1978.

4.5 TIME-SERIES DATA: RIDERSHIP AND TFP INSTRUMENT SALES

Figures 4-7 and 4-8 show the Austin Transit and Phoenix Transit ridership trends in the years preceding, during and after the demonstrations. The Austin graph (Figure 4-7) shows service revenues*, which represent the sum of cash revenues and TFP revenues and are, therefore, approximately proportional to transit ridership volume. There were no fare changes during this time period; and the mix of fare payments -- and thus, the average fare -- essentially remained constant. The graphed revenue data show a great deal of month-by-month irregularity; this is due to the method of recording the data, rather than its true variability. The recorded value for a given month does not necessarily represent total revenues collected in that month; more often than not, portions of revenues from one month are included in the next. Thus, at best, one can merely observe the data in terms of average values around the time point in question.

*Although Austin Transit does estimate ridership levels, the reported service revenue data are generally more reliable; hence, they are graphed here to represent general ridership trends.

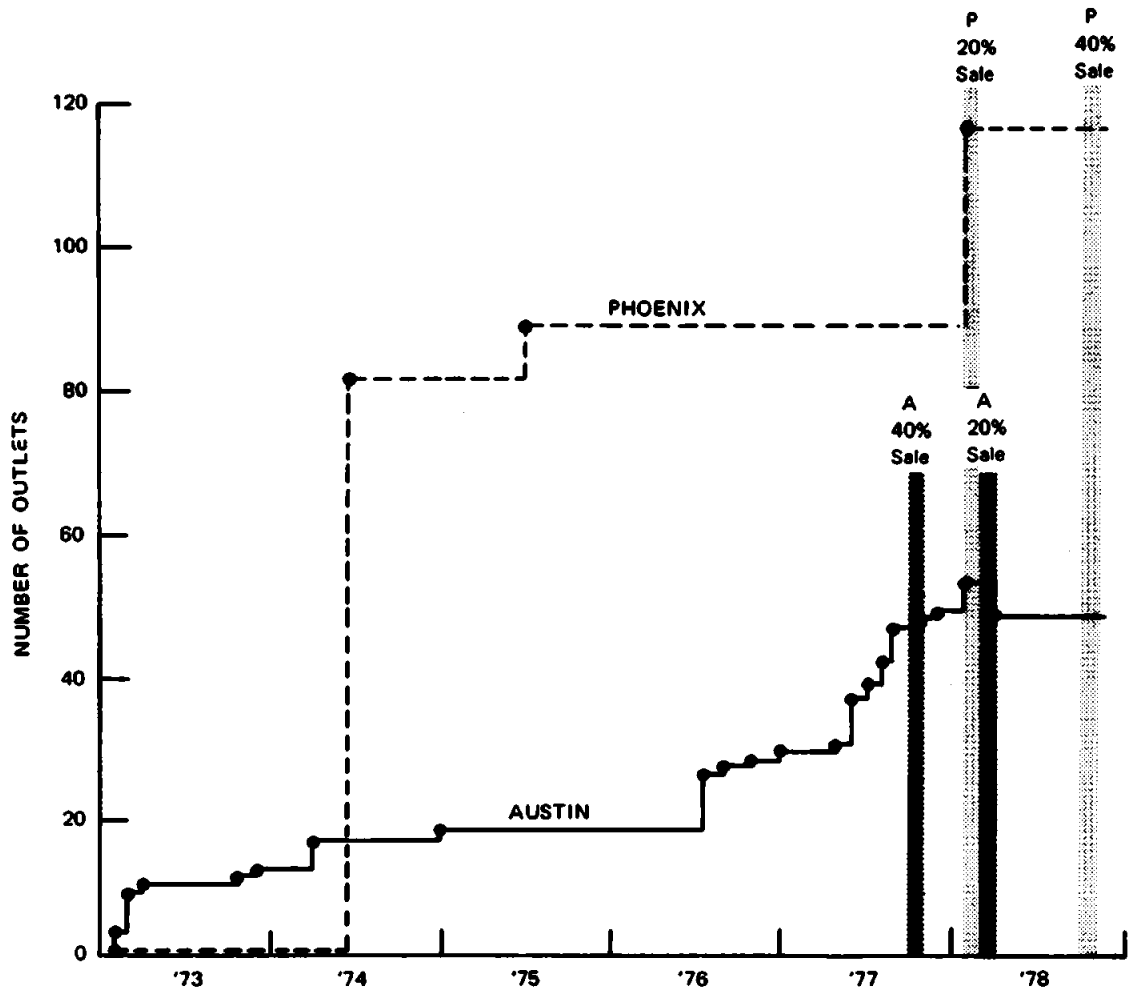


FIGURE 4-6. TFP SALES OUTLETS

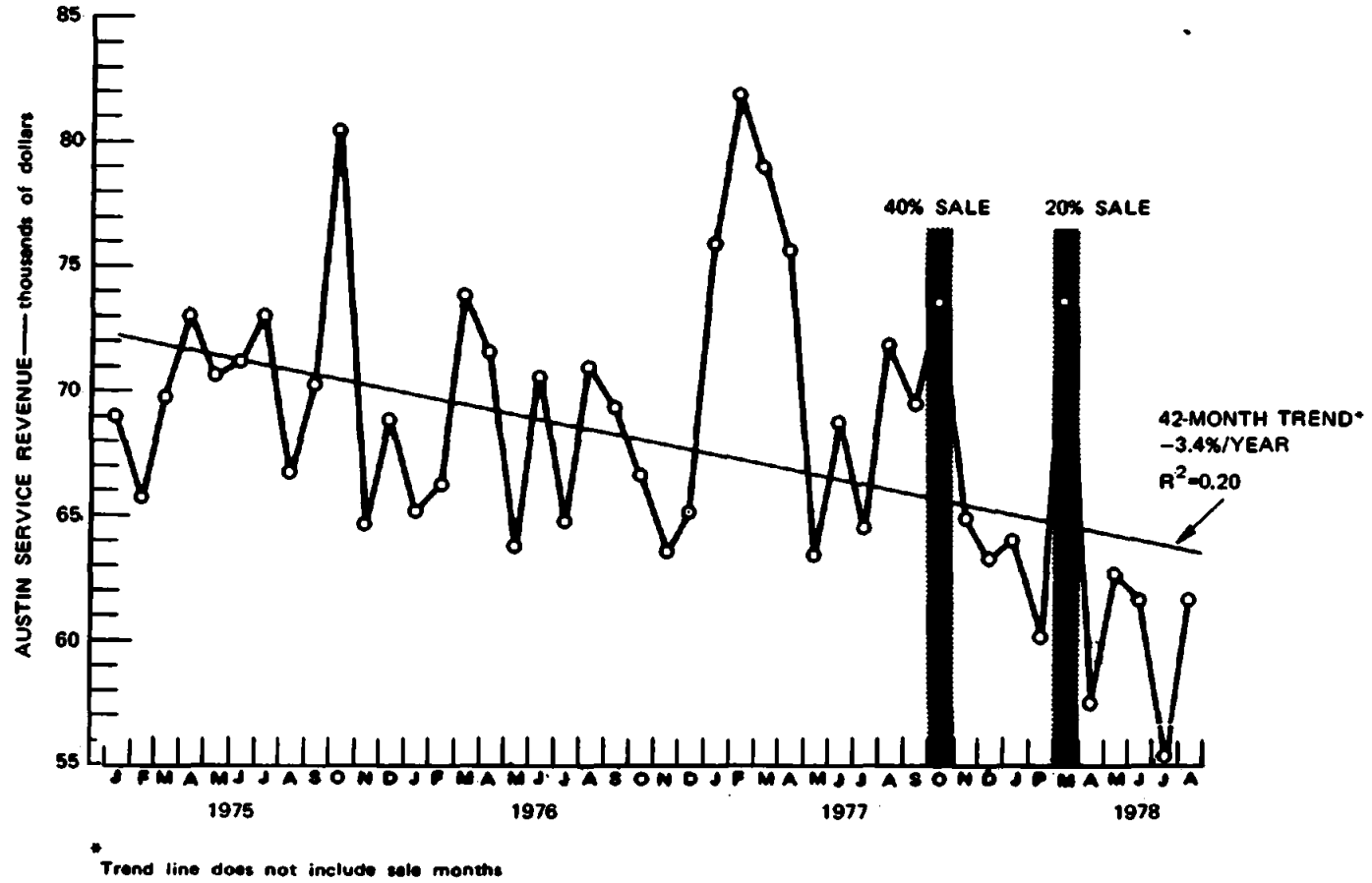
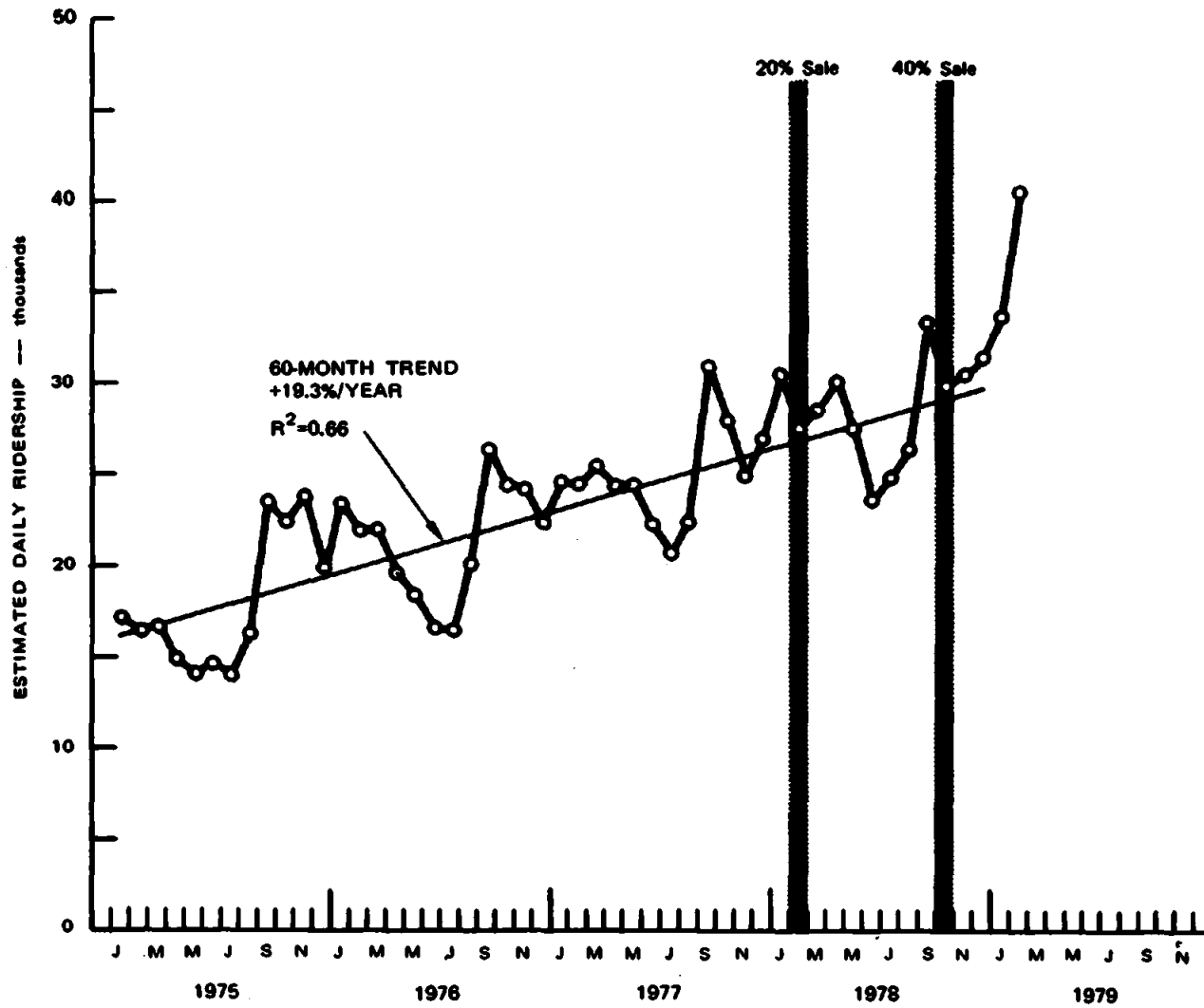


FIGURE 4-7. AUSTIN TRANSIT GROWTH TREND



As discussed in Chapter 2, the discounted instruments were valid for two months during each Phoenix sale. The trend line shown above includes neither two-month validity period.

FIGURE 4-8. PHOENIX TRANSIT GROWTH TREND

The Austin graph indicates a mild, long-term decline in ridership. Excluding revenues during the sale months, the linear regression line indicates a year-to-year decline in ridership of approximately 3.4%. The decline appears to accelerate immediately after the two sales. The hoarding of reduced-priced tickets* may have caused this acceleration; however, the overall factor accounting for the decline appears to be an ever-decreasing riding volume accompanying the economic prosperity of late 1977 and early 1978. The graph also suggests that the demonstration project was not effective in slowing ridership decline, a finding which is supported by results from the Purchaser Surveys (discussed later in this report).

The Phoenix graph, Figure 4-8, shows daily ridership levels by month. Phoenix Transit computes ridership levels from service revenues in a rigorous fashion: periodic on-board surveys are conducted to adjust the calibration factor, which changes as levels of service and ridership mix change. The extreme month-by-month variation in the graphed ridership data reflects a large seasonal ridership component: schoolchildren, who constitute 20% of the system's daily ridership. Delays in receiving revenues from TFP instrument sales through outlets also contribute to the monthly fluctuations in the data.

The long-term trends of TFP instrument sales prior to and throughout the demonstration period are shown in Figures 4-9, 4-10, 4-11, and 4-12. The basic pattern of monthly sales just prior to the Austin demonstration was as follows:

<u>TFP Instrument</u>	<u>¢</u>
20-Ride Ticket	1000
Monthly Pass	40
Commuter Pass	135
Shopper Pass(not shown on graph)	0-1

*The hoarding phenomenon also contributes to the high levels of service revenues during the two sale months.

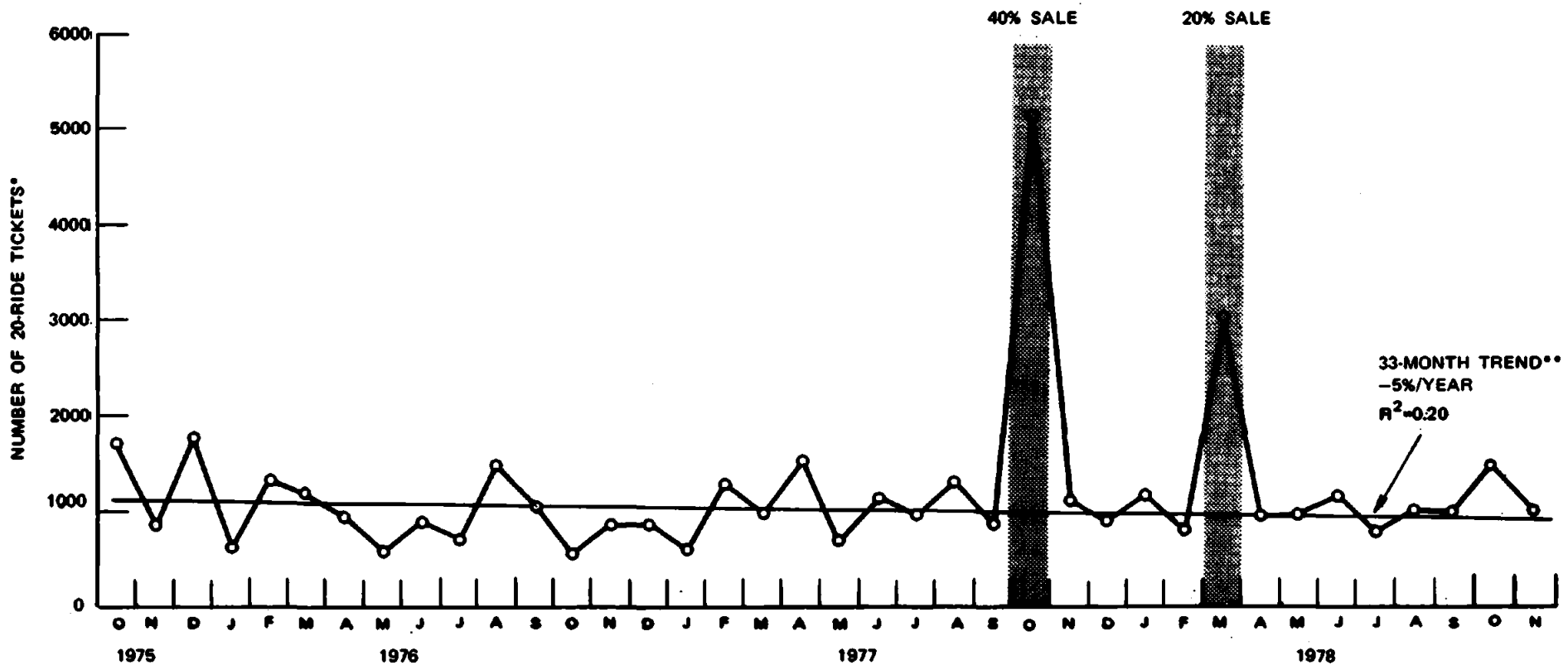
The curve fits to the Austin time-series data show a slow decline in year-to-year sales similar to the downward trend in total ridership. Sales of the less popular commuter passes appear to be declining at a faster rate than 20-ride ticket sales or total service revenues. Again, the data suggest that the demonstration did not arrest this decline.

The Phoenix data showing monthly consignments of 10-ride and 20-ride tickets are graphed in combination as "10-ride equivalents" for purposes of comparability. The basic pattern of monthly consignments just prior to the Phoenix demonstration was as follows:

<u>TFP Instrument</u>	<u>#</u>
10-Ride Equivalent	4,200
Monthly Pass	60

As Figures 4-10, 4-11, and 4-12 show, sales of TFP instruments are increasing. Contrary to the Austin results, the Phoenix data suggest that the two reduced-price TFP instrument sales may have accelerated overall sales trends, particularly for monthly passes. However, as discussed in Chapter 5, the phenomenon may have been caused by factors other than the demonstration.

Of particular importance to the analyses presented in this report are the predemonstration market shares of TFP usage. Approximately 9% of Austin Transit riders and 15% of Phoenix Transit riders paid their fares using TFP instruments. These percentages reflect first boardings; i.e., they exclude boardings by people who paid with transfers.



* Sales up to Oct. '78 include bulk purchases

** Trend line does not include sale months

FIGURE 4-9. AUSTIN 20-RIDE TICKET SALES

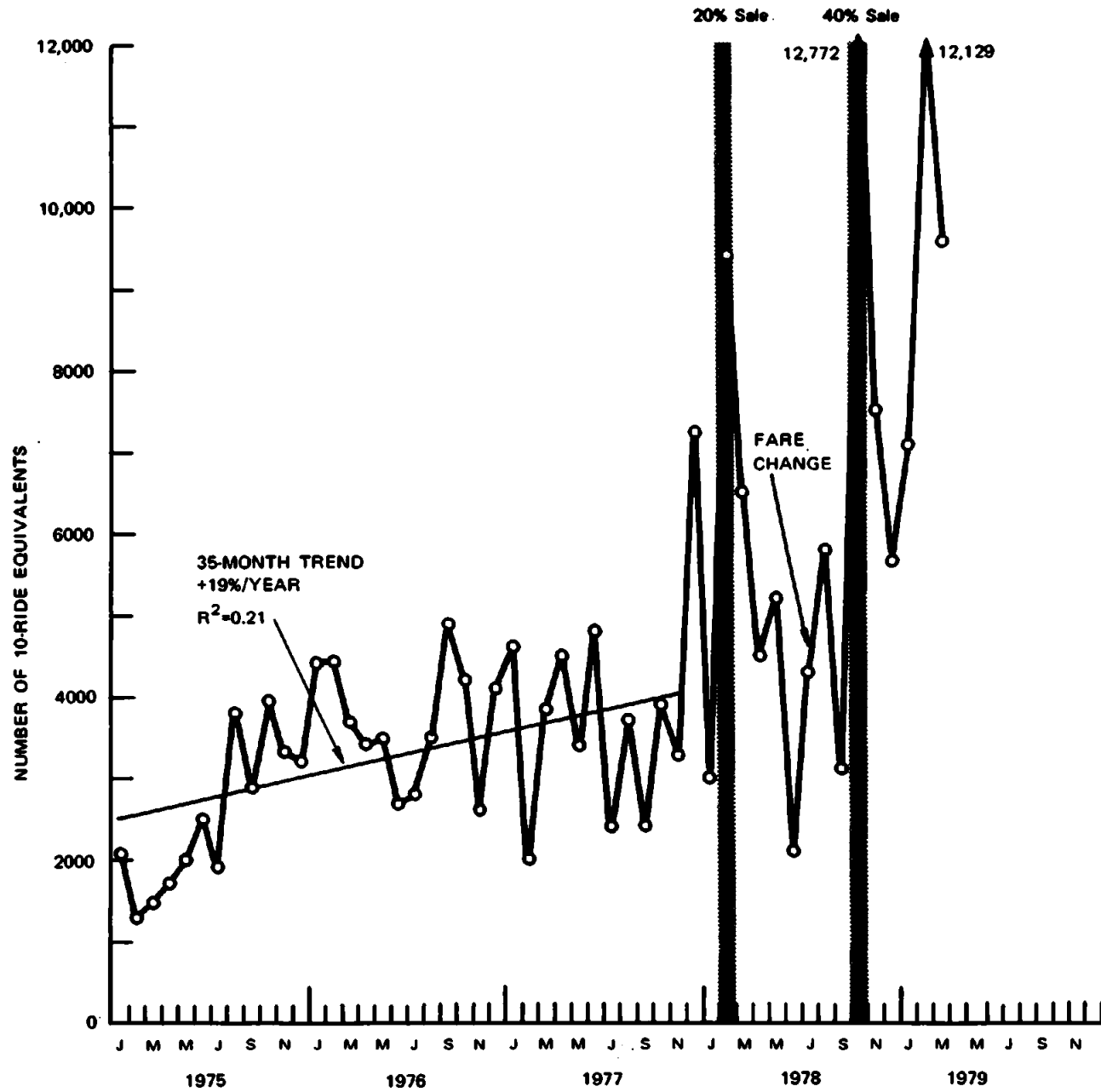
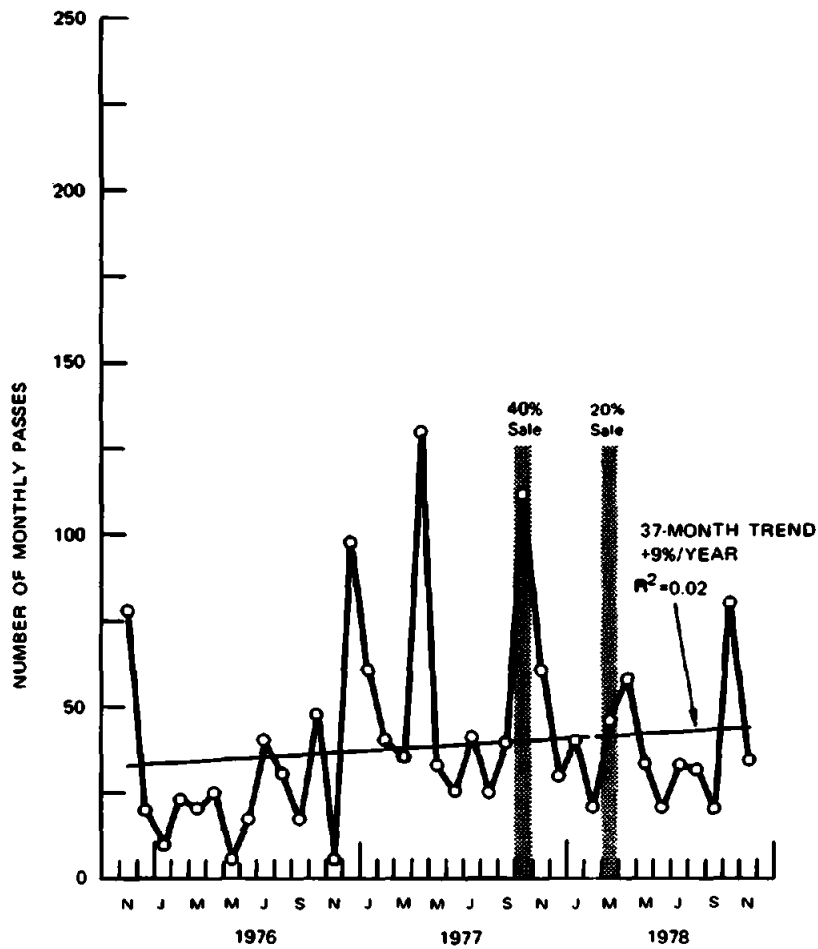
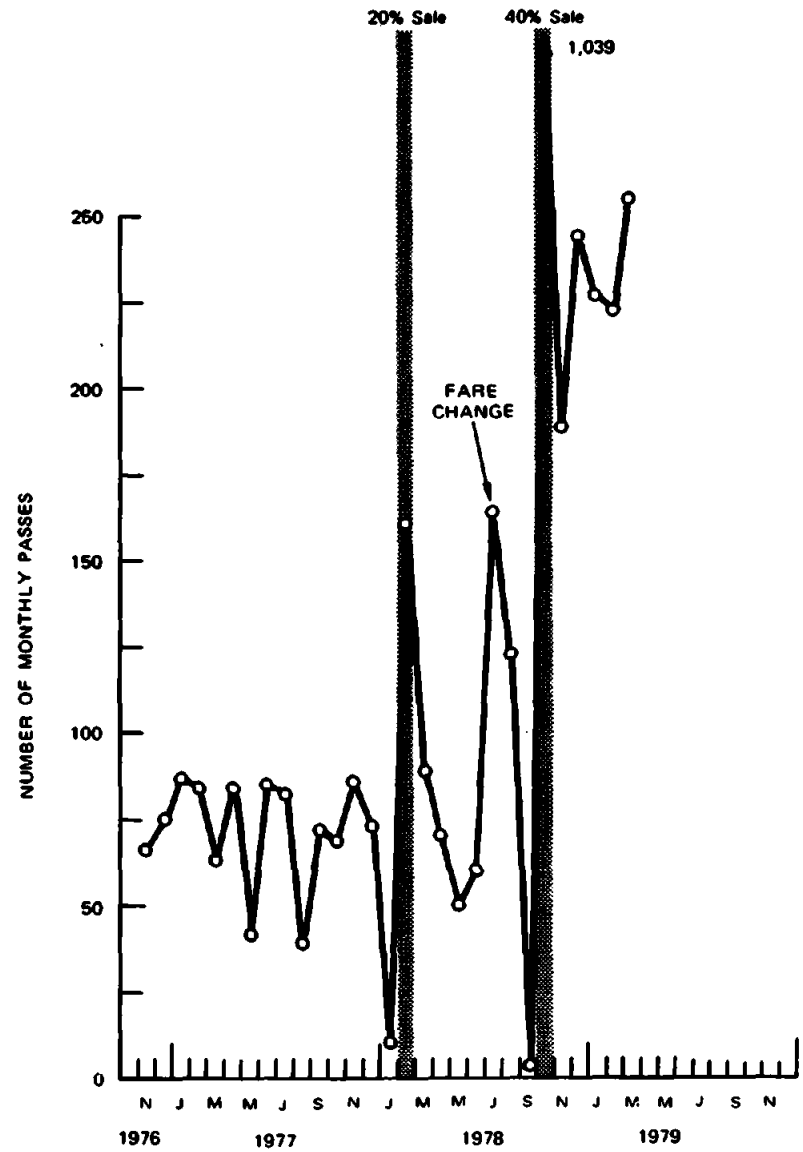


FIGURE 4-10. PHOENIX CONSIGNMENTS OF 10-RIDE EQUIVALENTS



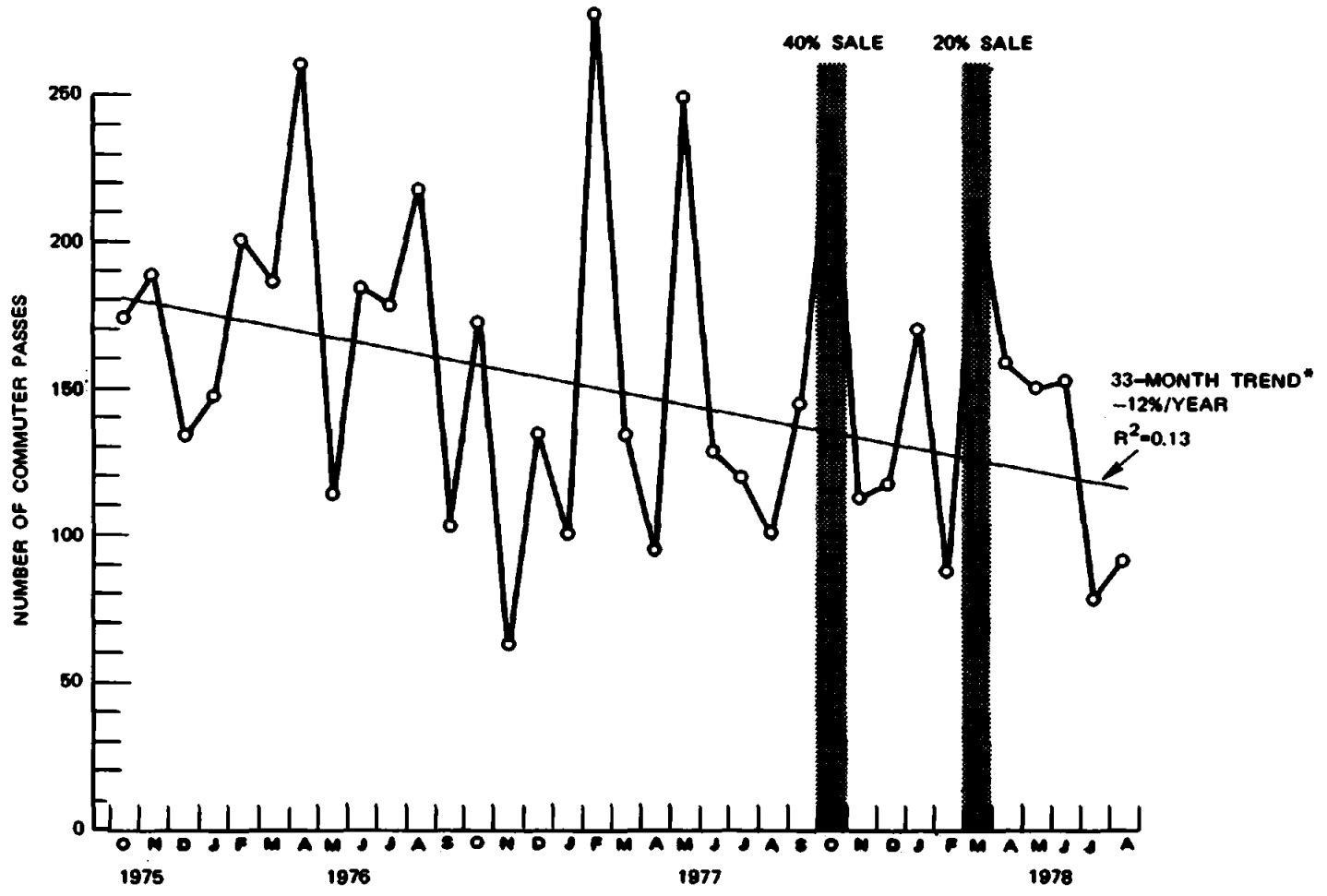
(a) AUSTIN MONTHLY PASS SALES



NOTE: Due to the small amount of consignment data available prior to the fare change in July 1978, no trend line is shown.

(b) PHOENIX MONTHLY PASS CONSIGNMENTS

FIGURE 4-11. MONTHLY PASS TIME-SERIES DATA



* Trend line does not include sale months

FIGURE 4-12. AUSTIN COMMUTER PASS SALES

5. IMPACTS ON TFP SALES

5.1 SALES VOLUMES RELATIVE TO DISCOUNT LEVEL

As the previous figures show, there were dramatic increases in sales of TFP instruments during each of the two reduced-price sales. In simplest of terms, we have these results:

	<u>Sale Discount</u>	<u>Amount of Increase</u>
Austin:	40%	300% increase in TFP sales
	20%	150% increase in TFP sales
Phoenix:	20%	125% increase in TFP sales
	40%	270% increase in TFP sales

The increases cited are the percentage increases in the total numbers of instruments sold during the sale (weighted by purchase price) relative to the expected number of instruments that would have been sold had there been no sale. This weighting compensates, approximately, for the differences in the numbers of rides or usages among the instruments: i.e., a 10-ride ticket is not equated to a monthly pass that might be used 40 to 60 times.

The detailed numbers that make up these aggregate effects are given in Table 5-1. The expected values of the numbers of instruments that would have been sold are based on the values taken from the regression lines of the time-series data (Figures 4-9 through 4-12) at the time of the specific sales. In Table 5-1 the TFP instruments are expressed in dollar values. For example, the Austin 20-ride ticket normally sells for \$3; thus, the dollar value of the without-sale figure is \$3000, the with-sale figure is \$15,501. The idea is to weight the number of tickets and passes sold by their dollar value so that the effects of the sales on the different types of instruments can be compared and total effects can be summed.

Using this method, the overall effect is shown in the following insert figure. The percent increase in sales is a linear function of the price discount, at least through the ranges tested:

TABLE 5-1.
SALES IMPACTS BY TFP INSTRUMENT TYPE

	Without Sale		With Sale		% Increase	Elasticity
	Instruments Sold	Dollar Value	Instruments Sold	Dollar Value		
<u>Austin (40% Sale)</u>						
20-Ride Ticket	1,000	3,000	5,167	15,501	417	-10.2
Monthly Pass	40	600	112	1,680	180	- 4.5
Commuter Pass	135	1,350	245	2,450	81	- 0.2
Shopper Pass	neg.*	neg.	17	102	ind.**	
Total	1,175	4,950	5,541	19,733	299	- 7.47
<u>Austin (20% Sale)</u>						
20-Ride Ticket	1,000	3,000	2,995	8,985	200	-10.0
Monthly Pass	41	615	46	690	12	neg.
Commuter Pass	125	1,250	212	2,120	70	- 3.5
Shopper Pass	neg.	neg.	5	30	ind.	
Total	1,166	4,865	3,258	11,825	143	- 7.15
<u>Phoenix (20% Sale)</u>						
10-Ride Equivalent	4,200	14,700	9,400	32,900	124	- 6.2
Monthly Pass	60	1,080	162	2,916	170	- 8.5
Total	4,260	15,780	9,562	35,816	127	6.35
<u>Phoenix (40% Sale)</u>						
10-Ride Equivalent	4,600	16,100	12,722	44,527	177	- 4.4
Monthly Pass	60	1,080	1,039	18,702	1,632	-40.8
Total	4,660	17,180	13,761	63,229	268	- 6.7

*negligible

**indeterminate

zero to 40%. The observed elasticities of TFP sales with respect to price appear to be approximately -7.5 in Austin and -6.5 in Phoenix. As with most data in this report, the results for the two projects are consistent.

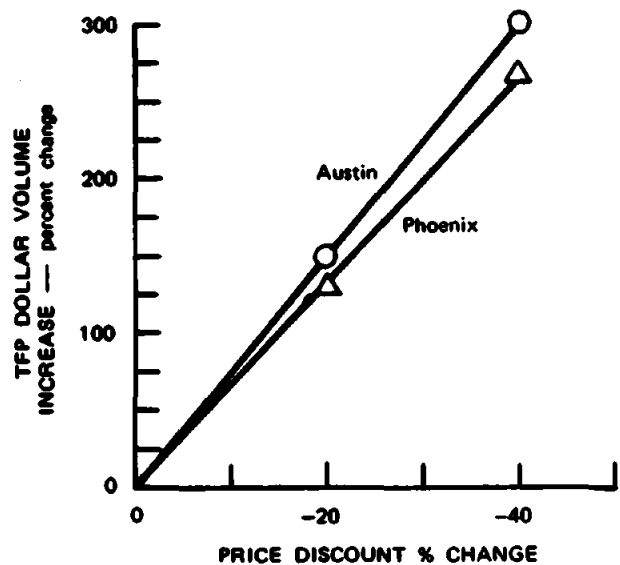
This relationship between price discount and sales increase appears to vary considerably with TFP type, as indicated in Table 5-1. However, for instruments other than the 10-ride and 20-ride tickets, there are insufficient data to draw conclusions. The observed elasticities for the various passes range from near zero to -40. The latter figure, reflecting increases in monthly pass sales during the Phoenix 40% sale, does appear to be a significant change.

This issue of relative impacts on ticket and pass sales is discussed further in the following two sections.

5.1.1 Switching Analysis

To better understand the impacts of the various sales on TFP instrument purchasing, analyses were conducted of the numbers of persons who switched from using one type of instrument to another because of the sale. Prior to observing this switching phenomenon, we first present data on the economics of purchasing the TFP instruments.

Figures 5-1 and 5-2 are presented to show the numbers of persons who should have been interested in the various price-discounted instruments from the viewpoint of saving travel costs. These figures are read as follows: the frequency distributions labeled "cash payers" and "TFP users" are read on the axis labeled "Persons taking more than x trips/month." These



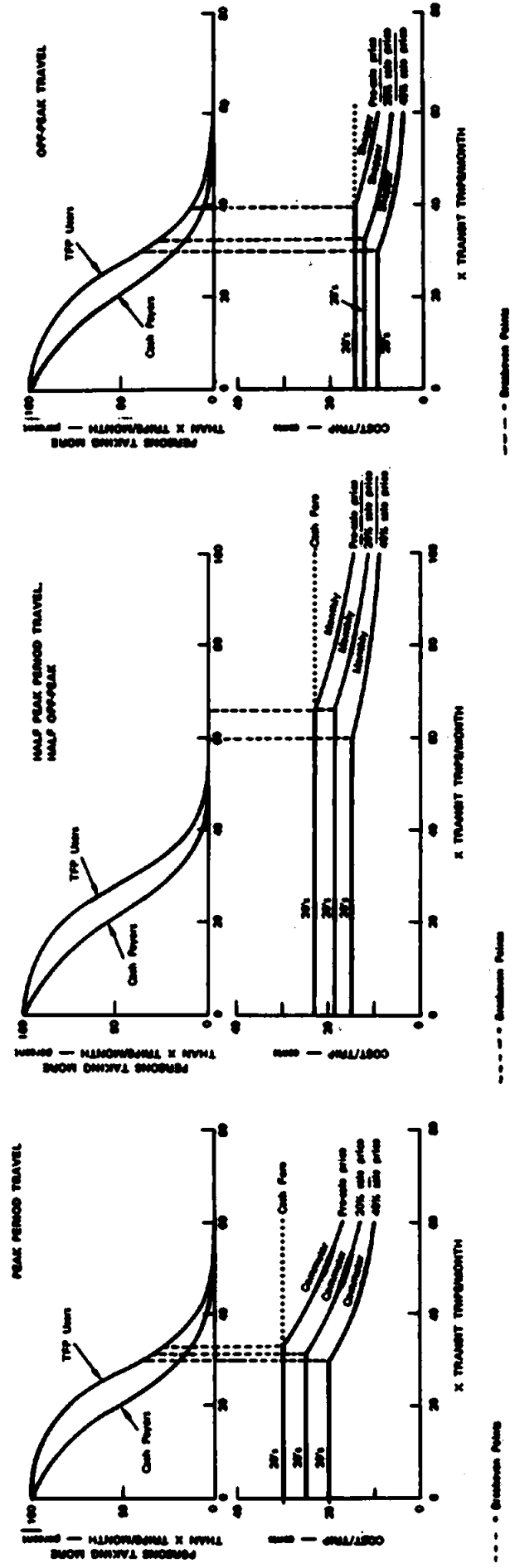


FIGURE 5-1. TFP COSTS VS. USAGE PATTERNS: AUSTIN

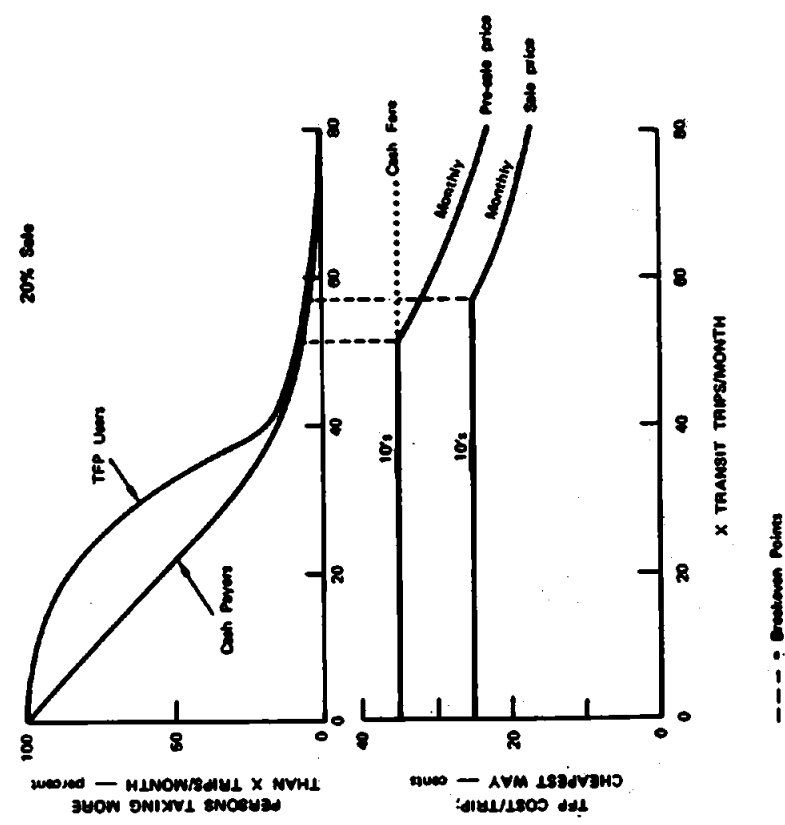
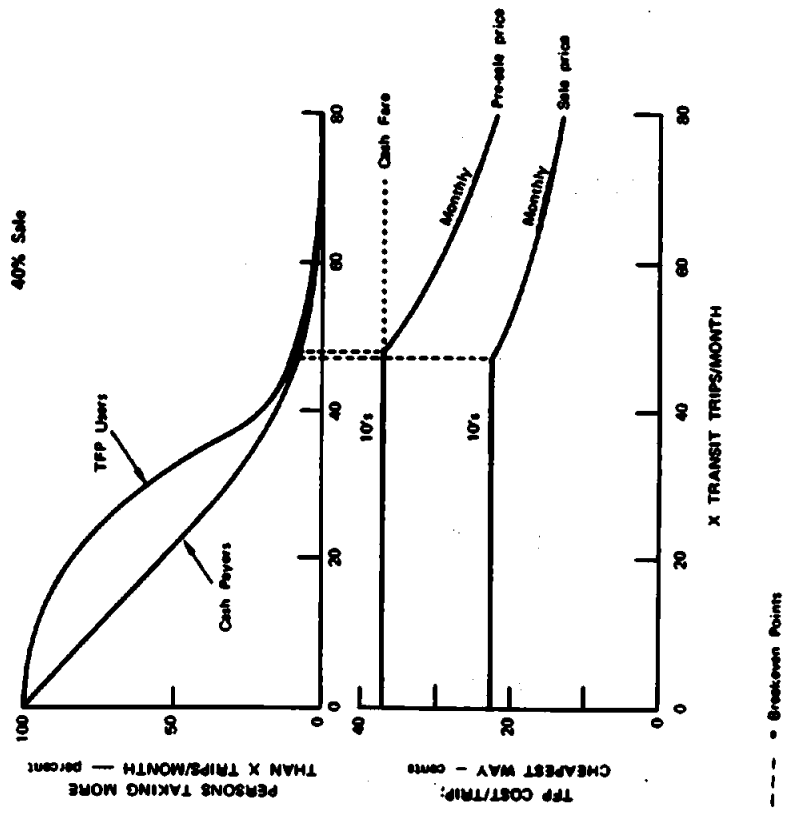


FIGURE 5-2. TFP COSTS VS. USAGE PATTERNS: PHOENIX

frequency distributions are taken from On-Board and Purchaser Survey data. The price curves, labeled by TFP instrument type (10's, monthly, and commuter), are read on the zero-to-40¢ scale; they show the cheapest TFP instrument for different levels of transit usage.

The Austin data are presented in Figure 5-1. Because of the difference between peak and off-peak fares and the different passes designed for these conditions, three sets of graphs are presented: the left-hand set pertains to peak period travel, the middle set applies to a person who makes exactly half his or her trips during peak periods and half during off-peak periods, and the right-hand set pertains to off-peak travel.

The trip frequency distributions are unchanged from peak to half-and-half to off-peak prices; they are not separable by these conditions. Therefore, the curves are not accurate for these specific time periods; they only suggest the fraction of all riders that could take economic advantage of the different instruments.

The Phoenix data (Figure 5-2) are presented in two sets of graphs: the left-hand set shows prices before and during the first sale; the right-hand set shows the second sale prices. As the figure shows, at presale prices the 10-ride ticket is cheaper than the monthly pass for usage rates up to 51 rides per month. Beyond this breakeven point, the monthly pass is cheaper. During the sales, about 95% of the cash payers would have saved money buying the discounted 10-ride ticket; a few people who used the monthly pass could profitably switch to the 10-ride ticket; and very few people could take advantage of the monthly pass, even at its reduced price. These graphs reveal dramatically the high breakeven values for passes in both cities, and the correspondingly small fraction of people who can profitably use them.

The reader can deduce from these figures the before-sale to after-sale shifts in buying practice that should have occurred if all buyers were to make decisions based only on economic considerations. The major change should have been that cash payers switched to tickets, with some minor shifting among TFP instrument types during some sales. This, more or less, is what happened.

Tables 5-2 and 5-3 show the actual numbers of persons who switched from one fare payment method to another during the sales. These tables also show the before-to-after sale shifts; however, these data need not be reviewed by the reader at this time since a discussion of postsale purchasing behavior is presented later in this text.

Careful review of these switching tables indicates that the primary motivation for shifting was minimization of trip costs. For example, Figure 5-2 indicates that there is a small group of Phoenix riders who take between 51 and 56 transit trips per month. Prior to the 20% sale, their cheapest method of fare payment was the monthly pass. During the 20% sale, their cheapest method was the 10-ride (or 20-ride) ticket. Thus, some of them should have switched from monthly passes to tickets. Table 5-3 indicates that 7 out of 11 pass users did make this shift. On the other hand, Figure 5-2 indicates that no one had a sound economic reason to shift from tickets to monthly passes; Table 5-3 shows that only 2 out of 145 ticket users did.

5.1.2 Differential Effect On Tickets And Passes

As discussed above, the response to the sale was primarily determined by economics. The price-transit usage curves in Figures 5-1 and 5-2 provide a good explanation of the magnitude of purchasing as well as the shifting of one instrument to another.

The one exception to this rather neat argument is the volume of monthly pass sales triggered by the Phoenix 40% sale. The number of monthly passes sold rose from around 60 to 162 during the

TABLE 5-2. SWITCHING ANALYSIS: AUSTIN

BEFORE TO DURING 40% SALE

Switched From:		Switched To:			
Type	#	20	Comm.	Mon.	Shop.
20-Ride	98	88	6	3	1
Commuter	48	8	38	2	0
Monthly	27	11	12	4	0
Shopper	2	1	0	1	0
Student	3	3	0	0	0
Cash	180	115	44	18	3
Non-Rider	0	0	0	0	0
TOTAL	358	226	100	28	4

BEFORE TO AFTER 40% SALE

Switched From:		Switched To:							Non-Rider
Type	#	20	Comm.	Mon.	Shop.	Stud.	Cash	Rider	
20-Ride	98	70	1	1	0	1	23	2	
Commuter	47	6	23	0	0	0	13	5	
Monthly	27	4	4	10	0	0	5	4	
Shopper	2	0	0	0	0	0	2	0	
Student	3	0	0	0	0	1	2	0	
Cash	179	54	9	2	0	2	97	15	
Non-Rider	0	0	0	0	0	0	0	0	
	356	134	37	13	0	4	142	26	

BEFORE TO DURING 20% SALE

Switched From:		Switched To:			
Type	#	20	Comm.	Mon.	Shop.
20-Ride	192	190	2	0	0
Commuter	27	6	21	0	0
Monthly	4	3	1	0	0
Shopper	0	0	0	0	0
Student	3	3	0	0	0
Cash	91	81	7	2	1
Non-Rider	1	1	0	0	0
TOTAL	318	284	31	2	1

BEFORE TO AFTER 20% SALE

Switched From:		Switched To:							Non-Rider
Type	#	20	Comm.	Mon.	Shop.	Stud.	Cash	Rider	
20-Ride	148	98	3	0	0	0	42	5	
Commuter	22	5	11	0	0	0	4	2	
Monthly	4	1	0	0	0	0	2	1	
Shopper	0	0	0	0	0	0	0	0	
Student	1	0	0	0	0	0	0	1	
Cash	57	24	0	0	0	0	25	8	
Non-Rider	0	0	0	0	0	0	0	0	
TOTAL	232	128	14	0	0	0	73	17	

TABLE 5-3. SWITCHING ANALYSIS: PHOENIX

BEFORE TO DURING 20% SALE

<u>Switched From:</u>		<u>Switched To:</u>		
<u>Type</u>	<u>#</u>	<u>10</u>	<u>20</u>	<u>Mon.</u>
10-Ride	22	14	8	0
20-Ride	163	78	85	0
Monthly	11	7	0	4
Student	5	5	0	0
Cash	201	148	49	5
Non-Rider	5	3	2	0
TOTAL	407	254	144	9

BEFORE TO AFTER 20% SALE

<u>Switched From:</u>		<u>Switched To:</u>					
<u>Type</u>	<u>#</u>	<u>10</u>	<u>20</u>	<u>Mon.</u>	<u>Stud.</u>	<u>Cash</u>	<u>Non-Rider</u>
10-Ride	22	10	3	0	0	7	2
20-Ride	123	27	53	2	0	23	18
Monthly	11	3	1	4	0	3	0
Student	3	0	0	0	0	1	2
Cash	152	22	12	3	0	74	41
Non-Rider	2	0	0	0	0	0	0
TOTAL	313	62	69	9	0	108	65

BEFORE TO DURING 40% SALE

<u>Switched From:</u>		<u>Switched To:</u>	
<u>Type</u>	<u>#</u>	<u>10</u>	<u>Mon.</u>
10-Ride	62	56	6
20-Ride	29	24	5
Monthly	10	6	4
Student	8	7	1
Cash	90	76	14
Non-Rider	8	5	3
TOTAL	207	174	33

BEFORE TO AFTER 40% SALE

<u>Switched From:</u>		<u>Switched To:</u>					
<u>Type</u>	<u>#</u>	<u>10</u>	<u>20*</u>	<u>Mon.</u>	<u>Stud.</u>	<u>Cash</u>	<u>Non-Rider</u>
10-Ride	47	25	-	2	0	13	7
20-Ride	24	18	-	3	0	3	0
Monthly	7	2	-	3	0	1	1
Student	8	6	-	1	0	0	1
Cash	53	15	-	5	1	19	13
Non-Rider	5	2	-	0	0	1	2
TOTAL	144	213	-	14	1	37	24

*The 20-ride ticket was discontinued before the 40% sale.

20% sale, then leaped to over 1000 during the 40% sale. The observed elasticities, sales volumes relative to price, rose from -8.5 for the first sale to a startling -40.8 for the second sale.

There appears to be no adequate explanation for this other than that the presale volume of pass sales appears lower than would be expected from the trip frequency data. (For example, see Figure 5-2.) Prior to the sale, passes represented only about 6.5% of the dollar volume of Phoenix TFP sales; tickets, 93.5%. The on-board fare payment counts indicated that about 9% of all TFP usages were pass usages and 91%, ticket usages. However, the trip frequency data indicate that about 12.5% of all transit trips were taken by people who report that they take enough trips to profit from the use of the monthly pass. In Austin, by contrast, the breakeven values for passes are higher than in Phoenix, but passes represent 40% of the dollar value of monthly TFP sales. This underutilization of passes in Phoenix is well explained by the marketing procedures that were used prior to and during the sales. Passes were not advertised by Phoenix Transit prior to the demonstration, nor were they available at most bank outlets before or during the two sales. Thus, the advertising and reduced prices during the sales triggered a massive increase in pass sales and usage relative to the inappropriately low predemonstration volume of pass sales.

5.2 THE CHARACTERISTICS OF PURCHASERS

5.2.1 Presale Transit Status of Purchasers

As previously stated, there was a dramatic surge in ticket and pass buying at the onset of each sale. The Purchaser Surveys yielded a variety of data on the characteristics of these purchasers; Table 5-4 shows their presale purchasing behavior.

TABLE 5-4.
 PERCENTAGE BREAKDOWN OF OLD AND NEW
 RIDERS AND BUYERS IN AUSTIN AND PHOENIX

<u>TRANSIT STATUS</u>	<u>AUSTIN</u>		<u>PHOENIX</u>		<u>ALL SALES</u>
	<u>40% Sale</u>	<u>20% Sale</u>	<u>20% Sale</u>	<u>40% Sale</u>	
Old Riders/Old Buyers	53.0	70.0	51.0	54.0	56.0
Old Riders/New Buyers	47.0	27.5	48.0	45.0	43.0
New Riders/New Buyers	0.0	2.5	0.8	1.5	1.1
(n)	(477)	(474)	(747)	(646)	(2344)

The entries in this table were developed as follows. First, we derived the percentages of the three categories of pre-sale transit status from the Purchaser Surveys. In all four surveys, each purchaser interviewed was asked whether he or she had previously purchased TFP instruments. From these data, purchasers were classified according to "transit status." This variable consisted of three categories. In the old rider/old buyer category were those transit riders who had purchased TFP instruments prior to the sale period during which they were interviewed. The old rider/new buyer category consisted of transit riders who had not purchased a TFP instrument prior to the sale. A third category contained new riders/new buyers.

These data show that, in most cases, about half the purchasers who responded to the sales were new buyers and half were persons who had purchased TFP instruments before.* There were only a few new riders; this issue is discussed in Chapter 6.

Note that the percentage breakdowns shown do not correspond to the survey sample breakdowns, for the following reason. The samples for the Purchaser Surveys were designed to contain equal numbers of old and new buyers. During each sale, the target number of old buyer interviews was completed before the comparable number of new buyer interviews was reached. Therefore, after ascertaining

*The second (20%) Austin sale is an exceptional case which is discussed in Section 5.2.3.

that the respondent was an old buyer, the survey workers terminated the interview. The persons from these interviews have been included in the percentages shown in Table 5-6; thus, these percentages represent the actual incidence of old and new buyers during the sales.

In Table 5-5, the percentages from Table 5-4 are converted to the total estimated number of purchasers during each sale, in the following manner. First, the total number of instruments sold was taken from Table 5-1. Then the average number of instruments purchased per purchaser during each sale was obtained from the Follow-Up Purchaser Surveys.* The average values derived were:

	<u>Instruments per Purchaser</u>
<u>Austin:</u>	
40% Sale	3.0
20% Sale	3.2
<u>Phoenix:</u>	
20% Sale	3.0
40% Sale	3.6

These ratios were used to convert the number of instruments sold during the sales to an estimate of the total number of buyers during each sale. This variable, total number of buyers, will be used in subsequent analyses presented in this report.

5.2.2 Investigation of Socioeconomic Variables

Table 5-6 summarizes the socioeconomic and travel characteristics of non-buyers, or cash payers, and old and new purchasers.

*The "number of instruments purchased" was asked in the Purchaser and Follow-Up Purchaser Surveys. The above mean values are taken from the Follow-Up Purchaser Surveys. These values are the most accurate, as they account for additional purchases made after the initial, during-sale interview with the purchaser.

TABLE 5-5.

PRESALE PURCHASING BEHAVIOR
OF AUSTIN AND PHOENIX TFP INSTRUMENT PURCHASERS

	<u>No. of Instru- ments</u>	<u>No. of Buyers</u>
<u>AUSTIN</u>		
<u>40% Sale:</u>		
Old Buyers	2,936	975
New Buyers	<u>2,604</u>	<u>870</u>
TOTALS	5,541	1,845
<u>20% Sale:</u>		
Old Buyers	2,282	715
New Buyers	<u>977</u>	<u>305</u>
TOTALS	3,258	1,020
<u>PHOENIX</u>		
<u>20% Sale:</u>		
Old Buyers	4,877	1,626
New Buyers	<u>4,685</u>	<u>1,562</u>
TOTALS	9,562	3,188
<u>40% Sale:</u>		
Old Buyers	7,431	2,064
New Buyers	<u>6,330</u>	<u>1,758</u>
TOTALS	13,761	3,822

TABLE 5-6.

SOCIOECONOMIC PROFILES

	AUSTIN					PHOENIX				
	Non- Buyers	40% Sale		20% Sale		Non- Buyers	20% Sale		40% Sale	
		Old Buyers	New Buyers	Old Buyers	New Buyers		Old Buyers	New Buyers	Old Buyers	New Buyers
Sex:										
Male	40	28	28	23	23	45	35	37	35	36
Female	60	72*	72*	77*	77*	55	65*	63*	65*	64*
Age:										
Under 18	8	2	4	3	7	12	1	2	1	3
18-44	74	57	61	55	68	62	55	56	59	67
45-64	11	23*	23*	23*	-- 12	17	42*	41*	38*	-- 30*
65 or over	7	18*	12*	20*	13*	9	2	1	2	0
Ethnic origin:										
White	36	73*	70*	60*	62*	65	87*	87*	77*	83*
Black	39	11	12	21	17	13	4	5	9	7
Mex.-Amer.	22	11	14	16	17	15	6	5	9	6
Amer. Indian	-	-	-	-	-	6	2	2	3	3
Oriental	-	-	-	-	-	1	1	1	2	1
Other	3	5	4	4	4	-	-	-	-	-
Total Household Income:										
Less than \$5,000		23	23	35	-- 27	36	11	15	16	17
\$5,000-\$15,000		46	49	43	51	42	43	41	44	41
\$15,000-\$30,000	N.A. (1)	24	24	22	22	15	39*	37*	36*	34*
Over \$30,000		7	3	1	0	6	6	7	4	8

(1) Not available

--*--Denotes statistically significant differences between old and new buyers.

*Percentage shown is greater than the comparable percentage for non-buyers by a statistically significant margin.

TABLE 5-6. (cont.)

	AUSTIN					PHOENIX				
	Non-Buyers	40% Sale		20% Sale		Non-Buyers	20% Sale		40% Sale	
		Old Buyers	New Buyers	Old Buyers	New Buyers		Old Buyers	New Buyers	Old Buyers	New Buyers
Employment Status:										
Employed	55*	68*	69*	60*	56*	55	89*	83*	82*--	72*
Student	22	9	12	13	24	22	7	9	9	16
Homemaker	9	4	7	3	6	9	2	4	5	6
Retired	10	15	10	22	10	10	2	2	1	3
Other	4	4	2	3	4	4	0.3	2	3	3
Yrs. Regular School:										
0-8	15	16	16	18	13	15	6	6	4	3
9-12	52	25	19	28	18	52	41	42	42	44
13-16	29	48* --	55*	34 --	47*	29	45*	40*	45*	40*
17+	4	11*	10*	19*	22*	4	9*	13*	9*	13*
Marital Status:										
Married	33	49*	44*	36	46*	33	55*	60*	54*	48*
Single	67	51	56	64	54	67	45	40	46	52
Transit Usage:										
0-2 trips per week	15	4	4	7	6	27	1	9	1	15
3+ trips per week	85	96*	96*	93*	94*	73	99*	91*	99*	85*
Car Availability:										
Always/Usually	N.A. (1)	50	47	38	41	N.A.	58	59	58	54
Sometimes/Never		50	53	62	59		42	41	42	46
	(n) (195)	(252)	(225)	(225)	(91)	(1158)	(365)	(362)	(310)	(298)

(1) Not available

--Denotes statistically significant differences between old and new buyers.
 *Percentage shown is greater than comparable percentage for non-buyers by a statistically significant margin.

There are two notations on Table 5-6 concerning statistical significance. A dash line denotes a significant difference between old and new buyers. An asterisk indicates a significant difference between an old or new buyer and a non-buyer. The determination of significant difference was based on the formula

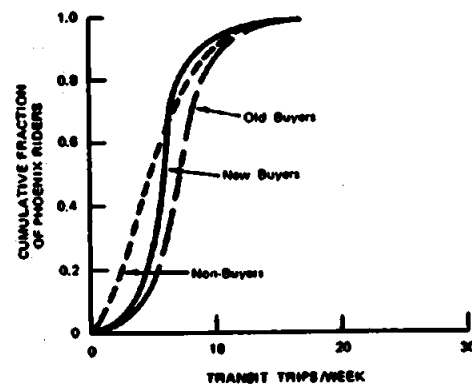
$$\sigma_D = \sqrt{pq \left(\frac{1}{n_1} + \frac{1}{n_2} \right)},$$

where σ is the standard error of the difference between two proportions, p is the fraction in the total percentage of occurrence and n_1 and n_2 are the sample sizes. Hypothesis tests were performed at the 95% confidence level.

From the study of this table, one immediately concludes that there are few differences between the socioeconomic characteristics of old and new buyers. This is true for most attributes in every sale. There are a few exceptions, noted by the dash lines, but these are scattered within the table and are not consistent between projects or between sales within a project*

There are some slight differences in the presale transit trip rates of old and new purchasers. These differences appear in transit usage data presented later in this report, derived from on-board surveys and from the 48-hour travel histories obtained from each purchaser. The old purchasers tended to ride transit slightly more often than did new purchasers who, in turn, tended to ride transit more often than non-buyers. The insert figure uses the Phoenix data to illustrate this relationship.

Thus, we could conclude that with the exception of a few isolated differences in socioeconomic characteristics and some small but significant differences in transit trip



*However, there did appear to be proportionately fewer persons over 65 in the new buyer group. This small difference between new and old buyers appears in the data from every sale.

rates, new and old buyers can be viewed as a single group. Hence, we will focus our attention on the differences between buyers, whether new or old, and non-buyers. In so doing, we will be searching for factors which are correlated with a person's propensity to purchase TFP instruments, whether discounted or not.

There are consistent differences between buyers and non-buyers. Within the purchaser group there tend to be:

1. More females,
2. More persons over 44 (and particularly 45 to 64),
3. More white persons (and fewer minorities),
4. More persons in the \$15,000 to \$30,000 household income range,
5. More persons having high school or higher educations,
6. More employed persons,
7. More married persons, and
8. More persons who used transit frequently.

A factor analysis was performed to investigate intercorrelations among the above eight characteristics; this did not reduce the list of characteristics to fewer underlying factors. The correlation between the socioeconomic variables and the transit usage variable is insufficient to argue that transit usage is the sole, or even the dominant, variable.

Thus, at the level of analysis possible with these data one must conclude that with increased transit usage, an individual has an increased tendency to purchase TFP instruments; however, this tendency varies significantly with seven socioeconomic factors. The correlation between purchasing and transit trip frequency exists for users of both passes and tickets, even when tickets are not price-discounted relative to cash fares.

However, it should be noted that although there are significant differences between buyers and non-buyers, buyers are well represented in every market segment; TFP instruments are bought and used by persons with varying trip rates and of all socioeconomic backgrounds.

5.2.3 Impact of Discount Level on Attraction of New Purchasers

The relative frequencies of numbers of new and old buyers attracted by the sale, shown in Table 5-6, seem to be a function of several factors, including the order in which the sales were conducted. The results from both sites suggest that there was a market saturation effect. Although TFP price-weighted volumes* rose proportionately with the discount level, regardless of the sale order, the proportion of new purchasers declined in the second sales. (The reader is referred back to Table 5-4.) At both sites, the proportions of old and new riders for the first sale were half and half; for the second sale, the fraction of new purchasers was smaller. This implies that, without new riders being drawn to transit by the sales, the market was becoming saturated by the second sale in both cities. This seems especially to be the case in Austin where the 40% sale was conducted first, capturing most of the available market of new purchasers and thereby causing the second, 20% sale to draw a much smaller fraction of new buyers.

Notwithstanding the uncertainty caused by reversing the sequences in Austin, we offer the following conclusions. At the TFP sales levels in Austin and Phoenix, the 20% discount level will draw about as many old buyers as new. Raising the discount to 40% will draw more new buyers but probably not enough more to merit the increased loss in revenues. It is quite possible that the optimum discount level, balancing numbers of new buyers against foregone revenue costs, might be lower than 20%.

*The reader is referred to the discussion accompanying Table 5-1.

5.3 ATTRITION OF BUYERS AFTER THE SALES

During the Follow-Up Purchaser Surveys, purchasers were reinterviewed to evaluate their behavior relative to TFP usage and transit riding. It was found that sizable proportions of both old buyers and new buyers were no longer buying a few months after the sale. Figure 5-3 describes this attrition of purchasers following the four sales.

The data points on this graph, indicated by circles and triangles, denote the fractions of purchasers who were still buying when interviewed some number of months after the sale. As already stated, follow-up surveys were conducted about four months after each sale and twelve months after two of the sales.

These data points were curve-fitted with exponential functions to model the attrition phenomenon. This model depicts a sharp drop, followed by a continued decline, in the fraction of purchasers who continued to purchase TFP instruments following each sale. The data points and the curve fits of these points support this model of what happened. The equations developed are of the form

$$y = ke^{-\lambda t}$$

where $1-k$ represents the short-term drop after the sale and λ is the month-by-month attrition rate. The specific equations are as follows:

1 (Old Buyers):	$y = .87e^{-.06t}$	$R^2 = 0.93$
2 (New Buyers):	$y = .52e^{-.11t}$	$R^2 = 0.83.$

The R^2 values indicate the "goodness of fit."

These high R^2 values imply an excellent fit; however, due to the small sample sizes, this conclusion is inappropriate. Nevertheless, the pattern of the data points does generally support the exponential model used.

These curves imply that there was an unusually large loss of 13% of old buyers in the month following the sale and then an

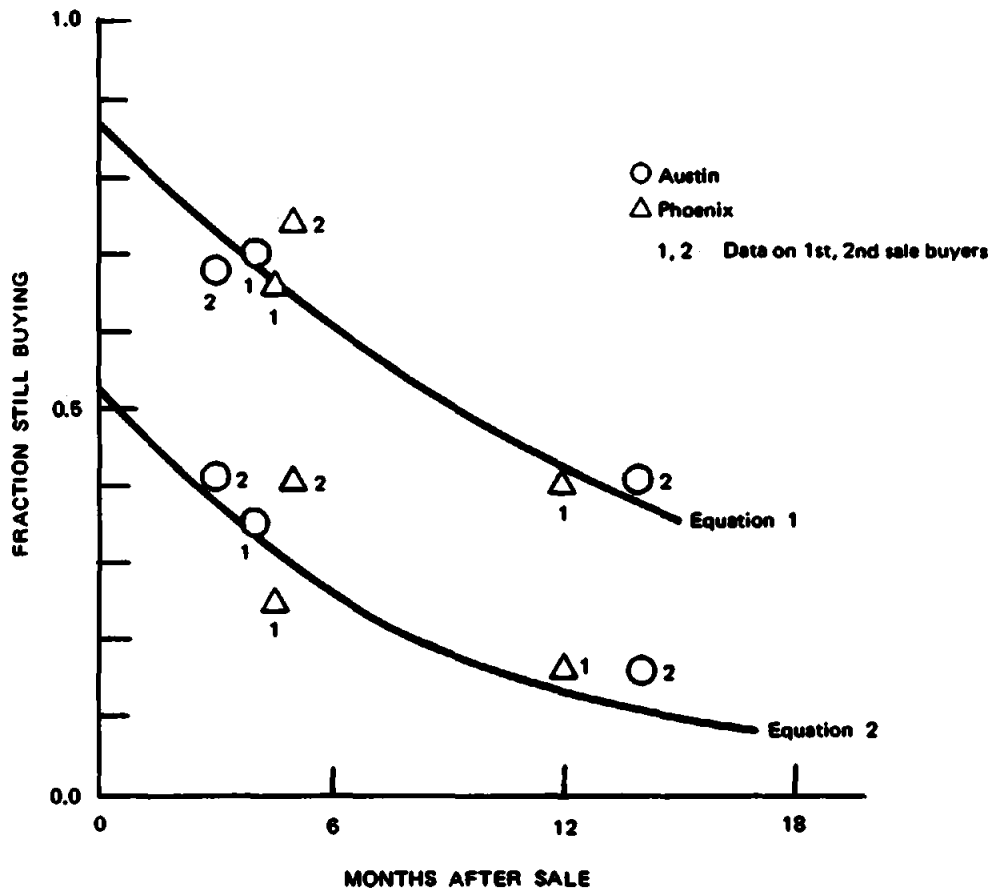


FIGURE 5-3. BUYER ATTRITION

average loss of 6% per in months thereafter. This 6% value is considered to be the rate of "natural attrition," the fraction of purchasers who can be expected to stop buying for various personal reasons. These reasons are discussed later in this chapter.

The attrition of old buyers should not be construed to mean that the number of TFP users in either city is declining. New buyers enter the system every day, replacing those who have dropped out. This must be so because the overall level of TFP instrument buyers shows no serious decline in Austin and is rising in Phoenix.

The model indicates that nearly 50% of the new purchasers dropped out as soon as TFP prices were raised back to normal levels. Thereafter the monthly attrition of these new purchasers was about 11% per month, twice the rate of old purchasers. These high attrition rates are reasonably consistent with the TFP sales trends in both sites. The Austin time-series data suggest there was no postsale effect on TFP instrument buying for either sale. In Phoenix, the time-series data suggest some upward change in the trend lines for 10-ride ticket sales and, more emphatically, for pass sales.

In attempting to interpret the attrition phenomena, several exogenous factors must be considered. In Austin, some of the apparent postsale drop in buying might be caused by the use of discounted tickets in months subsequent to the sale by some persons. (As already noted, the discounted 20-ride tickets were good for an unlimited time period. The effect of this is discussed further in Section 5.6.) This delayed use of discounted tickets would have held down TFP sales after the sale period. It also suggests that usage of TFP instruments during the sale months was much lower than the sales figures from those months imply. The implication of this is that had a limited validity period for tickets been established in Austin, the time-series data might have shown at least some short-term increases in buying during the months following the sales.

The major exogenous factor in Phoenix was the change in fare structure between the first and second sale, and the subsequent, permanent small discount in TFP prices relative to cash fares following the demonstration. Thus, the two experiments differed, although not intentionally, in this respect. The Phoenix project tested two short-term large discounts followed by a small permanent discount. The Austin experiment used only the short-term large discounts. This difference between the projects seems to be reflected in the time-series data showing a positive post-demonstration effect in Phoenix, but not in Austin. This differential effect is not revealed in the Follow-Up Purchaser Survey data presented in the attrition curves. Note that the Phoenix Year-Later Follow-Up Survey interviewed first-sale purchasers. This was done intentionally, in an attempt to minimize the effects of the fare change. Had we reinterviewed the second sale purchasers, we should have found a higher fraction still buying, due to the permanent discount on TFP instruments. One final point is relevant: The new buyers who were still buying after four months were those who had the higher trip rates relative to other new buyers. Thus they appear to have the best economic justification for continuing to buy TFP instruments. Of course, this also suggests that some of them might have become new buyers had there been no sales.

5.4 PURCHASER AND NON-PURCHASER ATTITUDES

The previous sections in this chapter have focused on the economics of TFP purchasing, and have argued that minimization of travel costs is the main determinant of purchasing behavior. However, data presented in this section will show that within certain limits set by economic considerations, individual attitudes also affect purchasing behavior. Specifically, this section addresses three major questions regarding purchaser and non-purchaser attitudes toward TFP instruments:

1. What were purchasers' reasons for buying tickets and passes during the sale?
2. What were non-purchasers' reasons for not buying tickets and passes during the sale?
3. Why did some purchasers of the discounted tickets and passes stop using them shortly after the sales ended?

As Table 5-7 shows, purchasers' reasons for buying the discounted TFP instruments fell into two main categories: convenience and money savings. Under the convenience category, by far the most frequent reason given for buying tickets and passes was: "It's easier to use a pass than to carry exact 'change"; responses relating to exact change accounted for well over half the "convenience" reasons. Other responses in this category included the convenience of tickets and passes as budgetary aids ("Sometimes I run low on cash, so I like to keep a bus pass handy") and the fact that transfers need not be obtained when using the calendar passes. The responses in the money savings category all relate to the fact that the tickets and passes were on sale and thus, purchasers saved money on bus rides.

TABLE 5-7. REASONS FOR BUYING TFP INSTRUMENTS

<u>Reason</u>	AUSTIN		PHOENIX	
	<u>40% Sale</u>	<u>20% Sale</u>	<u>20% Sale</u>	<u>40% Sale</u>
Convenience	58	55	60	39
Save Money	42	44	38	48
Other	<u>0</u>	<u>1</u>	<u>2</u>	<u>13</u>
	100	100	100	100
(n)	(608)	(339)	(407)	(208)

The second and equally important issue is why the non-buyers did not buy tickets and passes. This question elicited a variety of responses on the On-Board Surveys; the results are presented in Table 5-8. The responses fall into five main categories. The largest of these may be labelled: "Informational/Marketing Problems"; these respondents appeared to lack either adequate information regarding TFP or sufficient motivation to purchase them. Of the five groups, this market would seem most susceptible to TFP advertising and promotion.

The second largest category, "Economically Impractical," represents those riders for whom tickets and passes do not make economic sense; this group seems far less likely to respond to TFP price discounts or advertising campaigns than the first group. In addition, it is entirely conceivable that, given adequate information regarding the tickets and passes, a number of those in the first category would find that the TFP did not make sense for them, and would ultimately wind up in the second category. Thus, the size of the potential TFP market may be somewhat overstated in this chart. The responses in the third category, "Too Much Trouble," are similar to the "Don't Bother" responses in the first category, with one important distinction: those in the former group indicated that they had sufficient information regarding TFP prices and availability; on the basis of that information, they had concluded that the tickets and passes were not worth the effort required to obtain and/or use them.

The last issue concerns the attitudes toward TFP instruments of those who stopped buying them shortly after the sale. On the Follow-Up Purchaser Surveys, they were asked why they stopped; their responses are shown in Table 5-9. The tabulations shown are numbers of "mentions": some respondents gave more than one reason for no longer buying tickets and passes.

TABLE 5-9.

REASONS PURCHASERS STOPPED BUYING AFTER THE SALE

	<u>AUSTIN</u>		<u>PHOENIX</u>	
	<u>40%</u> <u>Sale</u>	<u>20%</u> <u>Sale</u>	<u>20%</u> <u>Sale</u>	<u>40%</u> <u>Sale</u>
My situation has changed	28%	29%	47%	45%
Don't ride enough to warrant buying a pass	12	9	7	8
Haven't gotten around to buying another pass	15	20	7	3
Prefer cash; passes inconvenient to buy	15	11	18	12
Don't save money on a pass	8	9	10	14
Other (miscellaneous reasons)	15	8	3	8
Outlet closed	N.A.	8	N.A.	N.A.
Not sure where to buy them	4	3	5	9
Can't afford cash outlay	<u>3</u>	<u>3</u>	<u>3</u>	<u>1</u>
	100%	100%	100%	100%
(n)	(169)	(80)	(171)	(60)

The most frequent response, "My situation has changed," was given by both old and new buyers. (This appears to be a major factor contributing to the natural attrition referred to earlier). "Don't ride enough" was the response of new buyers who found the instruments no longer economically attractive after the prices returned to normal. All the other reasons represent the variety of barriers to buying that are normal in selling any product: difficulties in finding the product, unwillingness to make the additional effort to make the purchase, and so forth. All of these contribute to the normal attrition rates of purchasers.

5.5 IMPACTS ON BULK BUYERS

After each sale in Austin and Phoenix, interviews were conducted with agencies and organizations purchasing TFP instruments in bulk from the transit systems. The objectives of these interviews were:

1. To determine the effects (if any) of the two TFP sales on the purchasing behavior of the agencies and organizations;
2. To determine whether transit riding on the part of clients increased as a result of the sales; and
3. To obtain a socioeconomic profile and travel pattern description of the clients using the tickets.

In Austin, four human service agencies purchased 20-ride tickets in bulk from Austin Transit for distribution to their clients. Several of the human service agencies interviewed increased their ticket purchases during the first, 40% discount sale. In general, however, these increases were not accompanied by significant increases in transit riding on the part of agency clients. The impact of the 20% sale was even more marginal: only one agency purchased more tickets in response to the sale. This agency's clients did appear to ride transit more as a result.

From interviews with agency staff, several reasons why the agencies were not more responsive to the sales can be identified. For example, some small agencies operate on very tightly controlled budgets. They budget a certain amount of money for bus tickets each month; increasing or altering the budget creates numerous administrative problems. Therefore, while these agencies were able to purchase a handful of extra tickets during the sales, the numbers of tickets involved were quite small.

In addition, some larger State-run agencies appear to have had no clear-cut incentive to save money on bus tickets by increasing their purchases during the sales. Such agencies purchase tickets as needed, and encounter no difficulty in obtaining operating funds from the State; their incentive to achieve cost savings by purchasing larger quantities of tickets at a discount is therefore, not surprisingly, rather low.

In Phoenix, two large banks purchase TFP instruments from Phoenix Transit and resell them to their employees at a discount. These two banks also serve as regular ticket sales outlets. During the two TFP sales, both banks sold the discount tickets and passes to their employees at the regular, subsidized prices; that is, the sale discounts were not passed on to bank employees. Since the instruments carried expiration dates and could not be hoarded, the purchasing decisions of the banks were based solely on anticipated employee demand. Because the cost of the instruments to the employees was unaffected by the sales, employee demand remained correspondingly stable during the sale periods. It can therefore be assumed that the TFP sales had no impact on transit riding by bank employees.

In addition to the two banks, four other business organizations as well as at least seven human service agencies* purchase

*Because many agencies and organizations send a representative to purchase the tickets from the bus terminal, and because they pay in cash, Phoenix Transit has no record of the purchaser's name or organizational affiliation.

Phoenix Transit tickets in bulk. For the most part, the sales appear to have had little or no impact on the purchasing and transit riding behavior of the organization's employees or clients. The four businesses generally sell so few tickets that the effects of the sales are difficult to distinguish. Some human service agencies bought the usual number of tickets and therefore saved money; several others did purchase more tickets with their budgetary allotments. Appendix H contains detailed accounts of the post-sale bulk buyer interviews in both Austin and Phoenix.

5.6 THE DELAYED USE OF TICKETS IN AUSTIN

As stated earlier, the 20-ride tickets sold during the two sales in Austin had no validity period. Thus, there was concern that people might buy them at the reduced prices and use them in later months. This delayed use of tickets could be manifested in two ways. First, people might buy large quantities of tickets--i.e., 20 or more--and use them or resell them in subsequent months. Second, people might buy tickets in normal quantities and use them up gradually over subsequent months. Both types of delayed use have important implications for the interpretation of sales data obtained in Austin.

The first type of delayed use proved not to be a major problem; the majority of ticket purchasers in both sales bought only one or two tickets. However, according to records from the first sale, one person did buy 50 tickets for his own use over the next year; during the second sale, three people bought blocks of 20 tickets. It should be noted that, while resale of tickets for a profit was expressly forbidden, large bulk purchases of tickets by individuals was quite legal under the terms of the sales.

During the evaluation, attempts were made to measure the extent of the second type of delayed use; however, the procedure

followed proved largely ineffective. Specifically, a program was initiated whereby drivers would collect the used tickets, after the last ride had been punched, and turn them in to the Austin Transit dispatch office. The sale dates of individual tickets were recorded by serial number from the ticket stubs returned by the outlets every day during the sale period; these dates were to be matched with the dates the tickets were turned in by the bus drivers. In theory, then, this procedure was designed to permit an analysis of the time elapsed between the purchase and use of each ticket; in addition, the number of sale tickets still outstanding would be tracked as a function of time.

However, the process proved very difficult to administer: many tickets were not collected by the drivers and many outlets failed to collect the stubs from the tickets sold. The results of the analysis suggested that the majority of tickets were outstanding long after the sale had ended, but these data by themselves cannot be considered conclusive.

When this suggestive evidence is combined with other data, however, a more conclusive pattern emerges. First, the demonstration apparently did induce some new riders to begin buying TFP instruments, and many of these buyers did continue to buy for at least a few months after the sales. If one assumes that the delayed-use phenomenon did not occur to a significant extent, the new buyer purchases (documented in the Follow-Up Survey) should have appeared as net gains in sale volumes after each sale. But these added sales are not reflected in the time-series data of TFP sales after the sale periods; they appear to be offset by reduced purchasing levels of old buyers who were using discounted tickets during the months following the sales. This hypothesis is corroborated by sharp drops in total service revenues following each sale.

Second, the fare payment count taken during the first Austin sale shows the proportion of TFP instrument usage to be about one-third lower than would be expected if all discounted instruments had been used up during the sale.

Finally, the most compelling argument is this: the total number of TFP instruments purchased in each Austin sale and the number of rides, or "usages", they represent far exceed the number of TFP instruments which could have been used during the one-month sale period. This is revealed by the following data:

	<u>Total Instruments Sold</u> (1)	<u>Total Usages</u> (2)	<u>Usages per Instrument</u> (3)	<u>Total Buyers</u> (4)	<u>Usages per Buyer</u> (5)
Austin 40% Sale	5,541	85,202	15.4	1,845	46
Austin 20% Sale	3,258	52,047	16.0	1,020	51
Phoenix 20% Sale	9,562	102,100	10.6	3,188	32
Phoenix 40% Sale	13,761	155,273	11.3	3,822	41

(1) From Table 5-1.

(2) Derived by multiplying the numbers of instruments of each TFP type sold by the number of usages per instrument. For tickets, the number of usages equals number of punches (e.g., 10 or 20); for passes, the breakeven values were used. (See Table 4-1.)

(3) Column 2 divided by Column 1.

(4) From Table 5-5.

(5) Column 2 divided by Column 4.

Thus, the patterns observed in the two projects differ. In Phoenix, where a two-month validity period was in effect, buyers bought an average of 32 usages per buyer during the first sale, and 41 usages per buyer during the second sale. Forty usages is the practical monthly maximum for most people. The Phoenix data imply that the average is much lower than 40: i.e., the 32 and 41 figures represent usages of discounted instruments over two months.*

*However, it should be noted that during the second month, some additional, non-discounted tickets were purchased and probably used.

6. IMPACTS ON TRANSIT RIDING

6.1 ATTRACTION OF NEW RIDERS

The results of the Austin and Phoenix Purchaser Surveys indicate that the numbers of people who were induced to ride transit because of the demonstrations were quite small. As discussed in Chapter 5, purchasers were grouped into three categories of "transit status": old riders/old buyers, old riders/new buyers, and new riders/new buyers. The previous Table 5-4 showed the following percentage breakdown of purchasers by transit status:

<u>TRANSIT STATUS</u>	<u>AUSTIN</u>		<u>PHOENIX</u>		<u>ALL SALES</u>
	<u>40% Sale</u>	<u>20% Sale</u>	<u>20% Sale</u>	<u>40% Sale</u>	
Old Riders/Old Buyers	53.0	70.0	51.0	54.0	56.0
Old Riders/New Buyers	47.0	27.5	48.0	45.0	43.0
New Riders/New Buyers	0.0	2.5	0.8	1.5	1.1
(n)	(477)	(474)	(747)	(646)	(2344)

Of the 2286 purchasers interviewed, only 1.1% were classified as new riders in the evaluation process. A new rider was defined as one who made fewer than one or more transit trips per week prior to the sale.

Table 6-1 is a refinement of Table 5-4. It presents the data in terms of numbers of persons who were new buyers and, of primary interest in this chapter, new riders. These data are presented here in order to provide an understanding of net effects in absolute terms and to assist in the interpretation of the demonstration results.

Table 6-1 shows that the second, 20% sale in Austin seemed to attract considerably more new riders than did the first, 40% sale. (The increase of 2.5% is statistically significant at the .05 level.) The second sale survey returns were carefully scrutinized to determine whether a survey procedure error could account

TABLE 6-1.

NUMBERS OF OLD AND NEW RIDERS AND BUYERS

	<u>40% Sale</u>		<u>20% Sale</u>	
	<u>No. of Buyers*</u>	<u>%</u>	<u>No. of Buyers</u>	<u>%</u>
<u>AUSTIN:</u>				
Old Riders/Old Buyers	975	53.0	715	70.0
Old Riders/New Buyers	870	47.0	280	27.5
New Riders/New Buyers	0	0.0	25	2.5
Total Buyers	<u>1,845</u>	<u>100.0</u>	<u>1,020</u>	<u>100.0</u>
Total Instruments Sold	5,541		3,258	
<u>PHOENIX:</u>				
Old Riders/Old Buyers	1,313	51.5	2,061	53.9
Old Riders/New Buyers	1,216	47.7	1,705	44.6
New Riders/New Buyers	20	0.8	57	1.5
Total Buyers	<u>2,549</u>	<u>100.0</u>	<u>3,823</u>	<u>100.0</u>
Total Instruments Sold	7,650		13,761	

*This is not the number of individuals in the survey sample; rather, it represents the estimated number of buyers participating in the sale. The estimates are accurate to two significant figures, at best.

for this phenomenon. The data appear valid: interviews were done by different interviewers on different days, and the questionnaires contain responses which are internally consistent. The most logical explanation appears to relate to the advertising campaign conducted during the second Austin sale. As discussed in Chapter 4, the second Austin campaign was designed to appeal to

certain market segments; specifically, to women, minorities and older people. Apparently, this strategy worked, although the data do not prove this point conclusively. The twelve new riders in the second sale purchaser sample included nine women and two minorities; thus, the advertising campaign may have contributed to the attraction of new riders.

In terms of the campaign's impact on buying, the socioeconomic data in Table 5-6 show increases in females, older people and minorities for both old and new buyers from the first sale to the second sale in Austin. Thus, the advertising campaign strategy of targeting specific market segments appears to have had a slight effect on buying as well as riding.

In Phoenix, as in Austin, more new riders were induced by the smaller 20% sale than by the larger 40% sale. In this case, there is no apparent reason for this phenomenon; moreover, the change in the percentage of new riders from the first sale to the second sale - 1.5% to .8% - is not statistically significant at the .05 level.

The more important conclusion is that the three-pronged experiment (reduced prices, increased advertising, more outlets) had a minimal effect on transit riding. How large a shift to transit is implied by the 1.1% new riders measured? If we assume that the 25 new Austin riders and the 77 new Phoenix riders each take two transit trips per day, the effect would have been as follows: the Austin daily ridership of about 22,000 would have increased by about .25%, and the Phoenix ridership of about 45,000 would have increased about .33% after the demonstration. However, other portions of this report, particularly the analyses of rider and purchaser attrition rates, indicate that transit riding is a dynamic process: over time, riders stop using transit and new people start to ride. Thus, the TFP sale cannot be assumed to be the sole factor in attracting these few riders.

6.2 RIDERSHIP EFFECTS DURING THE SALE

There is clear evidence from both experiments that the sales caused transit riders to ride transit more frequently during the sale periods. The most conclusive data on increased, during-sale trip rates come from the Purchaser Surveys. Table 6-2 presents Purchaser Survey trip rates from the sales in both Austin and Phoenix. As discussed earlier, these data were derived from questioning purchasers of the discounted tickets about the specific trips they had made over the last 48 hours. Some people were interviewed on the evening of their purchases; thus, their answers represent their travel patterns before they were affected by the price change. Other people were interviewed a few days after their purchases; their responses represent their travel patterns during the sale.

TABLE 6-2.

TRANSIT TRIP RATE INCREASES DURING SALE

<u>Sale</u>	<u>Date</u>	<u>Old Riders/Old Buyers</u>		<u>Old Riders/New Buyers</u>	
		<u>Rates*</u>	<u>n</u>	<u>Rates</u>	<u>n</u>
Austin 40%	Oct. 1977	During-sale trip rate data not taken			
Austin 20%	Mar. 1977	1.42 1.65	106 94	1.04 1.31	45 35
Phoenix 20%	Feb. 1978	1.72 1.87	201 159	1.65 1.67	201 147
Phoenix 40%	Oct. 1978	1.63 1.65	110 194	1.41 1.68	194 189

*The trip rate data are read as 1.42 transit trips per day before the sale and 1.65 transit trips per day during the sale.

As Table 6-2 shows, the "before" to "during" trip rate changes are small. To determine statistical significance, the data were evaluated relative to sample sizes and sample variances. Mean trip rates range from .82 per day, with a standard deviation of .72 per day, to 1.66 per day with a standard deviation of 1.37 per day. This implies that the standard error of measurement of these mean trip rates is around 1.0 trips per day and, thus, the 95% confidence limits would be on the order of 2.0 trips per day.

In sum, none of the "before" to "during" changes are as great as the related measurement errors. However, in every case, for both old and new buyers, transit trip rates increased. Thus, it seems overwhelmingly certain that the observed increases in trip-making did in fact occur. The level and direction of the increases are predictable; and the likelihood of obtaining this consistent pattern without a causal relationship is remote.

Finally, the on-board counts of riders in both cities by fare payment method further substantiate this increased trip-making effect. Complete on-board counts were taken before, during, and after the first sale in both cities. Although the Austin results were marred by some procedural errors and yielded inconclusive results, the more accurate Phoenix results show the following passenger counts:

	<u>TOTAL BOARDINGS</u>
Before-Sale Sample Counts (Jan. '78)	2790
During-Sale Sample Counts (Feb. '78)	4541
After-Sale Sample Counts (Mar. '78)	3198

These sample counts were consistent; i.e., on each occasion, the data were taken on the same randomly-selected bus runs. Thus, the passenger count changes accurately reflect changes in total ridership.

However, this short-term, induced ridership increase is not relevant to the objectives of the demonstration. The intent of the demonstration was not to effect a short-term increase by lowering prices of TFP instruments. Rather, the purpose was to increase long-term use of TFP instruments, and, consequently, to increase transit riding. Nevertheless, this short-term effect on riding is of interest from a research viewpoint, and merits the careful documentation given to it in this report.

6.3 RIDERSHIP BEHAVIOR OF RETAINED BUYERS

Table 6-3 presents the transit trip rates of Austin and Phoenix purchasers who were interviewed during the sales and then reinterviewed four months after the sales. The purchasers are categorized as old and new buyers; within each of these categories, they are separated according to whether they were or were not still buying TFP instruments at the three-month follow-up point. As stated earlier, purchasers interviewed in the Purchaser Survey were asked to recall all trips they had made, by all modes, during the preceding 48 hours. For the "before" sample, the 48 hours preceded their purchase of a discounted TFP instrument. During the Follow-Up Survey, these same persons were asked to recall all the trips they had made during the 48-hour period prior to their being called for the follow-up interview. As Table 6-3 shows, the reported transit trip rates declined from the before-sale to the after-sale time periods for each subgroup but one. The exception is a small group consisting of 12 "befores" and 16 "afters," at the far right of the Austin 20% sale data row.

Again, none of the declines shown in Table 6-3 are statistically significant. As discussed in Section 6.2, the 95% confidence limit on the mean trip rates is large: on the order of two trips per day. However, the pattern of changes argues strongly that these declines occurred. Under any

TABLE 6-3 .

TRANSIT TRIP RATE EFFECTS AFTER SALE

Sale	Date	Old Riders/Old Buyers				Old Riders/New Buyers			
		Still Buying		Stopped Buying		Still Buying		Stopped Buying	
		Rate	(n)	Rate	(n)	Rate	(n)	Rate	(n)
Austin	10/77	1.38	(80)	1.45	(31)	1.66	(43)	1.56	(61)
40%	2/78	1.20	(71)	0.87	(27)	1.07	(40)	1.07	(61)
Austin	3/78	1.25	(55)	1.57	(22)	1.33	(12)	0.88	(12)
20%	6/78	1.16	(70)	1.48	(28)	0.82	(14)	0.97	(16)
Phoenix	2/78	1.85	(109)	1.64	(33)	1.96	(39)	1.63	(74)
20%	6/78	1.70	(109)	1.06	(33)	1.93	(39)	1.29	(74)
Phoenix	10/78	1.63	(59)	1.46	(26)	1.45	(21)	1.28	(32)
40%	2/79	1.59	(59)	0.77	(26)	1.55	(21)	0.64	(32)

Note: The samples were derived as follows: All persons who were interviewed in both the Purchaser and Follow-up Purchaser Surveys were included in the "matched" sample. Then, some of these were dropped out because of incomplete trip data; i.e., one of the two days for which trip data were taken was a weekend day or a holiday. This latter point explains why some "before" samples turn out to be larger than the corresponding "after" samples.

hypothesis that TFP instrument usage increases transit riding, the probability that such a consistent pattern of decline would occur by chance is negligible.

Why do the transit trip rates decrease? For those old and new buyers who stopped buying after the sale, the reason is obvious. As Table 5-8 showed, many people stopped buying because their situations had changed; they were using transit less, and thus, had stopped buying TFP instruments. One would expect average transit trip rates for this group to decline.

No comparable argument can explain the declines in the transit trip rates of those still buying. External factors could have caused some persons to decrease their transit trip rates, but such factors should have caused others to increase their transit trips. One might argue that the declines merely reflect the slow downward trend of Austin Transit ridership; however, this does not account for the declines in Phoenix, where ridership has been increasing dramatically.

Most relevant to the demonstration are the declines exhibited by the new buyers who were still buying four months after the sale. Here the demonstration has accomplished its intended objective: to induce people to buy TFP instruments and to continue to do so for at least four months after the sales. Nevertheless, their transit trip rates declined. For those still buying, this decrease is most likely to be a statistical artifact of the survey sampling procedure known as "regression toward the mean." Because this sample consisted exclusively of riders who had just purchased a TFP instrument, it probably overrepresents riders whose transit usage is at a peak; indeed, this may be one reason why they purchased a TFP instrument. At a later point in time, measurement of this group's transit behavior is far less likely to reveal such a large proportion in a peak transit usage period. Thus, in the absence of any systematic change in their actual transit behavior, we would expect to observe a lower mean transit trip rate for this sample.

6.4 IMPACTS ON PUBLIC AWARENESS

As stated earlier in this report, a General Public Awareness Survey was conducted in Austin and Phoenix prior to the first sale and the attendant advertising campaign. In each site, the survey was readministered about three months after the second sale. The purpose of this Follow-Up Awareness Survey was to assess the demonstration's impact on the public's level of awareness of and attitudes about the transit systems in the two demonstration sites. The Follow-Up Awareness Survey also measured the public's awareness of the two advertising and promotional campaigns conducted in each site over the course of the demonstration.

Table 6-4 presents the key data from these two surveys. In Austin, the percentage of people who were aware of Austin Transit's TFP program approximately doubled from before to after the demonstration; however, this awareness did not translate to increased awareness of how to take the bus downtown, where to buy tickets and passes, or even the amount of the bus fare.

In Phoenix, the proportion of the general public which was aware of Phoenix Transit's TFP program did not change from before to after the demonstration. It should be noted, however, that this proportion was rather high at the outset, due to heavy promotion of the newly-introduced "Big 10" ticket in December 1977, immediately prior to the general Public Awareness Survey. As in Austin, the demonstration appears to have had no significant impact on the Phoenix public's knowledge of the transit system.

In both cities, prior to as well as after the two promotional campaigns, the public generally believed tickets and passes to be cheaper than paying cash fares. In fact, as discussed in Chapter 4, tickets in Austin are priced to cost the same, per trip, as the cash fare, and the passes have relatively high breakeven points, as was demonstrated in Table 4-1. In Phoenix, tickets and passes were also priced to cost the same, per trip, as the cash fare until the fare structure was revised

TABLE 6-4.

PROJECT IMPACTS ON PUBLIC AWARENESS

	<u>% of Austin Public</u>		<u>% of Phoenix Public</u>		
	<u>"Before"</u> <u>(Sept. 1977)</u>	<u>"After"</u> <u>(June 1978)</u>	<u>"Before"</u> <u>(Jan. 1978)</u>	<u>"After"</u> <u>(Feb. 1979)</u>	
Use transit in a typical week	18	19	14	11	
Know how to catch bus downtown	51	47	46	46	
Know bus fare to downtown	30	21	23	18	
Know of bus passes	33	68	58	58	
	(n=332)	(n=300)	(n=304)	(n=300)	
those who do, know:					
20-ride commuter monthly shopper student	17 13 15 6 17	39 37 42 28 25	10-ride 20-ride monthly	56 32 27	64 N.A.* 39
	(n=107)	(n=206)	(n=176)	(n=173)	
price perceptions:					
more expensive same price cheaper don't know	0 4 69 27	1 5 74 21	1 13 54 33	0 3 78 19	
	(n=86)	(n=187)	(n=132)	(n=119)	
know outlets:	24	26	53	55	
	(n=86)	(n=167)	(n=133)	(n=120)	
Aware of sales		38		22	
		(n=300)		(n=300)	
those who said yes, recalled:					
sale I only sale II only both sales neither sale		13 29 18 40		2 21 18 60	
		(n=115)		(n=68)	

*Discontinued in July 1978.

in July 1978; as discussed earlier, TFP instruments were discounted thereafter. As Table 6-4 shows, most of the Follow-Up Awareness sample correctly believed Phoenix Transit tickets and passes to cost less than paying cash fares.

Table 6-4 also shows the proportions of the Austin and Phoenix populations which were aware that the TFP instruments had been on sale during the preceding year. Of this group, a large percentage in each site did not specifically recall either sale. Of the rest, more people recalled the second, more recent sale than the first sale. In both cities, 18% said they had been aware of both sales.

Those who knew that the TFP instruments had been on sale during the preceding year were asked how they had heard of the sale or sales; Table 6-5 presents their responses. The percentages shown reflect the proportion of the respondents mentioning a given source; some respondents mentioned more than one source the table shows, television, word-of-mouth, newspaper and radio were the sources of information cited most frequently by those in both cities recalling the sale or sales. These results are unsurprising; one would expect the mass media, both electronic and print, to be most effective in conveying an advertising message to the general population. Chapter 7 will discuss the cost-effectiveness of the sale advertising in terms of the advertising media cited most frequently by purchasers of the discounted TFP instruments; as will be shown, these media differed from those cited by the general public.

TABLE 6-5.

IMPACT OF SALE MEDIA ON PUBLIC AWARENESS

<u>How Heard of TFP Sale(s)</u>	<u>Percentage of Respondents</u>	
	<u>Austin</u>	<u>Phoenix</u>
Television	50	45
Word-of-Mouth	9	14
Radio	15	12
Newspaper	19	32
Billboard	12	3
Brochure/Utility Bill Mailer*	3	6
Bus Advertising	11	15
Display at Outlet	1	5
Display at Work	1	6
Driver	1	3
Don't Remember	2	6
(n - respondents)	(109)	(66)
(n - "mentions")	(135)	(97)

*In Austin, sale brochures were available on the buses and at outlets. In Phoenix, sale brochures were enclosed with the monthly bills sent by the Water Department to approximately 300,000 households in the Phoenix metropolitan area.

7. COST-EFFECTIVENESS

7.1 COST-EFFECTIVENESS OF THE PREDEMONSTRATION TFP PROGRAMS

This section will examine the costs and benefits of the ongoing TFP programs, as they existed prior to the demonstration, in Austin and Phoenix. The TFP program in Austin did not change appreciably over the course of the demonstration. However, as discussed earlier in this report, the TFP program in Phoenix did undergo a number of changes during the demonstration period. These changes include: increased promotion, the introduction of the "Big 10" ticket, the revisions to the Phoenix Transit fare structure, and the discontinuation of the 20-ride ticket. The cost-effectiveness analysis which follows focuses on the pre-demonstration TFP program; however, the impacts of the above factors are noted where appropriate.

7.1.1 Costs

The approximate monthly costs of the TFP program in Austin, i.e., the program as it exists independent of the demonstration project, are as follows:

	<u>Austin Monthly Cost</u>
Labor	\$960
Ticket Printing	70
Other Direct Costs	<u>200</u>
	\$1,230

Two sets of estimated costs associated with the ongoing TFP program in Phoenix are shown below. The first set represents the costs of the program as it existed prior to the demonstration; the second set of figures represents the changes in the program since then.

	<u>Phoenix Monthly Cost</u>	
	<u>Predemonstration</u>	<u>Current</u>
Labor	\$585	\$640
Ticket Printing	250	425
Other Direct Costs	<u>40</u>	<u>40</u>
	\$875	\$1,105

These estimates by Crain & Associates are based on the details of the ongoing TFP program activities, using actual Austin and Phoenix prices. Labor costs represent the costs of staff who manage the programs; i.e., they provide TFP instruments to outlets, keep records, collect sales data and revenue from outlets, solve day-to-day problems, and summarize overall results. Ticket printing costs are based on the 1978 levels of ticket sales and consequent ticket printing needs. Other direct costs include such miscellaneous items as occasional printing of promotional materials, copying and telephone costs, and transportation expenses.

7.1.2 Benefits

Transit fare prepayment programs are generally alleged to offer benefits to the transit operator, to the riders who use the TFP instruments, and to the general public. In Austin and Phoenix, only some of these benefits are evident. Table 7-1 lists the categories of these benefits and indicates where the benefits apply (noted by plus), where no benefits or disbenefits are obtained (noted by a zero), and where disbenefits occur (noted by a minus). This analysis represents conditions immediately prior to the demonstration.

No clear operator benefits can be discerned in either case. Most tickets and passes are sold through outlets, which reimburse the transit systems for their TFP sales well after the instruments have been sold and used by riders. In Austin, about one-fourth of the tickets and passes are sold through Austin Transit; this money does arrive into the transit system treasury before the TFP instruments are used. In general, however, the TFP sales represent a negative cash flow effect. The same is true of the Phoenix program: roughly 10% of the tickets and passes are sold through the bus terminal, which deposits cash from TFP sales in the bank on

TABLE 7-1. PREDEMONSTRATION TFP PROGRAM BENEFITS

	<u>Austin</u>	<u>Phoenix</u>
Operator Benefits		
Cash flow advantages	(-)	(-)
Reduced boarding time	(-)	(-)*
Cash management	(0)	(0)
Rider Benefits		
Monetary benefits	(0)	(0)
Convenience	(+)	(+)
Community Benefits		
Mode shift	(0)	(0)
Human service agency benefits	(+)	(+)

*The introduction of the 10-ride ticket book in December 1977 has changed the minus to a zero. (See text.)

a daily basis. Most TFP instrument revenues are received from the outlets weeks, or even months, after the instruments are sold.

Both transit systems have exact fare plans; therefore, little time is lost in the cash fare payment process. In Austin, the 20-ride punch tickets tend to slow boarding times slightly, while passes speed boarding times slightly. Since 20-ride ticket sales in Austin greatly exceed pass sales, the overall effect of TFP instruments on boarding times is negative, although slight, in Austin. The above applied to the Phoenix system before the demonstration; however, the replacement of the 20-ride punch ticket by the 10-ride ticket book has reduced boarding times, since the driver simply collects the 10-ride ticket without punching it.

The TFP programs in both cities have few positive effects on cash management costs. Of course, the amount of farebox cash that must be handled is reduced by a small amount; however, this is offset by the cost of the separate operation of handling the cash and checks returned by outlets in payment for TFP instruments sold.

TFP instruments in Austin and Phoenix do appear to offer certain benefits to riders. Prior to the July 1977 fare change, there were no monetary benefits, except to some pass users who used them for a large number of trips per month. (The high breakeven points were discussed in Section 5-1.) The low number of passes sold per month and the low number of trips these pass users made over and above the breakeven levels argue that the rider benefits even to this group were extremely small. As stated earlier, TFP instruments have been sold at a small (6%) permanent discount since July 1978. Thus, the revised fare structure offers considerable monetary benefits to riders. Although the analysis presented here does not encompass the effects of this permanent discount, the latter appears to be increasing TFP instrument usage; it may be enhancing ridership. It is not known whether or not this new monetary benefit to riders is being offset by operator revenue losses.

Prior to the demonstrations, however, the primary benefit offered by TFP instruments to transit riders in both cities appeared to be convenience. During the Purchaser Surveys, persons asked why they used TFP instruments most frequently responded with a convenience-related reason. The value of this convenience cannot be measured, but it has been noted with a plus in Table 7-1.

Two categories have been included under community benefits: mode shift and human service agency benefits. With regard to mode shift, a zero is shown on the table. If the TFP instruments induced a shift from automobiles to transit, particularly in peak periods, there would be some advantages in reduced congestion, pollution, accident rates, and so forth. However, neither project has furnished any evidence that TFP instruments induce anyone to use transit: even when the instruments were discounted, only a handful of new riders were attracted to transit. TFP instruments sold at regular prices, then, must have an even smaller effect on mode shift. Moreover, when some people were induced to use the instruments on a continuing basis, their transit trip rates declined. While TFP purchasing probably did not cause

these declines in transit riding, it clearly did not cause increases in transit riding either.

One might argue that the existence of TFP instruments and the convenience that they provide to some riders is responsible for some retention of existing ridership. This demonstration offers no clear evidence relative to this contention. However, the 6% monthly attrition rate of regular TFP instrument users and the decreasing transit trip rates of this group argue against the rider-retention hypothesis.

Finally, there does seem to be a very real community benefit in the provision of tickets to human service agencies in both cities. In the Bulk Buyer Surveys, the agencies described the various ways they use tickets to the advantage of their clients. For example, a halfway house for retarded adults in Austin uses the instruments as a means of introducing their clients to public transportation, thereby training them to be independent and furnishing them with basic mobility. Purchasing prepaid tickets in bulk constitutes an effective means of earmarking a portion of an agency's resources for client transportation.

In summary, we have identified two areas of benefits as the sole benefits that can logically be attributed to the predemonstration TFP programs in Austin and Phoenix: convenience to riders and a social welfare benefit that indirectly benefits the entire society.

7.1.3 Cost-Effectiveness Assessment

The preceding benefits of the predemonstration TFP programs are not readily quantifiable; thus, benefits and costs cannot be directly compared. Instead, the cost-effectiveness of the programs will be assessed using the ratio of TFP instrument usage to cost. The intent of each TFP program is to increase usage of TFP instruments; therefore, we will try to measure the cost of doing this in terms of the cost in cents for each TFP instrument usage.

Immediately prior to the first demonstration, the average monthly usages of tickets and passes in Austin were as follows:

<u>Instrument</u>	<u>Monthly Sales</u>	<u>Usages per Instrument</u>	<u>Total</u>
20-Ride Ticket	1,000	14.5	14,500
Monthly Pass	40	67	2,680
Commuter Pass	135	33	4,455
Shopper Pass	2	40	80
			<u>21,715</u>

The number of usages per 20-ride ticket assumes that half the tickets are used during peak periods and half during off-peak periods. This is consistent with the peak/off-peak split of Austin ridership. The pass usage figures are based on the breakeven values cited in Table 4-1.

In Phoenix, the comparable figures are as follows:

<u>Instrument</u>	<u>Monthly Sales</u>	<u>Usages per Instrument</u>	<u>Total</u>
10-Ride Equivalent	4,200	10.0	42,000
Monthly Pass	60	45.0 (est.)	<u>2,700</u>
			44,700

The 10-ride equivalents include regular and express 10-ride tickets, and both zone 1 and zone 2 20-ride tickets. The pass usages per instrument apply to non-express travel.

The monthly costs of the predemonstration TFP programs incurred by the operator, over and above the cost of providing service, were given in the preceding section: \$1230 in Austin and \$875 in Phoenix. Thus, the cost-effectiveness measures for the two programs are as follows:

Cost per TFP Usage

Austin	5½¢
Phoenix	2 ¢

As noted above, both of these computations reflect conditions just prior to each city's first sale. Subsequently, the TFP program in Phoenix was expanded, and costs increased to \$1105 per month. However, TFP sales and instrument usages also increased

rather dramatically due to the simultaneous effects of increasing TFP program activities and conducting the demonstration; these effects cannot be separated. The net effect was an approximate doubling of TFP usage after the second sale, accompanied by a rise in TFP program costs of only about 25%. Thus, the program costs per TFP usage fell to approximately 1½¢.

Given these cost-effectiveness measures, the costs and benefits of the two TFP programs can be viewed as follows. In Austin, the cost per TFP usage is about one-third of the off-peak cash fare and about one-sixth of the peak period cash fare. In Phoenix, the cost per TFP usage was about one-twentieth of the regular cash fare prior to the demonstration, and less afterwards. The TFP program benefits in both cities are those convenience factors identified earlier. (Again, subsequent to the demonstration, TFP instruments do offer monetary benefits to Phoenix riders.)

The authors of this report have no basis to comment on these cost-effectiveness measures; we have merely established these values, 5½¢ and 2¢ per TFP usage, to assist in evaluating the cost-effectiveness of the demonstration projects.

7.2 COST-EFFECTIVENESS OF THE DEMONSTRATIONS

7.2.1 Costs

The estimated costs of the Austin and Phoenix demonstrations, over and above the costs of administering the regular TFP programs, were:

	<u>Austin</u>	<u>Phoenix</u>
Advertising/Promotion	\$59,960	\$ 79,300
Operator Costs	17,700	17,500
Foregone Revenues	7,000	31,000
	<u>\$81,660</u>	<u>\$127,800</u>

The promotional costs represent the fair market value (discussed in Section 4.3) rather than the actual costs of the advertising, some of which was obtained at reduced prices. The figures shown also include the promotional subcontractors' fees. (See Table 4-2.)

The operator costs are Crain & Associates estimates rather than the amounts budgeted in the demonstration grant contracts. Many of the budgeted costs on these projects were incurred by the requirements of a demonstration--e.g., progress reports, data collection activities, etc.--and would not be required if another transit property were to repeat this promotional project for their own purposes. Such costs have been excluded from the above estimates. The details of these estimates of operator costs, using Austin and Phoenix prices, are as follows:

	<u>Austin</u>	<u>Phoenix</u>
<u>Labor</u>	\$13,600	\$10,400
<u>Other Direct Costs:</u>		
Sale Tickets	\$1,509	\$6,651
Telephone	1,305	173
Auto Expense	684	126
Miscellaneous*	597	100
	4,100	7,100
TOTAL OPERATOR COSTS:	\$17,700	\$17,500

*Includes reproduction, postage, etc.

The foregone revenue estimates are less accurate than those of advertising/promotion and operator costs: since the precise number of trips that would have been taken, had there been no sales, is unknown, the computation of foregone revenues is necessarily inexact, and is based on a series of assumptions. For both cities, these computations are shown in Table 7-2. The rather complex computational procedure used to prepare Table 7-2 consisted of the following steps:

First, for each sale, the total number of each type of discounted instrument sold was distributed over the three categories of buyers in the proportions represented by each buyer category. For example: during the Phoenix 20% sale, old riders/old buyers constituted 41.5% of all purchasers; therefore, 41.5% of all 10-ride tickets, 20-ride tickets, and monthly passes sold were allocated to the old riders/old buyers group. Thus, the analysis assumes that the breakdown of the types of instruments purchased was roughly comparable for each of the three categories of buyers.

TABLE 7-2. FOREGONE REVENUE COMPUTATION

GROUP 1:	AUSTIN 40% SALE			AUSTIN 20% SALE		
Old Riders/Old Buyers	# Sold	Discount	Foregone* Revenues	# Sold	Discount	Foregone Revenues
20-Ride Ticket	2,739	\$1.00	\$2,739	1,808	\$0.50	\$ 904
Monthly Pass	59	6.00	354	28	3.00	84
Commuter Pass	130	4.00	520	128	2.00	256
Shopper Pass	9	3.00	27	3	2.00	6
TOTAL	2,937		\$3,640	1,967		\$1,250
Old Riders/New Buyers						
20-Ride Ticket	2,428	\$1.00	\$2,428	654	\$0.50	\$ 327
Monthly Pass	53	6.00	318	10	3.00	30
Commuter Pass	115	4.00	460	46	2.00	92
Shopper Pass	8	3.00	24	1	2.00	2
TOTAL	2,604		\$3,230	711		\$ 451
GROUP 2:	# Sold	Price	Induced Revenues	# Sold	Price	Induced* Revenues
Old Riders/Old Buyers						
20-Ride Ticket				289	\$ 2.50	\$ 723
Monthly Pass				4	12.00	48
Commuter Pass				20	8.00	160
Shopper Pass				1	4.00	4
TOTAL				314		\$ 935
Old Riders/New Buyers						
20-Ride Ticket		(Because no during-sale trip		170	\$ 2.50	\$ 425
Monthly Pass		rate data were obtained		3	12.00	36
Commuter Pass		during the Austin 40% sale,		12	8.00	96
Shopper Pass		the induced revenues were		0	4.00	0
TOTAL		not computed for this sale.)		185		\$ 557
New Riders/New Buyers						
20-Ride Ticket				74	\$ 2.50	\$ 185
Monthly Pass				1	12.00	12
Commuter Pass				6	8.00	48
Shopper Pass				0	4.00	0
TOTAL				81		245
GROUP 1:	PHOENIX 20% SALE			PHOENIX 40% SALE		
Old Riders/Old Buyers	# Sold	Average Discount	Foregone * Revenues	# Sold	Average Discount	Foregone Revenues
10-Ride Ticket	2,636	\$.95	\$2,504	6,723 **	\$ 1.58	\$10,622
20-Ride Ticket	1,805	1.87	3,375	---	---	---
Monthly Pass	76	4.00	304	549	7.25	3,980
TOTAL	4,517		\$6,183	7,272		\$14,602
Old Riders/New Buyers						
10-Ride Ticket	2,635	\$.95	\$2,503	4,768	\$ 1.58	\$ 7,533
20-Ride Ticket	1,804	1.87	3,373	---	---	---
Monthly Pass	76	4.00	304	389	7.25	2,820
TOTAL	4,515		\$6,180	5,157		\$10,353
GROUP 2:	# Sold	Average Price	Induced * Revenues	# Sold	Average Price	Induced Revenues
Old Riders/Old Buyers						
10-Ride Ticket	237	\$ 2.91	\$ 690	134	\$ 2.38	\$ 319
20-Ride Ticket	162	5.37	870	---	---	---
Monthly Pass	7	15.08	106	11	10.75	118
TOTAL	406		\$1,666	145		\$ 437
Old Riders/New Buyers						
10-Ride Ticket	26	\$ 2.91	\$ 76	906	\$ 2.38	\$ ---
20-Ride Ticket	18	5.37	97	---	---	---
Monthly Pass	1	15.08	15	74	10.75	---
TOTAL	45		\$ 188	980		\$ ---
New Riders/New Buyers						
10-Ride Ticket	45	\$ 2.91	\$ 131	191	\$ 2.38	\$ 455
20-Ride Ticket	31	5.37	166	---	---	---
Monthly Pass	1	15.08	15	16	10.75	172
TOTAL	77		\$ 312	207		\$ 627

*Rounded to the nearest dollar

**The 20-ride ticket was discontinued prior to the second sale.

Second, the discounted TFP instruments sold during each sale were divided into two groups:

1. Purchases representing trips that would have occurred, regardless of the sale, and
2. Purchases representing trips that were induced by the sale.

We concluded earlier in this report that transit riding increased during each sale period, based upon the foregoing analysis of purchasers' trip rates as well as the fare payment count data taken in both sites. Thus, it is assumed that a certain number of transit trips would have been taken regardless of the sales; an additional number of transit trips were induced by the sales. To allocate the discounted TFP instruments to the two groups, then, the observed increases in purchaser's transit trip rates--from before to during each sale--were applied to the sales volumes of TFP instruments. For example: during the Phoenix 20% sale, trip rates of old buyers/old riders increased by 9%. Consequently, the discounted TFP instruments sold to old buyers/old riders during the 20% sale were allocated to each group such that the number of instruments in group 2 (representing trips that were induced by the sale) equals 9% of the number of instruments in group 1 (representing trips that would have occurred regardless of the sale).

Note that all purchases by new riders have been allocated to group 2; for the purposes of this analysis, we have assumed that TFP sales to new riders constitute revenues obtained because of the demonstration. Of course, it is possible that some of these people would have started riding even if there had been no sales; if so, the estimate of new revenues is slightly overstated.

Third, the purchases of each type of discounted instrument allocated to group 1 were multiplied times the average discount for that instrument type. The discount represents the foregone revenue on purchases that would have occurred regardless of the sale; for Phoenix, the average discount for each instrument type

was computed by weighting the discount on each version of the instrument type (e.g., regular 10-ride ticket, express 10-ride ticket, etc.) by the sales volumes of each version of the instrument type.* (The reader is referred back to Table 3-2.) Similarly, the purchases of each type of discounted instrument allocated to group 2 were multiplied times the average discounted price of that instrument type, on the assumption that these purchases constituted new revenues, induced by the sales.

Finally, the foregone revenues were subtracted from the new revenues. For Austin, the estimated foregone revenues for both round to \$7,000. It should be noted, however, that no during-sale trip data were taken during the first, 40% sale in Austin. This foregone revenue computation assumes that old riders/old buyers and old riders/new buyers would have taken the same number of trips regardless of the sales, and that the net loss to Austin Transit was the sum of the discounts on all of the instruments sold, less the new revenues from purchases made by the handful of new riders/new buyers obtained during the demonstration. Therefore, the Austin estimate is probably somewhat overstated.

For Phoenix, the estimated foregone revenues rounded to \$31,000. It should be recalled that sales volumes of discounted TFP instruments in Phoenix far exceeded Austin sales volumes for both sales. Table 7-3 summarizes the above computations.

TABLE 7-3. SUMMARY OF FOREGONE REVENUES (in dollars)

	<u>Group 1 Foregone Revenues</u>	<u>Group 2 Induced Revenues</u>	<u>Net Gain/Loss</u>
Austin 40%	(6,870)	0	(6,870)
Austin 20%	(1,701)	1,737	36
TOTAL	(8,571)	1,737	(6,834)**
Phoenix 20%	(12,364)	2,165	(10,199)
Phoenix 40%	(24,957)	4,016	(20,941)
TOTAL	(34,311)	6,181	(31,140)**

*For Austin, there was no need to compute an average discount or price for each instrument type, since only one version of each type was sold.

**Totals have been rounded to \$7,000 and \$30,000.

7.2.2 Demonstration Impacts

The costs of the Austin and Phoenix demonstration projects have been estimated at \$81,660 and \$127,800, respectively.

Both projects have attained three desired impacts:

1. A number of new buyers have been introduced to TFP instruments, and some of them have continued to buy after the sales;
2. A handful of new riders were attracted to transit; and
3. The level of public awareness of the TFP programs in both cities was raised slightly (more so in Austin than in Phoenix).

The long-term positive effects of the first impact, the attraction of riders to TFP instruments, appear to be restricted to rider benefits in the form of convenience and, in some cases, monetary savings. As documented earlier in this report, there is no evidence that the use of TFP instruments translates to a permanent increase in transit riding. While the latter did increase somewhat during the discount periods, this temporary effect cannot be associated with any long-term operator or public benefits.

While the second impact, attraction of new riders to transit, does constitute a positive public benefit, its impact is negligible, due to the low number of travelers who were converted to transit during the two demonstrations. Table 6-1 showed that approximately 100 new riders were obtained during the four sales; however, some of these riders (possibly the majority) would probably have started to ride transit anyway, and cannot be attributed to the demonstrations.

Finally, the third impact--the increased public awareness of TFP programs--did not translate to increased riding, nor did public awareness of bus routes and fares increase. The following section examines the cost-effectiveness of the advertising campaigns conducted in the two sites in greater detail.

7.3 COST-EFFECTIVENESS OF THE ADVERTISING PROGRAMS

Each sale was preceded by an intensive, well-coordinated promotional campaign utilizing a variety of advertising media. During the Purchaser Surveys, buyers of the discounted TFP instruments were asked how they had heard about the sales; Table 7-4 shows the number of times each information source was cited, as well as the fair market value of each type of advertising. Because the campaigns were well-coordinated--i.e., the messages conveyed by the various media were designed to reinforce each other--the effects of each type of advertising cannot be isolated with any degree of precision.

In both cities, bus advertising appears to rank highest in terms of cost-effectiveness or "mentions" per advertising dollar. This seems logical: regular transit riders constitute the primary target market for prepaid tickets and passes, and bust cards are a relatively inexpensive advertising medium. Beyond this observation, however, the relative cost-effectiveness of the other media cannot be rank-ordered, for the following reasons.

First, most advertising agencies argue for a mix of advertising modes to communicate a message; some media serve to reinforce other media that are believed to be primary channels for the message. In both cities, the billboards were intended to play that supportive role.

Second, according to market researchers, people often claim that they learned of a product on television, even when television was not used in the advertising program. Conversely, people who hear an advertisement over the radio often attribute it to another source. These tendencies to overstate the effects of television and understate those of radio are denoted by bias arrows in Table 7-4.

None of the four campaigns attracted new riders to transit or increased the level of public awareness of transit significantly;

TABLE 7-4. COST-EFFECTIVENESS OF ADVERTISING

AUSTIN

How Did You Hear?	NUMBER OF MENTIONS ⁽¹⁾			Cost ⁽³⁾	Bias ⁽⁴⁾
	40% Sale	20% Sale	Total ⁽²⁾		
Television	180	121	301	\$27,042	↑
Word-of-Mouth	115	120	235	---	---
Radio	36	34	70	10,536	↓
Newspaper	130	50	180	4,015	---
Billboard	39	14	53	6,499	---
Brochure	156	72	228	4,995	---
Bus Advertising	86	65	151	735	---
Display at Outlet	19	27	46	661	---
Driver	2	0	2	---	---
Other/Don't Remember	<u>12</u>	<u>9</u>	<u>21</u>	<u>---</u>	<u>---</u>
TOTAL	775	512	1,287	\$54,483	

PHOENIX

How Did You Hear?	NUMBER OF MENTIONS ⁽¹⁾			Cost ⁽³⁾	Bias ⁽⁴⁾
	20% Sale	40% Sale	Total ⁽²⁾		
Television	86	57	143	\$22,440	↑
Word-of-Mouth	97	62	159	---	---
Radio	20	18	38	21,904	↓
Newspaper	65	58	123	11,255	---
Billboard	6	--	6	6,650	---
Utility Bill Mailer	67	14	81	8,040	---
Bus Advertising	136	62	198	1,659	---
Display at Outlet	20	36	56	1,200	---
Driver	---	5	5	---	---
Other/Don't Remember	<u>8</u>	<u>1</u>	<u>9</u>	<u>---</u>	<u>---</u>
TOTAL	505	313	818	\$73,148	

- (1) Some people mentioned more than one way that they had heard about the sale.
- (2) The total "mentions" from the two sales have been added together, although the sample sized differed slightly. While there may be some error associated with this procedure, it is believed to be small, and not critical to the final conditions.
- (3) Fair market value. (See Section 4.3 of this report.)
- (4) Media experts hold that people systematically understate and overstate the effects of certain media on their awareness of promotional campaigns. The arrows indicate the direction of this systematic bias.

the main effect of the campaigns was to induce existing riders to buy TFP instruments. This finding suggests that a transit operator could achieve comparable results with a scaled-down campaign, one which emphasized bus advertising while relying less heavily on the costlier mass media, such as television.

7.4 IMPACTS OF TFP SALES OUTLETS

The evaluation attempted to measure the effect of distance to outlet on purchasing behavior in both sites. One would logically assume that the further out of his or her way a person had to travel in order to purchase a ticket or pass, the lower the probability that the person would purchase a TFP instrument.

However, we were unable to make this correlation. Table 7-5 shows the responses of old and new buyers to the question: "How far out of your way did you have to go to buy this pass?" If a correlation existed, one would expect old buyers to live closer to outlets than new buyers. This does not appear to be the case. As the data show, only one pair of entries in the table differs by a statistically significant margin. A correlation is suggested by the fact that in both cities, the 40% discount sale attracted more people who had to travel longer distance to outlets than did the 20% sale. However, the net results are inconclusive and suggest that the correlation, if it exists, is weak.

The second set of data pertaining to this issue concerns the volume of TFP instruments sold by a major Phoenix bank. Since mid-1974, Valley National Bank has sold tickets and passes at a number of its branch banks. Just prior to the first TFP sale, Valley National Bank expanded the number of branches selling TFP instruments from 24 to 52. No other new outlets were opened in the site. If the hypothesis that an increase in the number of outlets causes increases in TFP sales is correct,

TABLE 7-5.

OLD BUYERS/NEW BUYERS VS. DISTANCE TO OUTLET (row percentages)

	<u>Less than 4 blocks</u>	<u>4 blocks to 1 mile</u>	<u>1 to 3 miles</u>	<u>Over 3 miles</u>	<u>Don't know</u>	<u>(n)</u>
<u>AUSTIN:</u>						
<u>40% Sale:</u>						
Old Buyers	68	15	7	8	2	(197)
New Buyers	58	13	17	10	2	(180)
<u>20% Sale:</u>						
Old Buyers	74	9	12	4	2	(218)
New Buyers	78	11	8	3	0	(90)
<u>PHOENIX:</u>						
	<u>0-4 blocks</u>	<u>5 blocks to 1 mile</u>	<u>Over 1 mile</u>	<u>Don't know</u>	<u>(n)</u>	
<u>20% Sale:</u>						
Old Buyers	89.5	6.5	4.0	0.0	(200)	
New Buyers	82.9	7.3	8.8	1.0	(205)	
<u>40% Sale:</u>						
Old Buyers	69.1	8.2	21.8	1.0	(110)	
New Buyers	69.4	11.2	19.4	0.0	(98)	

*Statistically significant at the .05 level.

Valley National Bank should have begun to sell proportionately more instruments than the other outlets after the outlet expansion in January 1978.

This, in fact, proved to be the case: the relative share of instruments sold (in dollars) through the Valley National Bank outlets did increase after the new outlets were added, although the change as measured is not statistically significant. This increase in market share is documented below.

	<u>Valley National Bank Market Share</u>
Last half of 1977	22.7%
———Outlet Expansion———	
First half of 1978	34.1%
Last half of 1978	25.2%

However, although the dollar value of TFP consignments to Valley National Bank increased in early 1978, a major part of this increase merely reflects the increase in inventory levels required by the addition of 28 new outlets. Moreover, the monthly consignment data by outlet fluctuate sufficiently that detection of changes in the mean market share value is difficult: the standard deviation of the month-to-month variation was 6% in 1977, 15% in 1978. Thus, although the above data imply a small increase in market share, this cannot be proved conclusively.

In summary: although selling TFP instruments through outlets is a logical element of a marketing program, these demonstrations did not prove that expansion of the existing TFP outlet networks in Austin and Phoenix caused increases in TFP sales volumes.

8. SUMMARY AND CONCLUSIONS

8.1 INTRODUCTION

The findings yielded by the two demonstrations are conclusive and internally consistent within each project and between projects. This chapter summarizes the key characteristics of the transit fare prepayment programs in Austin and Phoenix prior to the demonstrations*; then, data addressing the demonstration issues are presented and interpreted. The chapter concludes with an overview of the implications for transferability of the findings documented in this report.

8.2 THE TRANSIT FARE PREPAYMENT PROGRAMS IN AUSTIN AND PHOENIX

Prior to the demonstrations, approximately 9% of Austin Transit's ridership and 15% of Phoenix Transit's ridership used prepaid tickets or passes (excluding transfer trips). Prepaid tickets and passes are bought and used by all segments of the Austin and Phoenix ridership; however, a number of factors influence an individual's propensity to purchase them. The most significant of these factors is frequency of transit usage; the correlation between purchasing and transit trip frequency exists for users of both passes and tickets, even when tickets are not price-discounted relative to cash fares. In addition, seven socioeconomic characteristics distinguish purchasers from non-purchasers. Specifically, within the purchaser group there tend to be more people who are female, white, over 44 years of age, employed, married, in the \$15,000 to \$30,000 income range, and educated at the high school level or above. However, it should be noted that although there are significant differences between buyers and non-buyers, buyers

*Both programs have undergone significant changes since then; these changes are documented in Chapter 3.

are well represented in every market segment; TFP instruments are bought and used by persons with varying trip rates and of all socioeconomic backgrounds. Tickets are used more often than passes by a factor of 2 to 1 in Austin, 14 to 1 in Phoenix.

The purchasing behavior of transit users in both sites appears to be extremely rational, from an economic standpoint. The split in usage between tickets and passes is entirely consistent with the distribution of riders' trip rates; that is, the split is proportional to the fraction of riders whose trip rates are above the breakeven value for passes. Since few ride frequently enough to save money on passes, and since neither tickets nor passes were discounted prior to the demonstrations, most users of TFP instruments correctly perceive their value as being convenience. The small fraction of riders using transit fare prepayment instruments in both sites is consistent with this perception.

Most transit riders who do not use tickets or passes fall into one of two categories. The larger of these is comprised of riders who lack either adequate information regarding the instruments or sufficient motivation to purchase them. The second category consists of people who do not ride the bus frequently enough to warrant purchasing tickets or passes; transit fare prepayment instruments do not make economic sense for this group.

TFP instrument users in both cities stop using the TFP instruments at a rate of 6% per month; changes in their personal circumstances and travel patterns appear to constitute the primary reason why they stop buying. At the same time, new buyers enter the transit system. The implication of the 6% attrition rate is clear: a transit system must market its TFP program on a continual basis in order to maintain a constant level of purchasers.

Public awareness of transit was low prior to the demonstrations: 18% of Austin residents and 14% of Phoenix residents used their city's transit service in a typical week. Less than one-third of the population in each city knew how to take

the bus downtown from their homes. The fraction of the Austin public that knew about prepaid tickets was extremely low; the corresponding proportion in Phoenix was somewhat higher, due to the very heavy promotion of a new instrument type, the "Big 10" ticket, prior to the start of the demonstration.

8.3 IMPACT OF THE DEMONSTRATIONS ON TFP SALES

Sales volumes of TFP instruments increased dramatically during the four sale periods. In Austin, the 40% sale produced a 350% sales increase, and the 20% sale boosted sales by 175%. In Phoenix, sales rose by 125% during the 20% sale and by 270% during the 40% sale. These sales increases are proportional to the levels of discount on the TFP instruments. Thus, a price elasticity coefficient of approximately -7.5 is implied in Austin; -6.5 in Phoenix.

Ticket sales exceeded pass sales during the four sale periods, for several reasons. First, analysis of the transit trip rates of riders indicates that only a fraction of riders could profitably use the calendar passes, even at the substantial discounts offered. The relative proportions of persons who bought discounted tickets and passes are generally consistent with the TFP pricing structure and with riders' presale transit behavior.

Additional factors influenced purchasing behavior in both cities during the sale periods. In Austin, the tickets had no expiration date and therefore could be used up more gradually than the passes, which were valid for one month. Only scattered instances of large-scale purchasing - i.e., individual purchases of 20 or more tickets - were reported during the two sales. However, one-third to one-half of all discounted tickets sold during the sale periods were used in subsequent, non-sale months.

In Phoenix, analysis of sales trends prior to the demonstration suggests that the monthly pass was underpurchased relative to its economic value to frequent transit riders;

this is well explained by the marketing procedures employed prior to the sales. Passes were not advertised by Phoenix Transit prior to the demonstration, nor were they available at most bank outlets. During the two sales, the advertising and the reduced prices triggered a massive increase in pass sales and usage relative to the inappropriate low predemonstration volume of pass sales.

All four sales attracted sizable numbers of old and new buyers. The socioeconomic profiles of these two groups do not differ significantly, indicating that the socioeconomic and travel characteristics that normally determine purchasing behavior were also in effect when prices of TFP instruments were discounted. The transit trip rates of the new buyers fell between those of the old buyers and transit riders who did not respond to the sale. Thus, the sales allowed the transit operator to increase penetration of the existing market for TFP instruments.

In terms of the numbers of new buyers attracted to the sales, there were indications that market saturation had begun to occur by the second sale period. In both cities, the ratio of new buyers to old buyers was lower in the second sales, even though the order of sales was reversed between the two cities. This implies that at the TFP sales levels in Austin and Phoenix, the 20% discount level will draw about as many old buyers as new. Raising the discount to 40% will draw more new buyers, but probably not enough more to merit the increased foregone revenue costs. It is quite possible that the optimum discount level, balancing numbers of new buyers against foregone revenue costs, might be lower than 20%.

The post-sale attrition rate of new buyers was far higher than that of old buyers: after each sale, there was an immediate 50% drop in the number of these first-time purchasers who continued to buy TFP instruments at regular, undiscounted prices. Thereafter, this group exhibited an attrition rate of 11%, twice the "natural" attrition rate of 6% exhibited by old buyers. However, this pattern of attrition of new

buyers is such that one year after they began to purchase TFP instruments at a discount, approximately 15 % were still purchasing undiscounted tickets and passes. This is clearly the most significant positive finding yielded by the demonstrations.

8.4 IMPACT OF THE DEMONSTRATIONS ON TRANSIT RIDING

The demonstrations attracted only a few new transit riders. About 100 new riders bought discounted tickets during the two demonstrations. Assuming that none of these people would have started to ride transit had there been no demonstrations, an unlikely assumption, the demonstrations' long-term impact on transit riding consisted of a .25% ridership increase in Austin, and a .33% ridership increase in Phoenix. During the two sale periods, transit riding did increase; however, this effect was temporary and, therefore, cannot be regarded as a positive finding relative to the demonstration objectives. Furthermore, the transit trip rates of new buyers who were still buying TFP instruments three months after the sales did not increase from before to after the sales; this finding contradicts the hypothesis that the purchase of a prepaid ticket or pass will generate an increase in transit riding.

In sum, while the demonstration appears to have had a short-term impact on transit riding during the two sale periods, it has had essentially no long-term impact on transit riding.

8.5 COST-EFFECTIVENESS

The cost of administering the predemonstration TFP programs was about 5½¢ per TFP instrument usage in Austin, 2¢ per usage in Phoenix. Only two clear benefits can be attributed to the programs:

convenience to riders, and convenience to the human service agencies which redistribute bus tickets to their clients.

TFP programs are commonly held to offer two other benefits: improved cash flow and reduced cash management problems. The TFP programs in Austin and Phoenix offer neither advantage: the sale of TFP instruments through numerous voluntary outlets, which are geographically dispersed, increases the labor and administrative costs of the program while delaying the receipt of cash from the outlets.

The main effect of the demonstrations was to attract existing transit riders to TFP instruments. Other minor benefits associated with the demonstrations were the attraction of a handful of new riders, and a slight increase in public awareness of transit. The most cost-effective advertising modes proved to be those which targeted regular transit riders and ticket/pass purchasers; e.g., advertising on buses and at the TFP outlets. This finding suggests that a transit operator could achieve comparable results--in terms of attracting existing riders to transit--with a scaled-down advertising campaign, one which emphasized bus advertising while relying less heavily on the costlier mass media.

With regard to TFP sales outlets: although selling TFP instruments through outlets is a logical element of a marketing program, these demonstrations did not prove that expansion of the existing TFP outlet networks in Austin and Phoenix caused increases in TFP sales volumes.

8.6 IMPLICATIONS FOR TRANSFERABILITY

Several broader lessons concerning transit fare prepayment instruments and programs have emerged from the Austin and Phoenix demonstrations. These are:

1. A small fraction of the transit ridership in the two cities purchases TFP instruments because they view them as convenient. However, the vast majority of riders will buy them only for economic reasons. Thus, if the instruments are sold at a discount--i.e., if the cost per ride is lower than the cash fare - transit riders will be induced to purchase them. However, most of these new buyers will drop out of the TFP program if the prices revert to the presale levels.
2. The results of these demonstrations strongly suggest that increased sales of TFP instruments do not lead to increases in transit riding. Although it is possible that the availability of TFP instruments is responsible for some retention of transit ridership, neither demonstration has produced evidence in support of this contention.
3. The demonstrations were effective in focusing attention of the riders and of the general public on public transportation and on the TFP programs in both sites. A significant proportion of transit riders in both cities were converted to the practice of buying TFP instruments, due to the demonstrations. Where a transit company desires this spotlighting of its services, this approach--advertising combined with short-term price reductions-- would probably be effective. However, these results suggest that this focusing of attention may have

been obtainable at lower costs than those incurred in Austin and Phoenix. The desired results might be achievable in a single sale, accompanied by a less costly advertising campaign. Moreover, the 20% discount might be sufficient as a means of obtaining publicity for the transit system and of introducing a sizable portion of transit riders to transit fare prepayment.

4. The results of these projects cast some doubt on the value of TFP programs as they are currently designed; i.e., they may not generate sufficient benefits to the rider, to the transit operator, or to the general public (by improving transit mode split) to justify their costs. At a minimum, these results suggest that more fundamental research is needed to determine the proper role, the benefits and costs, and the most effective designs of TFP programs.
5. This research has isolated certain principles regarding the attrition of TFP instrument users over time, and, more importantly, a technique for measuring attrition rates. The findings regarding buyer attrition point up the dynamic nature of transit demand, and argue that TFP programs require continuous marketing efforts.
6. The foregoing analysis also furnishes a methodology for analyzing the pricing structure of a TFP program, comparing the breakeven usage values of the various prepaid instruments offered with the trip-making behavior of the transit system's ridership.

7. Finally, the costs and benefits of TFP programs do not appear to be well understood by most transit operators. The existence of such programs is often justified on the basis of assumptions that they are inexpensive to administer and that they attract - or at least retain - ridership. This report presents techniques, tested within these demonstrations, enabling transit operators to measure TFP program costs and cost-effectiveness in precise terms (cents per TFP instrument usage) and to assess program benefits, at least in qualitative terms.

APPENDIX A
AUSTIN TIME-SERIES DATA

EXHIBIT A-1
AUSTIN TFP SALES BY MONTH

	Student Passes	Monthly Passes	Commuter Passes	20-Ride Tickets	Shopper Passes	Total
<u>1976</u>						
J	680	10	147	607	0	1444
F	840	23	200	1315	0	2378
M	845	20	185	1138	0	2188
A	800	25	260	950	0	2035
M	131	6	113	578	0	828
J	1214	17	184	880	0	2295
J	149	40	178	714	0	1081
A	224	31	218	1437	0	1910
S	476	18	102	1026	0	1622
O	639	48	162	560	0	1409
N	1018	6	62	842	0	1928
D	181	98	134	822	0	1235
<u>1977</u>						
J	939	61	99	572	0	1671
F	897	41	278	1258	0	2474
M	1037	36	133	948	0	2154
A	411	129	94	1496	0	2130
M	333	33	249	661	1	1276
J	1262	26	128	1109	0	2525
J	129	41	119	928	0	1217
A	135	24	99	1281	0	1539
S	442	39	144	840	0	1465
O*	463	112	245	5167	17	6004
N	432	61	112	1261	7	1866
D	300	29	117	878	0	1324

*40% discount period.

EXHIBIT A-1
AUSTIN TFP SALES BY MONTH (cont.)

	Student Passes	Monthly Passes	Commuter Passes	20-Ride Tickets	Shopper Passes	Total
<u>1978</u>						
J	519	40	170	1169	4	1902
F	101	21	87	798	1	1008
M	213	46	212	2995	5	3471
A	754	57	148	922	1	1882
M *	111	33	140	946	0	1230
J	83	21	142	1141	17	1404
J	25	33	78	774	1	911
A	75	32	91	999	2	1199
S	48	20	64	947	1	1032
O	79	80	129	1571	2	1801
N	101	34	66	999	2	1202

*20% discount period.

APPENDIX B
PHOENIX TIME-SERIES DATA

EXHIBIT B-1

PHOENIX TFP CONSIGNMENT LEVELS

Date	20-Ride Zone 1	20-Ride Zone 2	Monthly Zone 1	Monthly Zone 2	10-Ride Zone 1	10-Ride Zone 2	Express 10-Ride Zone 1	Express 10-Ride Zone 2	Total TFP Consigned
Nov. 1974	422	210							632
Dec.	427	357							784
Jan. 1975	800	266							1066
Feb.	399	240							639
Mar.	421	333							754
Apr.	490	381							871
May	605	384							989
June	781	459							1240
July	494	440							934
Aug.	1105	795							1900
Sept.	893	569							1462
Oct.	1166	809							1975
Nov.	800	860							1660
Dec.	925	702							1627
Jan. 1976	1214	988							2202
Feb.	1408	817							2225
Mar.	984	876							1860
Apr.	935	773							1708
May	1028	724							1752
June	742	601							1343

B-2

(Pass consignment data were not recorded until November 1976.)
 (The 10-ride ticket was not introduced until December 1977.)

EXHIBIT B- 1 (cont.)
PHOENIX TFP CONSIGNMENT LEVELS

Date	20-Ride Zone 1	20-Ride Zone 2	Monthly Zone 1	Monthly Zone 2	10-Ride Zone 1	10-Ride Zone 2	Express 10-Ride Zone 1	Express 10-Ride Zone 2	Total TFP Consigned
July 1976	976	431							1407
Aug.	1046	728							1774
Sept.	1244	1196							2440
Oct.	1327	794							2121
Nov.	767	553	35	32					1387
Dec.	1354	693	40	35					2122
Jan. 1977	1299	1008	51	36					2394
Feb.	459	540	41	43					1083
Mar.	1352	576	40	23					1991
Apr.	1446	821	50	34					2351
May	1109	601	26	16					1752
June	1317	1076	46	39					2478
July	678	513	50	32					1273
Aug.	1275	571	27	12					1885
Sept.	621	577	33	39					1270
Oct.	1072	874	38	31					2015
Nov.	1015	656	36	50					1757
Dec.	1289	627	28	45	1498	1274	324	324	5409
Jan. 1978	500	300	10	0	690	385	165	190	2240

(The 10-ride ricket
was not introduced
until December 1977.)

B-3

EXHIBIT B-1 (cont.)
PHOENIX TFP CONSIGNMENT LEVELS

Date	20-Ride Zone 1	20-Ride Zone 2	Monthly Zone 1	Monthly Zone 2	10-Ride Zone 1	10-Ride Zone 2	Express 10-Ride Zone 1	Express 10-Ride Zone 2	Total TFP Consigned
Feb. 1978*	1438	472	74	87	3554	1228	340	457	7650
Mar.	815	615	37	52	1672	1102	435	445	5173
Apr.	1026	208	25	46	1006	414	380	271	3376
May	930	427	26	24	1582	131	450	371	3941
June	404	2	38	22	750	212	236	130	1794

*20% discount ticket sales

Note: Phoenix Transit's fare structure was revised in July 1978. The following page shows consignment levels of TFP instruments sold after the new fare structure took effect.

EXHIBIT B-1 (cont.)
 PHOENIX TFP CONSIGNMENT LEVELS
 (Revised Fare Structure)

Date	Regular 10-Ride	Express 10-Ride	Monthly	20-Ride*	Total TFP Consigned**
July 1978	3,133	1,150	164	100	4,547
Aug.	4,789	995	123		5,907
Sept.	2,756	388	3		3,147
Oct.***	10,920	1,082	1,039		13,761
Nov.	6,955	586	189		7,730
Dec.	5,155	565	244		5,964
Jan. 1979	6,183	954	227		7,364
Feb.	9,763	2,366	223		12,352
Mar.	8,842	782	255		9,879
Apr.	8,494	1,007	467		9,968

*Discontinued 9/78.

**Does not include Annual Pass sales.

***40% discount ticket sales.

APPENDIX C
GENERAL PUBLIC AWARENESS SURVEY

GENERAL PUBLIC AWARENESS SURVEY

C-1 Purpose of the Survey

At the onset of the demonstration project, a survey of Austin and Phoenix residents was conducted to measure the level of awareness and attitude of the public relative to their transit systems. The survey was repeated at the close of the projects in order to assess changes in these measurements. Data were taken in three basic categories:

1. Level of awareness of the transit system and the pre-demonstration TFP program;
2. General attitude toward the public transportation system; and
3. Socioeconomic profiles, yielding data sufficient to check the representativeness of the sample as well as the accuracy of certain responses.

C-2 Methodology: Austin

The survey consisted of a modified random digit dialing telephone survey of 300 Austin residences. First, 450 residential telephone numbers were selected from the Austin telephone directory, excluding prefixes outside the city limits; then the last two digits of each number were reversed. This procedure allows the inclusion of unlisted numbers while minimizing the number of non-residential numbers in the sample. Persons under age 13 were not included in the survey, as they were not considered to be independent consumers of transit service. A Respondent-Selection Key was used by the surveyors to interview a specific, randomly-selected individual within each household called; e.g., the oldest male, the youngest female, and so forth.

The survey was administered from September 19-23, 1977, by four survey workers, all of whom attended a two-hour training session and received copies of Interviewer Guide-

lines. Calling took place from 3:00 PM to 9:00 PM on weekdays and Saturday; however, no calls were made on Friday, on the assumption that many prospective respondents would not be home. After five days of surveying, 333 questionnaires had been completed. Records of all calls were kept on Call Record Sheets. Each time a number was called, a symbol indicating what happened on that call was recorded on the Call Record Sheet by the surveyor. The Call Record Sheet also contains the following data: the date and time of each call, the survey worker's identification number, and a "remarks" column in which any unusual circumstances were recorded. Each number was called seven times before being eliminated from the survey.

The survey supervisor monitored the entire operation, making some calls when not busy and reviewing all completed survey forms for legibility and apparent accuracy of results. Because of the direct supervision, there were no call-backs to check the validity of the sample of calls. Coding and keypunching of the questionnaires were done in Austin.

A copy of the survey questionnaire, showing the frequency distributions of the responses obtained, is included as Exhibit C-1.

C-2 Methodology: Phoenix

As in Austin, the survey was a modified random digit dialing telephone survey of 300 Phoenix residences; the calling area was limited to certain exchanges within the Phoenix metropolitan area, where transit service is concentrated. The survey was administered by Behavior Research Center (BRC) from January 10-12, 1979. A total of 1200 telephone numbers was required to obtain 304 completed questionnaires. A copy of the survey questionnaire, showing the frequency distributions of the responses obtained, is included as Exhibit C-2.

EXHIBIT C-1

AUSTIN GENERAL
PUBLIC AWARENESS

TELEPHONE SURVEY QUESTIONNAIRE

Call Sheet
Record No.

Line No.

Caller No.

Hi, I'm _____ calling for the City of Austin's Urban Transportation Department. We are conducting a survey concerning the Austin city bus system, and we'd really appreciate your help in answering a few questions. This should only take about four minutes.

Is this _____? (*If no, say "I'm sorry, I have the (phone #) wrong number." Redial.*)

1. First, is this a private residence?

Yes¹

No²

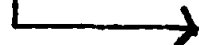


(*If no, say:*) "This is a survey of private residences, thank you, and I needn't bother you any further."
(*This ends interview*)

2. Do you live within the city limits of Austin?

Yes¹

No²



(*If no, ask:*)

2(a) Is any bus service available in your area?

Yes¹

No²

2(b) Does (lack of) accessibility to bus service create a problem for you?

Yes¹

No²

Thank you very much for your help with this survey. The City of Austin really appreciates your assistance and time. We want you to know we'll be using this general information to help analyze our bus service. Again, we do thank you for your help. Goodby. *(This ends interview)*

3. Now I need to determine who in your household I should speak with. How many people, age 13 and over, live at this residence?

4. How many of these are males?

Determine the target person from the selection key.

Adult¹

Youngest Woman⁴

Youngest Man⁷

Woman²

Middle Woman⁵

Middle Man⁸

Man³

Oldest Woman⁶

Oldest Man⁹

ASK TO SPEAK WITH DESIGNATED RESPONDENT - IF THAT PERSON IS NOT HOME, ASK WHEN TO CALL BACK AND RECORD OUTCOME ON CALL RECORD SHEET.

Target respondent's name if known _____

When you finally speak with target person you wish to interview, reintroduce yourself and explain the purpose of the survey.

5. Do you ever use the Austin Transit System?

- Yes¹
 - No²
 - Sometimes³
- (Skip to 7)

8

18.1
68.4
13.6

6. How many one-way trips do you make on Austin Transit buses in a typical week? For example, if you take the bus to work, that would be one one-way trip. Then, if you took the bus from work back to home, that would be another one-way trip.

#	%
0	27.0
1-2	23.8
3-5	17.5
6-10	27.0
11 +	4.8

7. Do you know how to get downtown from your house on the bus?

- Yes¹
- No²
- Not sure³
- No buses run near my house⁴

51.2
39.4
7.9
1.5

(Only if they ask how, say) "I only deal with the survey, but we do have trained people to answer those questions. Shall I give you that number or should we go on to the next question? (pause) The number is 478-8581. or Shall we go on?"

8. Do you know how much it costs to take the bus downtown from your house? How much?

- 15¢ and 30¢¹ 30¢² No, or³ 15¢⁴ Wrong⁵
 - Yes¹
 - No²
- "Do you know it costs only 15¢ during non-rush hours? (9a.m. to 3p.m., and after 6p.m.) Yes¹ No²
- "Do you know it costs 30¢ during the rush period? (6 to 9a.m. and 3 to 6p.m.) Yes³ No⁴
- C-6

19.0
6.6
65.6
2.1
6.6

	<u>%</u>
9(a) Do you know if you can buy city bus tickets and passes in advance?	
<input type="checkbox"/> Yes ¹	32.8
<input checked="" type="checkbox"/> No ² (Skip to 13)	67.2
9(b) Have you ever heard of any of the following items?	
a) The 20-ride bus ticket?	
<input type="checkbox"/> Yes ¹	53.3
<input type="checkbox"/> No ²	46.7
b) The commuter bus pass?	
<input type="checkbox"/> Yes ¹	40.2
<input type="checkbox"/> No ²	59.8
c) The monthly bus pass?	
<input type="checkbox"/> Yes ¹	47.7
<input type="checkbox"/> No ²	52.3
d) The shopper pass?	
<input type="checkbox"/> Yes ¹	19.6
<input type="checkbox"/> No ²	80.4
e) The 10-ride student bus ticket?	
<input type="checkbox"/> Yes ¹	51.4
<input type="checkbox"/> No ²	48.6
f) Do you use or know of any other form of pass or ticket?	
<input type="checkbox"/> Yes ¹ (what kind?) _____	2.0
<input checked="" type="checkbox"/> No ²	98.0
<i>(If "No" to all pass questions, skip to 13)</i>	

10. How did you find out about these tickets or passes?

	<u>8</u>
<p>11(a) Do you know where you can buy these tickets and passes?</p> <p><input type="checkbox"/> Yes¹</p> <p>Where do you or where would you buy them? _____</p>	24.4
<p><input type="checkbox"/> No²</p>	75.6
<p>11(b) We do have several outlet locations at various businesses and public buildings in the city. Can you think of a (more) convenient type of place that you <i>(if Yes)</i> would like to buy them? _____</p> <p>_____</p> <p>_____</p>	

<p>12. Can you tell me if these tickets and passes are the same price, more expensive, or cheaper than paying cash each time you ride the bus?</p> <p><input type="checkbox"/> Same price¹</p> <p><input type="checkbox"/> More expensive²</p> <p><input type="checkbox"/> Cheaper³</p> <p><input type="checkbox"/> Don't know⁴</p>	<p>4.5</p> <p>0.0</p> <p>68.5</p> <p>27.0</p>
---	---

(If they ask advantages say:) "People that are frequent bus riders do find that they can save money using any of our calendar month bus passes (Commuter, Monthly, Shoppers.) All of our passes are a definite convenience to riders because they don't have to have exact change."

13. Based on your knowledge, how would you rate the bus system on a scale of 1 to 5, with 5 being the highest rating?

- | | |
|--|------|
| <input type="checkbox"/> Rating 5 ¹ | 16.7 |
| <input type="checkbox"/> Rating 4 ² | 27.8 |
| <input type="checkbox"/> Rating 3 ³ | 42.3 |
| <input type="checkbox"/> Rating 2 ⁴ | 9.8 |
| <input type="checkbox"/> Rating 1 ⁵ | 3.4 |

(If they have trouble responding, say)

"5 would mean you thought the service was excellent, 1 would mean it was not good at all, and 3 would be in the middle of those two extremes."

14. If there were direct, convenient, inexpensive bus service to where you want to go, would you take the bus?

- | | |
|--|------|
| <input type="checkbox"/> Yes ¹ | 56.2 |
| <input type="checkbox"/> No ² | 21.6 |
| <input type="checkbox"/> Maybe ³ | 19.1 |
| <input type="checkbox"/> Don't know ⁴ | 3.0 |

15. What would you say is your major complaint about Austin's bus service? _____

(If they have trouble answering, ask:) "Is there anything about the bus system that you particularly dislike? _____"

16. What do you like best about the bus service?

(If they have trouble answering, ask:) Is there something about the bus system that you particularly like? _____

17. Can you tell me the street you live on and the nearest cross-street? _____

18. Finally, I want to note your age.

(Start at appropriate category if obvious)

Under 18¹

18 - 44²

45 - 64³

65 and over⁴

No answer⁵

8

3.9

71.3

16.6

8.2

Thank you very much for your help with this survey. The City of Austin really appreciates your assistance and time. We want you to know we'll be using this general information to help analyze our bus service. Again, we do thank you for your help. Goodby.

(This ends interview)

19. *(Sex - by observation)*

Female¹

Male²

58.2

41.8

EXHIBIT C-2

Hello, my name is _____ and I'm an interviewer for the City of Phoenix. Am I calling a private residence?

(IF NO, TERMINATE INTERVIEW AND RECORD OUTCOME ON CALL RECORD SHEET)

We're conducting a survey on the City of Phoenix bus system and I'd like to speak with someone in your household. First, however, I need to determine who in your household I should speak with.

TABLE 1 NUMBER OF ADULTS IN HOUSING UNIT				
	1 adult	2 adults	3 adults	4 or more
0 men	Adult	Oldest Woman	Oldest Woman	Youngest Woman
1 man	Adult	Woman	Youngest Woman	Man
2 men		Youngest Man	Youngest Man	Youngest Woman
3 men			Oldest Man	Woman or Youngest Woman
4 or more				Youngest Man

A. How many people, age 13 & over, live at this residence? _____

B. How many of these are males? _____

(ASK TO SPEAK WITH DESIGNATED RESPONDENT. IF THAT PERSON IS NOT HOME FIND OUT THEIR NAME, WHEN TO CALL BACK & RECORD OUTCOME ON CALL RECORD SHEET)

NAME _____

TIME _____

1. First, what are your general impressions of the quality of city bus service? What else?

2. In a typical week, do you make use of the city bus system?

1 Yes (GO TO Q.2a) 2 No (GO TO Q.2b)

2a. About how many one-way bus trips do you make in a typical week? For example, if you take the bus to work and home again, that counts as two one-way trips?

#	%	#	%	#	%	Number
0	86.8	3-5	2.7	11+	0.6	(GO TO Q.3)
1-2	6.3	6-10	3.5			

2b. If there were direct, convenient, inexpensive bus service to where you wanted to go would you definitely, probably, probably not or definitely not start to ride the bus?

1 Definitely 2 Probably 3 Probably not 4 Definitely not 5 DK

2c. People tell us many reasons why they don't ride the bus. I'd like to read you some of the reasons, and as I do I'd like you to tell me whether you strongly agree, agree, disagree or strongly disagree with each one as a reason you don't ride the bus. Here is the first one.....(READ EACH)

	SA	A	D	SD	DK
A-As long as I can afford the privacy of my car, I'll probably never use the bus.	1	2	3	4	5
B-Buses are always late or early -- it's too easy to miss the bus you need.	1	2	3	4	5
C-I won't walk home from the bus stop after dark.	1	2	3	4	5
D-It's just too complicated using the bus - you know, you have to figure out which one to take, where to catch it, and when a bus will be there to take you back.	1	2	3	4	5
E-People who ride buses are strangers.	1	2	3	4	5

3. If you wanted to go from your house to downtown Phoenix, do you know what bus you would take and where you would catch it?

1 Yes 2 No 3 Not sure 4 No buses run near my house

2
13.5
86.5

21.8
35.7
24.1
14.7
3.8

45.5
58.8
3.6
0

4. How much would it cost the average adult to take the regular city bus from your house to downtown Phoenix? _____ Cost 1___Correct 2___Incorrect 3___DK

%
23.0
17.8
59.2

5. Do you know if you can buy city bus tickets and passes in advance?
1___Yes 2___No (OO TO Q.6)

58.2
41.8

5a. Have you heard of any of the following types of city bus tickets or passes?(READ EACH)

	YES	NO	(Yes)
A-The 10 ride city bus ticket book	1	2	56.2
B-The 20 ride city bus punch ticket	1	2 (IF NO TO ALL 3 -	32.4
C-The monthly city bus pass	1	2 SKIP TO Q.6)	27.3

5b. How did you find out about these tickets or passes?

5c. Do you know where you can buy these tickets and passes?
1___Yes (Where _____) 1___No

53.0
47.0

5d. Are these tickets and passes the same price as, more expensive than, or cheaper than paying cash each time you ride the bus?
1___Same price 2___More expensive 3___Cheaper 4___Don't know

12.9
0.8
53.8
32.6

Okay, now before we finish I need a few pieces of information for classification purposes.

6. How many trips, of three blocks or more, by any means of transportation, did you make today?
_____Number

7. Is a passenger car or truck available to you as a driver or passenger for most of the trips you need to make?
1___Yes 2___No

90.8
9.2

8. Are you employed outside of your household?
1___Yes 2___No

62.2
37.8

9. What are the closest two cross streets to your.....(READ EACH)
RESIDENCE _____
PLACE OF WORK/SCHOOL _____

10. Which of the following categories comes closest to your age? (READ EACH)
1___under 18 2___18-34 3___35-44 4___45-64 5___65 or over 6___Refused

7.6 25.2
39.5 13.3
14.3

11. Is your ethnic background white, black, chicano, oriental or American Indian?
1___White 2___Black 3___Chicano 4___Oriental 5___American Indian 6___Refused

77.6 1.4
7.5 2.7
10.8

12. Finally, thinking back to last year, would you say your total family income, I mean before taxes and including everyone in your household, was under or over \$15,000?

<u>Under \$15,000</u>	<u>Over \$15,000</u>	
Was it under or over \$5,000	Was it under or over \$30,000	
1___Under \$5,000	3___Under \$30,000	15.3
2___Over \$5,000	4___Over \$30,000	43.1
		34.7
		3.8

Thank you very much, that completes this interview. My supervisor may want to call you to verify that I conducted this interview so may I have your name so that she may do so?
NAME _____ PHONE _____

OBSERVED DATA: 1___Male 2___Female
INTERVIEWER NAME _____ DATE _____

44.4
56.6

APPENDIX D
ON-BOARD SURVEY

ON-BOARD SURVEY

D-1 Purpose of the Survey

The purpose of the On-Board Survey was to establish the socioeconomic behavior profile of the ridership. One question determined whether the person was a new rider (as of the sale month) or an old rider, thereby permitting the determination of "before" as well as current ridership profiles.

D-2 Methodology: Austin

The Austin On-Board Survey was conducted by eight surveyors from October 19-25, 1977.* A total of 125 round-trip rides were taken on the 25 bus routes (including the Park & Ride route) during the seven days of surveying. The latter was done between 6:00 AM and 10:00 PM on every day except Sunday, when it took place from 7:30 AM to 7:00 PM.

All surveyors attended a two-hour training session, at which time they were given a copy of the Surveyor Guidelines as well as counting sheets, used to determine which persons should be surveyed. At the outset of the survey, the interviewers were instructed to give a questionnaire to every tenth person boarding the bus. However, the refusal rate proved to be considerably higher than anticipated; the instructions were then modified such that every eighth person boarding the bus was interviewed. The self-administered questionnaire consisted of a single sheet of 8 1/2" x 11" hard stock, printed in both English and Spanish. The Surveyor Guidelines contain a detailed description of the procedure followed by the survey workers.

*In Austin, the on-board interviews were conducted at the same time as the first on-board fare payment count; to avoid confusion, however, the discussion of the fare payment counts is contained in a separate Appendix, Appendix E.

The survey supervisor was responsible for assigning work schedules each day, collecting completed questionnaires and count sheets and ensuring the smooth operation of the survey. A total of 333 completed questionnaires was obtained; they were coded and keypunched by the City of Austin.

A copy of the On-Board questionnaire, showing the frequency distributions of the responses, is provided here as Exhibit D-1.

D-3 Methodology: Phoenix

The Phoenix On-Board Survey was conducted by BRC from February 13-18, 1979; 10% of the bus trips for one weekday and Saturday were sampled. All riders paying the full adult cash fare were sampled; thus, the survey sample differed from the sample obtained in the Austin On-Board Survey, in which every eighth person boarding the bus -- regardless of fare payment method -- was interviewed. The self-administered questionnaire was a single sheet of 8 1/2" x 11" hard stock, with an English version on one side and a Spanish version on the other side. The number of completed questionnaires totalled 1900. Exhibit D-2 constitutes a copy of the On-Board questionnaire showing the frequency distributions of the responses obtained.

EXHIBIT D-1

BUS PASS SURVEY

		8
1.	Do you <u>now</u> ride Austin Transit Buses two times a week or more? Yes ¹ / No, I ride less than that. ²	88.5 11.5
2.	Did you ride our buses two times a week or more <u>before</u> September 1, 1977? Yes ¹ / No, I rode less than that. ²	79.6 20.4
3.	Do you ever use our bus passes? Yes, I just started. ¹ / Yes, often use a pass ² No, practically never. ³ / No, I don't know about bus passes. ⁴	11.8, 46.2 20.5, 21.5
Can you tell me why not?		
	Too expensive because I seldom use the bus ¹	16.5
	I didn't know about the passes ²	12.8
	I don't know where to buy them ³	17.3
	Too much trouble to buy ⁴	10.7
	I can only afford to pay for one bus ride at a time ⁵	9.9
	I hadn't thought about it ⁶	25.5
	Other (explain) ⁷ _____	7.4
<hr/>		
4.	For our studies (check one):	39.7
	You are Male ¹ / Female ²	60.3
	Your age is 17 or under ¹ / 18 - 44 ²	9.0, 70.1
	45 - 64 ³ / 65 and over ⁴	14.2, 6.6
	Your ethnic background is Anglo ¹ / Black ²	37.6, 35.5
	Mexican American ³ / Other ⁴	2.3, 3.8
	The TOTAL monthly income of your household is:	
	Under \$499 ¹ / \$500 - \$1250 ² / Over \$1250 ³	36.8 47.6 15.6

For Office Only

Bus Route _____		15	16		
		<input type="checkbox"/>	<input type="checkbox"/>		
Time of Day _____	17	18	19	20	21
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Date _____		22	23	24	25
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interviewer # _____		26			
		<input type="checkbox"/>			

EXHIBIT D-1 (cont.)

ENCUESTA DE PASES DE AUTOBÚS

1. ¿Viaja usted actualmente dos veces por semana ó más en los autobuses de Tránsito de Austin?

Sí¹ No, viaje menor que eso²

1

2. Antes de Septiembre 1, 1977, ¿viajó usted dos veces por semana ó más en nuestros autobuses?

Sí¹ No, viajé menos que eso²

2

3. ¿Ha usado alguna vez nuestros pases de autobús?

Sí, empiezo a usarlos¹ Si, uso un pase seguido²
 No, practicamente nunca³ No, no sé de los pases de autobús⁴

3

¿Me podría decir porqué no?

- Es muy costoso porque raramente uso el autobús¹
- No sabía de los pases²
- No sé donde comprarlos³
- Es muy difícil para comprar⁴
- Nomas puedo pagar por un solo pase⁵
- No lo había pensado⁶
- Otro (Explique)⁷ _____

4

5

6

7

8

9

10

4. Para nuestros estudios (cheque una):

Usted es Hombre¹ Mujer²
Su edad es 17 ó menor¹ 18 - 44²
 45 - 64³ 65 ó mayor⁴
Su ascendencia étnica es Anglo¹ Negra²
 Mexicano Americana³ Otra⁴

11

12

13

El ingreso mensual TOTAL de su hogar es:

Menor de \$499¹ \$500-\$1250² Mayor de \$1250³

14

Sólo para uso oficial

Ruta de Autobús _____

15

16

Hora del día _____

17

18

19

20

21

Fecha _____

22

23

24

25

Entrevistador # _____ D-5

26

**CITY OF PHOENIX
PUBLIC TRANSIT ADMINISTRATION**

AS A BUS RIDER, YOU CAN HELP IMPROVE BUS SERVICE BY ANSWERING THE FOLLOWING QUESTIONS. PLEASE COMPLETE THIS FORM AND DROP IT IN THE BOX AT THE BACK DOOR OR RETURN IT TO THE SURVEY TAKER. THANK YOU.

	#	%
What fare did you pay when you boarded this bus?		
35c.....	1	66.8
40c.....	2	12.4
50c.....	3	5.3
55c.....	4	1.5
Other.....	5	14.1

	#	%
What place did you come from?		
Home.....	1	55.7
School.....	2	8.0
Doctor's office....	3	2.4
Work.....	4	20.5
Shopping center or store.....	5	8.0
Other (specify).....		3.4
		1.8
		0.1

	#	%
What place are you going to?		
Home.....	1	38.0
School.....	2	10.8
Doctor's office....	3	3.5
Work.....	4	27.9
Shopping center or store.....	5	13.5
Other (specify).....		3.5
		2.5
		0.4

What is the closest street intersection to your home?
_____ & _____

(IF YOU WORK) What is the closest street intersection to your place of work?
_____ & _____

	#	%
In a typical week, how many one-way bus trips do you usually make? For example, if you take the bus to work and home again that counts as two one-way trips.		
0.....	0	5.8
1-2.....	1-2	20.4
3-5.....	3-5	26.9
6-10.....	6-10	37.2
11+.....	11+	10.3

	#	%
Do you ever use bus passes or tickets?		
No.....	1	70.3
Yes, rarely.....	2	12.9
Yes, I started this month.....	3	5.2
Yes, often use....	4	11.6

	#	%
7a. <u>(IF NO OR RARELY USE)</u> Why don't you use them?		
I hadn't thought about it.....	1	34.5
I don't know where to buy them....	2	12.5
Too expensive because I seldom ride the bus.....	3	11.4
I don't know about them.....	4	6.3
Too much trouble to buy.....	5	10.6
I don't like to tie up a lot of money on bus rides.....	6	6.7
Other (explain).....		18.0

EXHIBIT D-2

	#	%
8. How far out of your way would you have to go to buy a bus pass or ticket?		
Under 1 block....	1	26.9
1-4 blocks.....	2	33.4
5 blocks-1 mile....	3	49.7
Over 1 mile.....	4	18.8
I don't know....		41.3

	#	%
9. Did you ride the bus, once a week or more, before February of this year?		
Yes.....	1	78.4
No.....	2	21.6

	#	%
10. How many cars or trucks, in operating condition, do you have in your household?		
None.....	1	44.6
One.....	2	32.4
Two.....	3	14.3
Three or more....	4	8.7

	#	%
11. Could you have used one of these cars or trucks, as a passenger or driver, for this trip?		
Yes.....	1	30.2
No.....	2	69.8

	#	%
12. Do you have a drivers license?		
Yes.....	1	54.5
No.....	2	45.5

	#	%
13. Are you:		
Male.....	1	43.5
Female.....	2	56.5

	#	%
14. Which category best applies to you?		
Student.....	1	24.5
Homemaker.....	2	9.0
Employed.....	3	53.0
Unemployed.....	4	4.2
Retired.....	5	9.3
Other (specify).....		

15. How many years of regular school have you had the opportunity to complete? NUMBER _____

	#	%
16. Are you:		
Married.....	1	33.1
Single.....	2	66.9

	#	%
17. What is your age?		
Under 18.....	1	13.9
18 to 24.....	2	49.1
25 to 44.....	3	10.5
45 to 64.....	4	16.4
65 or over.....	5	10.1

	#	%
18. Are you:		
White.....	1	64.5
Black.....	2	12.9
Mexican-American....	3	15.2
American Indian....	4	6.5
Oriental.....	5	0.8

19. How many people live in your household? NUMBER _____

	#	%
20. What is your total household income per year before taxes?		
Under \$5000.....	1	35.8
\$5000-14999.....	2	241.3
\$15000-29999.....	3	16.0
\$30000 or over....	4	6.9

ROUTE: _____ FOR OFFICE USE ONLY DATE: _____ 31 PERIOD: _____ 32

EXHIBIT D-2 (cont.)

¡DOS PASAJEROS! OHRITA MISMO USTEDES PUEDEN MEJORAR NUESTRO SISTEMA DE SERVICIO. CONTESTANDO LAS SIGUIENTES PREGUNTAS. POR FAVOR, COMPLETE ESTA FORMULARIO DESPUES DE TERMINARLA ENTREGUELA A LA PERSONA QUE ESTA TOMANDO ESTE SERVICIO O DEPOSITELA EN LA PUERTA. MUCHAS GRACIAS.

¿Cuánto pagó Ud. de pasaje cuando se subió a este camión? (circule uno)

35c.....	1
40c.....	2
50c.....	3
55c.....	4
Otro.....	5

¿De cuál lugar viene Ud.? (circule uno)

La casa.....	1
La escuela.....	2
El doctor.....	3
El trabajo.....	4
Un centro comercial ó una tienda.....	5
Otro (especifique).....	

¿A cuál lugar va Ud.? (circule uno)

La casa.....	1
La escuela.....	2
El doctor.....	3
El trabajo.....	4
Un centro comercial ó una tienda.....	5
Otro (especifique).....	

¿Cuál es la calle de intersección más cerca de su casa? _____ y _____

6-7 (SI TRABAJA USTED) ¿Cuál es la calle de intersección más cerca a su trabajo? _____ y _____

8-9 ¿En una semana normal, más ó menos, cuantos viajes sencillos hace Ud. en camión? por ejemplo, si coma el camión para ir al trabajo y para regresar, eso cuenta como dos viajes sencillos. NÚMERO _____

10 ¿Alguna vez usa Ud. nuestros pasos ó tickets para el camión? (circule uno)

No.....	1
Si, raramente.....	2
Si, comensé este mes.....	3
Si, bastante uso.....	4

11-12 11. ¿Por qué no los usa? (circule uno)

No había pensado en eso.....	1
No sé donde comprarlos.....	2
Demasiado caro porque casi nunca tomo el camión.....	3
No sabía de los pasos.....	4
Demasiado difícil comprarlos.....	5
No me gusta gastar mucho dinero en el uso del camión.....	6
Otro (explique).....	

8. ¿Qué tan afuera de su casa sale usted, para comprar pasajes ó billetes para el camión? (circule uno)

Menos que una cuadra.....	1
1-4 cuadras.....	2
3 cuadras-1 milla.....	3
Más que 1 milla.....	4
No sé.....	5

9. ¿Antes de febrero de este año, usó usted el camión más de una vez por semana, ó más? (circule uno)

Si.....	1
No.....	2

10. ¿Cuántos carros ó camionetas tiene trabajando en su casa? (circule uno)

Ninguno.....	1
Uno.....	2
Dos.....	3
Tres ó más.....	4

11. ¿Podría haber usado alguno de esos carros como pasajero ó como chófer para este viaje? (circule uno)

Si.....	1
No.....	2

12. ¿Tiene Ud. licencia de manejar? (circule uno)

Si.....	1
No.....	2

13. ¿Es Ud.: (circule uno)

Nombre.....	1
Mujer.....	2

14. ¿A qué categoría le aplica a Ud.? (circule uno)

Estudiante.....	1
Mamá de casa.....	2
Trabajando.....	3
Sin trabajo.....	4
Jubilado.....	5
Otro (especifique).....	

15. ¿Cuántos años de escuela ha tenido Ud. de oportunidad de completar? NÚMERO _____

16. ¿Es Ud.: (circule uno)

Casado (a).....	1
Soltero (a).....	2

17. ¿Cuántos años tiene Ud.? (circule uno)

Menos que 19.....	1
19 a 24.....	2
25 a 34.....	3
35 a 44.....	4
45 ó más.....	5

18. ¿Es Ud.: (circule uno)

Blanco.....	1
Negro.....	2
Mexicano.....	3
Indio Americana.....	4
Oriental.....	5

19. ¿Cuántas personas viven en su casa? NÚMERO _____

20. ¿Cuál es el salario anual de su familia, antes de los taxes? (circule uno)

Menos que \$3000.....	1
\$3000-14999.....	2
\$15000-29999.....	3
\$30000 ó más.....	4

PARA USO DE OFICINA

ROUTE: 28-30 DATE: 31 PERIOD: 32

APPENDIX E
ON-BOARD FARE PAYMENT COUNTS

ON-BOARD FARE PAYMENT COUNTS

E-1 Purpose of the Counts

The original purpose of the on-board fare payment counts was to determine the mix of fare payment methods before, during, and after the two TFP sales. These data were to furnish a periodic recalibration of the revenue-ridership estimating formula, thereby permitting an accurate estimation of ridership volume changes.

However, after analyzing the data taken in both sites from four on-board counts of fare payment method at four different time points, Crain & Associates recommended in February 1978 that the procedure be dropped since it did not measure the very small ridership changes being produced by the project.

E-2 Methodology: Austin

The On-Board Fare Payment Counts were conducted in Austin at three time points during the demonstration: from October 20-25, 1977; from December 1-7, 1977; and from January 9-14, 1978. (In March of 1977, Austin Transit conducted an On-Board Survey which provided comparable fare payment method data.)

A total of approximately 125 round-trip "rides" were taken on the 25 bus routes (including the Park & Ride route) during the seven days during which the survey was conducted. On these rides, the survey worker boarded a bus downtown, and rode to the end of the line and back, during which time he/she recorded the number and nature of all types of payment of fare. During the first on-board counts, between stops, the survey worker was also asked to distribute On-Board Survey questionnaires. (See Appendix D.) For statistical purposes, to cut down on the number of observations that must be taken, the city bus routes were

clustered into groups which represent geographic and income divisions of the city. Similarly, the transit operating day was divided into four periods of unequal length, to represent the two peak periods and the midday and evening off-peak periods.

Each survey worker was given the correct boarding and starting points for each bus route. The boarding point was defined as the place where the survey worker boarded the bus; the starting point was defined as the bus stop at which the survey worker started to take data. When the survey workers boarded the bus to begin a ride, they indicated to the drivers that they were working on the survey. All drivers had been notified of this survey, and cooperated in allowing the workers to position themselves at the front of the bus such that they could clearly observe the method of fare payment. All survey workers were furnished with copies of Surveyor Guidelines, counting sheets, clipboards and pencils.

E-3 Methodology: Phoenix

At the outset of the Phoenix demonstration, four fare payment counts were planned for the first six months. The first was conducted by Phoenix Transit on January 25, 1978; it consisted of a system-wide count on that day alone. The second count was done from February 20-24, 1978; on-board fare payment counts of one day's bus trips were spread over the week. The third count, which resembled the second, took place on March 16-17 and 20-22, 1978. The fourth fare payment count, planned for May 15-19, was not conducted; prior to the count, Crain & Associates recommended to TSC that this count be deferred until the fall.

After the Phoenix Transit fare structure was revised in July 1978, two more counts were conducted: before the second sale, from September 21-27, 1978; and during the second sale, from October 16-21, 1978.* Both consisted of fare payment counts for one complete weekday spread over a five-day period as well as a complete Saturday count.

*Originally, a third, post-sale fare payment count was planned for March 1979. However, it was determined to be unnecessary, and was cancelled.

APPENDIX F
PURCHASER SURVEY #1

PURCHASER SURVEY #1

F-1 Purpose of the Survey

The purpose of the Purchaser Survey, in conjunction with the Follow-Up Purchaser Survey, is to determine the socio-economic characteristics of persons who bought discounted tickets and passes, why they bought them, whether they continued to buy and use them after the sale period, and what travel behavior changes - if any - were effected.

F-2 Methodology: Austin

The first Austin Purchaser Survey was conducted from September 26, the first day of the TFP sale, until October 5, 1977; the survey was resumed on October 20 and continued through October 31 in order to ensure proper representation in the sample of end-of-the-month purchasers. All of those sampled were called on the evening of their purchase. The main categories of data taken in the first Purchaser survey were:

1. Whether or not the person had used TFP instruments prior to the sale;
2. Each person's trip behavior prior to purchasing the ticket or pass;
3. Marketing data, including media awareness, reasons for purchase, etc.; and
4. Socioeconomic information.

Names and addresses of TFP purchasers were obtained through the use of perforated name-address stubs attached to the discounted tickets and passes; each purchaser was asked to complete the information on the stub at the time of purchase. The stubs were then placed in outlet collection boxes, where they were picked up and sorted daily by Austin Transit staff.

The stub collection procedure entailed a number of problems. First, completion of the name-address information by purchasers depended upon the voluntary cooperation of outlet personnel as well as purchasers. Some outlet personnel did not comply with this procedure; and as a result, many purchasers' stubs remained blank. An unknown number of misplaced blank and completed stubs were never recovered from the 46 participating outlets over the course of the sale period. In addition, some purchasers refused to provide the requested information.

Another survey difficulty resulted from the inadvertent omission, when printing up the name-address stubs, of a line for the purchaser's telephone number. A considerable amount of time and effort was therefore required in order to obtain the correct telephone numbers of purchasers to be interviewed; in some cases, such numbers were unlisted or otherwise inaccessible. Later in the month, the stubs were stamped with an additional line prior to distribution to outlets, thereby alleviating this problem.

Eight survey workers were hired to administer the survey; two worked from 3:00 to 9:00 PM, and the others worked from 6:00 to 9:00 PM. All assisted with the daily stub collection activities. Prior to the first day of the survey, they attended a three-hour orientation session at which John Crain provided information and assistance. As with the Public Awareness Survey, interviewer guidelines and call record sheets were issued to the survey workers.

The target sample size for the Purchaser Survey was 400: 200 old purchasers and 200 new purchasers. On Wednesday, October 5, this goal was reached. However, it was decided that an additional sample of purchasers should be interviewed

at the end of the month, in the event that the trip behavior, buying motivations and socioeconomic profile of these month-end purchasers differed significantly from those of the initial sample. Therefore, the Purchaser Survey was restarted on Thursday, October 20, with the goal of interviewing 72 purchasers over a ten-day period; the size of the target sample to be surveyed each day was dictated by the volume of daily sales. On the restarted survey, a new question was added to the questionnaire in order to obtain "switching" information requested by UMTA/TSC. The question was typed on a slip of paper and stapled to the questionnaire. During this second survey period from October 20-31, no attempt was made to interview equal numbers of old and new purchasers. No surveying took place on Sunday, October 23, or on the weekend of October 29-30.

Daily progress reports were kept by the Austin Program Monitor and his assistant throughout the survey. All completed questionnaires were coded by the Program Monitor, his assistant, and the survey workers; they were then keypunched by the City of Austin, and the data were sent to Crain & Associates for analysis. The final sample consisted of 487 completed questionnaires. (See Exhibit F-1.)

F-3 Austin Special Survey (Never Completed)

During the sale month, plans were made to conduct a special survey involving repeat interviews with 72 of the 418 purchasers interviewed at the outset of the Purchaser Survey. The purpose of the special survey was to obtain information regarding purchasers' during-sale trip rates and pre-sale TFP purchasing behavior. The first day of this survey yielded 16 completed questionnaires, eight near-refusals and one unequivocal refusal. Due to the likelihood that future TFP sales would be adversely affected by further reinterviewing, the decision was made by John Crain, TSC and UMTA to discontinue the special survey on Wednesday, October 26, after the first day of surveying.

F-4 Methodology: Phoenix

The first Phoenix Purchaser Survey began on January 25 and continued through February 24; interviewing was done by BRC on Wednesdays, Thursdays and Fridays.* In anticipation of a rapid drop-off in sales after two weeks, a completion quota of 55 completed questionnaires per day was established for the first two weeks. This quota was designed to yield 80% of the target sample of 400 completed questionnaires within that period of time.

The main categories of data taken in the survey were identical to those taken in Austin. However, in addition to the "before" sample of purchasers interviewed on the evening of their purchase, a "during" sample of purchasers was interviewed in Phoenix, although not in Austin. This "during" sample consisted of purchasers interviewed three or four days after their purchase; the survey therefore measured the during-sale, rather than before-sale, trip-making behavior of this sample. In the first Purchaser Survey, the "during" sample included repeaters, or persons screened out of the "before" sample because they were repeat buyers of sale passes. Although these people were telephoned on the evening of purchase, they had bought sale tickets or passes prior to that day as well; therefore, their before-sale trip-making behavior could not be obtained.**

As in Austin, names and addresses of TFP purchasers were obtained through the use of name-address stubs, which all purchasers were asked to complete. On each survey day, BRC and the City of Phoenix staff collected stubs from 50% of the 120 outlets. The final "before" sample consisted of 408 completed questionnaires; the final "during" sample consisted of 300 completed questionnaires. Both samples were evenly balanced between old and new TFP instrument purchasers. Exhibit F-2 and F-3 are copies of the 2 questionnaires.

*This procedure ensured that all "trips yesterday" and "trips two days ago" were weekday trips.

**Note that in the second Purchaser Survey in Phoenix, repeaters were excluded from the "during" sample, on the grounds that their higher trip rates might distort the accuracy of the data yielded by the sample.

EXHIBIT F-1

AUSTIN TFP PURCHASER #1
TELEPHONE SURVEY QUESTIONNAIRE

Call Sheet
Record No.

Line No.

Caller No.

Hi, I am _____ with the City of Austin's
Urban Transportation Department. We are conducting a survey
of Austin Transit bus users, and we'd like to speak to
_____ (*target*) who bought a bus pass today.

*(If "target" is on the phone, say: "We would really
appreciate your help in answering a few questions.
This will only take a few minutes." Then begin imme-
diately with question 1.)*

*(If "target" is not available, say: "Can you tell me
when I can reach him/her at this number? - - work out
appointment - - and end interview.)*

*(If "target" comes to phone, say: "Hi. I'm _____
with the City of Austin's Urban Transportation Depart-
ment. We are conducting a survey of our bus system
and we would really appreciate your help in answering
a few questions. This will only take a few minutes."*

1. According to the receipt you filled out today, you
bought a:

- 20 ride bus pass ¹
 Commuter bus pass ²
 Monthly bus pass ³
 Shopper bus pass ⁴

8
62.6
25.5
10.3
1.6

Is this correct?

2. Will you be the one using this bus pass?

Yes ¹

No ²

May I speak with the person who will be using it?

(If user is at home, say: "Hi, I'm _____ with the City of Austin's Urban Transportation Department. We are conducting a survey of our bus pass users, and we'd really appreciate your help in answering a few questions. This should only take a few minutes.")

(If user is not available, say: "Can you tell me when I can reach him/her at this number?" -- ask for user's name, work out appointment and end conversation.)

(When you have the user on the phone, ask:)

3. Have you ever used one of Austin Transit's bus passes before today?

Yes ¹

No ²

4. How did you find out about the bus pass that was bought today? _____

(If the total required number of persons in this group have already been interviewed, say: "Thank you very much for your help.")

5. Can you tell me why you wanted to use this pass?

8

52.8

47.2

	#	%
6. Can you <u>tell</u> me how many one-way trips you make on Austin Transit buses in a typical week? For example, if you take the bus to work, that would be one one-way trip. Then, if you took the bus from work back home, that would be another one-way trip.	0	1.8
	1-2	3.7
	3-5	12.9
	6-10	63.2
	11+	18.4

7. Now I'd like to ask you some questions about the trips you've made during the last two days. A trip was any time you went at least three blocks from one place to another. You could have used any type of transportation including walking or bicycling. For example, going to work ~~by~~ automobile would be one trip; walking to a place for lunch, if it was at least 3 blocks away, would be a second trip; returning to work from lunch would be a third trip.

Yesterday's Trips

Let's begin by talking about trips you made yesterday.

That would be *(give day of week)*

record:

Day of week _____

Date _____

8. Did you make any trips yesterday?

Yes ¹

No ² *(If "no", proceed to day before yesterday.)*

(If "yes", interviewer proceeds with the following series of questions and records the responses in grids provided:

"Where did you go on your first trip?"

"For what purpose?"

"What type of transportation did you use to get there?"

"Now, where did you go from there?"

"For what purpose?" *and so forth.*)

YESTERDAY

Trip Number

Where did you go?

	1	2	3	4	5	6	7	8
Work ¹								
School ²								
Home ³								
Medical/dental ⁴								
Shopping ⁵								
Personal business ⁶								
Social/recreational ⁷								
Other ⁸								
Eat Meal ⁹								

How did you get there?

	1	2	3	4	5	6	7	8
Private auto, driver ¹								
Private auto, passenger ²								
Bus ³								
Taxi ⁴								
Motorbike ⁵								
Other ⁶								
Bicycle ⁷								
Walking ⁹								

Day Before Yesterday's Trips

Now I'd like to ask you about the trips you made the day before yesterday. That would be *(give day of week)*

record:

Day of week _____

Date _____

9. Did you make any trips that day?

Yes ¹

No ² → *(If "no", proceed to question 10.)*

(If "yes", interviewer proceeds with the following series of questions and records the responses in the grids provided:)

"Where did you go on your first trip?"
 "For what purpose?"
 "What type of transportation did you use to get there?"
 "Now, where did you go from there?"
 "For what purpose?" *and so forth.*)

DAY BEFORE YESTERDAY

Trip Number

Where did you go?

	1	2	3	4	5	6	7	8
Work ¹								
School ²								
Home ³								
Medical/dental ⁴								
Shopping ⁵								
Personal business ⁶								
Social/recreational ⁷								
Other ⁸								
Eat Meal ⁹								

How did you get there?

	1	2	3	4	5	6	7	8
Private auto, driver ¹								
Private auto, passenger ²								
Bus ³								
Taxi ⁴								
Motorbike ⁵								
Other ⁶								
Bicycle ⁷								
Walking ⁸								

Now, I would like you to answer a few questions about yourself so that we can understand our riders better.

10. First, I would like to note your age:	<u>8</u>
<input type="checkbox"/> Under 18 ¹	2.7
<input type="checkbox"/> 18 - 44 ²	59.5
<input type="checkbox"/> 45 - 64 ³	23.2
<input type="checkbox"/> 65 or over ⁴	14.6
<input type="checkbox"/> No answer ⁵	
11. Are you married or single?	
<input type="checkbox"/> Married ¹	46.3
<input type="checkbox"/> Single ²	53.7
12. Do you have a car or truck available to you as a driver or as a passenger for most of the trips you make?	
<input type="checkbox"/> Always ¹	33.6
<input type="checkbox"/> Usually ²	15.1
<input type="checkbox"/> Sometimes ³	16.7
<input type="checkbox"/> Rarely ⁴	11.8
<input type="checkbox"/> Never ⁵	22.9
13. Do you have a driver's license?	
<input type="checkbox"/> Yes ¹	63.0
<input type="checkbox"/> No ²	37.0
14. Do you own a car?	
<input type="checkbox"/> Yes ¹	51.8
<input type="checkbox"/> No ²	48.2
15. How many cars are owned by people living in your household?	

16. Please tell me which one of the following categories best applies to you:	<u>%</u>	
<input type="checkbox"/> Employed ¹	69.5	
<input type="checkbox"/> Student ²	10.1	
<input type="checkbox"/> Homemaker ³	4.9	
<input type="checkbox"/> Retired ⁴	12.4	
<input type="checkbox"/> Other ⁵	3.1	
17. Now, we would like to determine your educational background.		
<input type="checkbox"/> Did you complete grade school? ¹	16.0	
<input type="checkbox"/> Did you complete high school? ²	21.8	
<input type="checkbox"/> Do you have some college education? ³	32.5	
<input type="checkbox"/> Did you complete four years of college? ⁴	19.0	
<input type="checkbox"/> Are you pursuing or have you completed a graduate degree? ⁵	10.7	
18. Your ethnic background is		
<input type="checkbox"/> Anglo ¹	71.5	12.5
<input type="checkbox"/> Mexican-American ³		
<input type="checkbox"/> Black ²	11.9	4.2
<input type="checkbox"/> Other ⁴		
19. How many people live in your household?		
20. Would you say your total household income, -- I mean, before taxes and including everyone in your household, was		
<input type="checkbox"/> Less than \$5,000 a year? ¹	22.9	
<input type="checkbox"/> Between \$5,000 and \$15,000? ²	47.7	
<input type="checkbox"/> Between \$15,000 and \$30,000? ³	24.4	
<input type="checkbox"/> Over \$30,000 a year? ⁴	5.0	
<input type="checkbox"/> Don't know ⁵		
<input type="checkbox"/> Refuse to say ⁶		

21. Now, do you have any comments or suggestions about our bus pass program? _____

Thank you very much for your help with this survey. The City of Austin really appreciates your assistance and time. We want you to know we'll be using this information to help analyze our bus service. Again, we do thank you for your help. Goodbye.

(This ends interview)

22. (Sex - by observation)

Female ¹

Male²

8

71.3

28.7

Hello, my name is _____ and I'm an interviewer for the City of Phoenix. We're conducting a study on Phoenix Transit bus users and I'd like to speak with you for a few moments.

IF DESIGNATED RESPONDENT IS NOT HOME, DETERMINE CALL BACK TIME. TIME: _____

First, according to our records, you recently bought a:

- | | |
|---------------------|------|
| 1__10 ride bus pass | 62.4 |
| 2__20 ride bus pass | 35.4 |
| 3__Monthly bus pass | 2.2 |

1. How many of these passes did you buy?

NUMBER _____

2. How far out of your way did you have to go to buy the pass(es)?

3. What means of transportation did you use to get to the place where you bought the pass(es)?

- | | | |
|---------|---------------|------|
| 1__Auto | 4__Motorcycle | 16.3 |
| 2__Bus | 5__Bicycle | 30.3 |
| 3__Taxi | 6__Walk | 0.0 |
| | | 0.0 |

4. Will you be the primary user of the pass(es)?

- 1__Yes
 2__No

IF RESPONDENT IS NOT THE PRIMARY USER OF THE PASS, ASK TO SPEAK TO PRIMARY USER AND CONTINUE. IF PRIMARY USER IS NOT HOME, ARRANGE TO CALL BACK.

NAME _____ TIME _____

5. Have you ever used one of the Phoenix Transit bus passes before?

- 1__Yes 49.4
 2__No (GO TO Q.6) 50.6

5a. Before the bus pass sale, which type of pass did you use most often?

- 1__10-ride (GO TO Q.5c.) 11.0
 2__20-ride 81.5
 3__Monthly pass 5.5
 4__Student pass 20.0

5b. How often did you buy a (monthly) (student) pass?

- 1__Once a month or more
 2__Every other month
 3__Less than every other month

(GO TO Q.5f)

5c. About how many (10-ride) (20-ride) passes did you buy at a time?

NUMBER _____

5d. How often did you buy them?

- | | |
|--------------------------------|------|
| 1__Once a week | 11.6 |
| 2__Twice a month | 58.1 |
| 3__Once a month | 20.9 |
| 4__Every other month | 2.3 |
| 5__Less than every other month | 7.0 |
| 6__Don't Know | 0.0 |

5e. About how long did it take you to use up one book?

- | | |
|-------------------------------|------|
| 1__One week or less | 9.5 |
| 2__Between one and two weeks | 69.0 |
| 3__Between two and four weeks | 14.3 |
| 4__Between one and two months | 7.1 |
| 5__More than two months | 0.0 |
| 6__Don't Know | 0.0 |

5f. Did you buy any other types of bus passes before the sale?

- | | |
|------------|------------|
| 1__No | 3__20-ride |
| 2__10-ride | 4__Monthly |
| | 5__Student |

6. How did you find out about the bus pass that was bought today?

7. People give us many different reasons why they use bus passes. I'd like to read you some of the reasons, and as I do I'd like you to tell me whether you strongly agree, agree, disagree or strongly disagree with each one as a reason why you use them. Here is the first one. . . .

- SA A D SD DK
- A-It is more convenient to use the passes because you don't have to worry about having the exact change each time you ride the bus. 1 2 3 4 5
- B-I save money by using the passes. 1) 2 3 4 5

7a. What other reasons do you have for using the bus passes?

7b. Why do you prefer the (10-ride) (20-ride) (monthly) passes to the (10-ride) (20-ride) (monthly) passes? Why else?

8. In a typical week, about how many one-way bus trips do you usually make? For example, if you take the bus to work and home again that counts as two one-way trips.

Z
 0 1.2
 1-2 3.7
 3-5 16.2
 6-10 71.3
 11+ 7.6

Number (GO TO 0.9)
 99 None - New user

8a. People tell us many reasons why they don't ride the bus. I'd like to read you some of the reasons, and as I do I'd like you to tell me whether you strongly agree, agree, disagree or strongly disagree with each one as a reason why you use to not ride the bus.

SA A D SD DK

A-Buses are always late or early - it's too easy to miss the bus you need. 1 2 3 4 5
 B-I won't walk home from the bus stop after dark. 1 2 3 4 5
 C-People who ride buses are strangers. 1 2 3 4 5

8b. What are the two closest cross streets to your

PLACE OF WORK/SCHOOL:

RESIDENCE: (Ask if not on stub)

9. Now I'd like to ask you about the trips you have taken during the last two days. For our purposes, a trip is anytime you went more than three blocks by any type of transportation including bicycling and walking. For example, going to work would be one trip; going to lunch from work would be a second trip; returning to work from lunch would be a third trip, and so on. Remember, the trip has to be more than three blocks in length to be counted.

Okay, let's begin by talking about the trips you made yesterday. That would be (give day of week).

RECORD:

Day of week _____

Date _____

Did you make any trips yesterday?

1 Yes (GO TO 0.9a)
 2 No (GO TO 0.10)

9a. ASK RESPONDENT

"Where did you go on your first trip?"
 "For what purpose?"
 "How did you get there?"
 "Where did you go from there?"

Repeat sequence until all trips are accounted for

WHERE DID YOU GO?

	TRIP NUMBER									
	1	2	3	4	5	6	7	8	9	10
Work (1)										
School (2)										
Home (3)										
Medical/Dental (4)										
Shopping (5)										
Personal Business (6)										
Social/Recreation (7)										
Eat a meal (8)										
Other (9)										

HOW DID YOU GET THERE?

	TRIP NUMBER									
	1	2	3	4	5	6	7	8	9	10
Auto-driver (1)										
Auto-passenger (2)										
Bus (3)										
Taxi (4)										
Motorcycle (5)										
Bicycle (6)										
Walk (7)										
Skate (8)										

10. Now I'd like to ask you about the trips you made the day before yesterday, that would be (give day of week).

RECORD:

Day of week _____

Date _____

Did you make any trips two days ago?

1 Yes (GO TO 0.10a)
 2 No (GO TO 0.11)

10a. ASK RESPONDENT

"Where did you go on your first trip?"
 "For what purpose?"
 "How did you get there?"
 "Where did you go from there?"

Repeat sequence until all trips are accounted for

WHERE DID YOU GO?

	TRIP NUMBER									
	1	2	3	4	5	6	7	8	9	10
Work (1)										
School (2)										
Home (3)										
Medical/Dental (4)										
Shopping (5)										
Personal Business (6)										
Social/Recreation (7)										
Eat a meal (8)										
Other (9)										

HOW DID YOU GET THERE?

	1	2	3	4	5	6	7	8	9	10
Auto-driver (1)										
Auto-passenger (2)										
Bus (3)										
Taxi (4)										
Motorcycle (5)										
Bicycle (6)										
Walk (7)										
Other (8)										

Okay, now before we finish I need to ask you a few questions for classification purposes.

11. First, is a car or truck available to you as a driver or passenger for most trips you need to make . . . (READ EACH)
- | | | |
|---------------|---------------------|--|
| 1__ Always | 4__ Rarely or never | |
| 2__ Usually | 5__ Refused | |
| 3__ Sometimes | | |
12. Do you have a driver's license?
- 1__ Yes 2__ No 3__ Refused
13. Which of the following categories best applies to you. . . (READ EACH)
- | | | |
|---------------|---------------------|--|
| 1__ Employed | 5__ Other (specify) | |
| 2__ Student | | |
| 3__ Homemaker | | |
| 4__ Retired | 6__ Refused | |

14. What is the last year of regular school you've had the opportunity to complete?

2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

15. Are you married or single?

1__ Married 2__ Single 3__ Refused

16. Which of the following categories best describes your age?

1__ Under 18	4__ 45 to 64	
2__ 18 to 34	5__ 65 or over	
3__ 35 to 44	6__ Refused	

17. How many people currently live in your household?

NUMBER _____

18. Is your ethnic origin . . . (READ EACH)

1__ White	4__ Oriental	
2__ Black	5__ American Indian	
3__ Chicano	6__ Refused	

19. Thinking back to last year, would you say your total family income, before taxes and including everyone in your household, was under or over \$15,000?

<u>UNDER \$15,000</u>	<u>OVER \$15,000</u>	
Was it under or over \$5,000?	Was it under or over \$30,000?	
1__ Under \$5,000	3__ Under \$30,000	
2__ Over \$5,000	4__ Over \$30,000	

Thank you very much for your time. This completes this interview. (IF USER OF PASS IS DIFFERENT PERSON THAN PURCHASER OF PASS ASK USERS NAME AND RECORD BELOW)

USERS NAME _____

PHONE NUMBER _____

ADDRESS _____

OBSERVED DATA

SEX OF USER: 1__ Male 2__ Female

ADMINISTRATIVE DATA

Interviewer _____

Interviewer comments _____

Edited by _____ Date _____

Hello, my name is _____ and I'm an interviewer for the City of Phoenix. We're conducting a study on Phoenix Transit bus users and I'd like to speak with you for a few moments.

IF DESIGNATED RESPONDENT IS NOT HOME, DETERMINE CALL BACK TIME. TIME: _____

First, according to our records, you recently bought a:

- 1 ___ 10 ride bus pass
- 2 ___ 20 ride bus pass
- 3 ___ Monthly bus pass

1. Were you the primary user of the first sale pass(es) you bought?

- 1 ___ Yes
- 2 ___ No

IF RESPONDENT WAS NOT THE PRIMARY USER OF THE FIRST PASSES BOUGHT, ASK TO SPEAK TO PRIMARY USER AND CONTINUE. IF PRIMARY USER IS NOT HOME, ARRANGE TO C.B.

NAME _____ TIME _____

2. Did you use Phoenix Transit bus passes before January 30th?

- 1 ___ Yes
- 2 ___ No

3. In a typical week, about how many one-way bus trips do you usually make? For example, if you take the bus to work and home again that counts as two one-way trips.

- ___ Number
- 3+ ___ None

4. Did you use the bus regularly before February?

- 1 ___ Yes
- 2 ___ No (GO TO INSTRUCTION A)

4a. Do you currently ride the bus more, the same or less than you did before February?

- 1 ___ More
- 2 ___ Same
- 3 ___ Less } (GO TO INSTRUCTION A)

4b. About how many more one-way bus trips do you now make in a typical week than you did before February?

___ Number

INSTRUCTION A:
 IF PERSON IS 10 OR 20 RIDE PASS USER GO TO QUESTION 5.
 IF PERSON IS MONTHLY PASS USER GO TO QUESTION 6.

5. Did you have a valid (10-ride) (20-ride) pass to use yesterday and the day before?

- 1 ___ Yes - yesterday/day before
- 2 ___ Yes - yesterday
- 3 ___ Yes - day before
- 4 ___ No

#	%
1	94.4
2	0.9
3	0.9
4	3.8

6. Now I'd like to ask you about the trips you have taken during the last two days. For our purposes, a trip is anytime you went more than three blocks by any type of transportation including bicycling and walking. For example, going to work would be one trip; going to lunch from work would be a second trip; returning to work from lunch would be a third trip, and so on. Remember, the trip has to be more than three blocks in length to be counted.

Okay, let's begin by talking about the trips you made yesterday. That would be (give day of week).

RECORD:

Day of week _____

Date _____

Did you make any trips yesterday?

- 1 ___ Yes (GO TO Q.6a)
- 2 ___ No (GO TO Q.7)

#	%
1	66.6
2	32.2
3	1.3
4	51.3
5	48.7
6	0
7	0.3
8	3.1
9	10.9
10	78.2
11	7.5
12	91.2
13	8.7
14	11.6
15	86.0
16	2.4
17	42.4
18	27.3
19	21.2
20	9.1

ASK RESPONDENT

"Where did you go on your first trip?"
 "For what purpose?"
 "How did you get there?"
 "Where did you go from there?"

Repeat sequence until all trips are accounted for

WHERE DID YOU GO?

	TRIP NUMBER									
	1	2	3	4	5	6	7	8	9	10
Work (1)										
School (2)										
Home (3)										
Medical/Dental (4)										
Shopping (5)										
Personal Business (6)										
Social/Recreation (7)										
Eat a meal (8)										
Other (9)										

HOW DID YOU GET THERE?

	TRIP NUMBER									
	1	2	3	4	5	6	7	8	9	10
Auto-driver (1)										
Auto-passenger (2)										
Bus (3)										
Taxi (4)										
Motorcycle (5)										
Bicycle (6)										
Walk (7)										
Other (8)										

Now I'd like to ask you about the trip you made the day before yesterday, that was the (give day of week).

CORD:

Day of week _____

Time _____

Did you make any trips two days ago?

- 1 ___ Yes (GO TO 0.7)
- 2 ___ No (GO TO 0.8)

7a. ASK RESPONDENT

"Where did you go on your first trip?"
 "For what purpose?"
 "How did you get there?"
 "Where did you go from there?"

Repeat sequence until all trips are accounted for

WHERE DID YOU GO?

	TRIP NUMBER									
	1	2	3	4	5	6	7	8	9	10
Work (1)										
School (2)										
Home (3)										
Medical/Dental (4)										
Shopping (5)										
Personal Business (6)										
Social/Recreation (7)										
Eat a meal (8)										
Other (9)										

HOW DID YOU GET THERE?

	TRIP NUMBER									
	1	2	3	4	5	6	7	8	9	10
Auto-driver (1)										
Auto-passenger (2)										
Bus (3)										
Taxi (4)										
Motorcycle (5)										
Bicycle (6)										
Walk (7)										
Other (8)										

Okay, now before we finish I need to ask you a few questions for classification purposes.

See "Before" Questionnaire

8. First, is a car or truck available to you as a driver or passenger for most trips you need to make . . . (READ EACH)

- 1 ___ Always 4 ___ Rarely or never
- 2 ___ Usually 5 ___ Refused
- 3 ___ Sometimes

9. Do you have a driver's license?

- 1 ___ Yes 2 ___ No 3 ___ Refused

10. Which of the following categories best applies to you . . . (READ EACH)

- 1 ___ Employed 5 ___ Other (specify) _____
- 2 ___ Student
- 3 ___ Homemaker
- 4 ___ Retired 6 ___ Refused

11. What is the last year of regular school you've had the opportunity to complete?

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----

12. Are you married or single?

1__Married 2__Single 3__Refused

13. Which of the following categories best describes your age?

1__Under 18 4__45 to 64
2__18 to 34 5__65 or over
3__35 to 44 6__Refused

14. How many people currently live in your household?

NUMBER _____

15. Is your ethnic origin . . . (READ EACH)

1__White 4__Oriental
2__Black 5__American Indian
3__Chicano 6__Refused

16. Thinking back to last year. Would you say your total family income, before taxes and including everyone in your household, was under or over \$15,000?

UNDER \$15,000
Was it under or over \$5,000?

OVER \$15,000
Was it under or over \$30,000?

1__Under \$5,000
2__Over \$5,000

3__Under \$30,000
4__Over \$30,000

Thank you very much for your time. That completes this interview. (IF USER OF PASS IS DIFFERENT PERSON THAN PURCHASER OF PASS ASK USERS NAME AND RECORD BELOW)

USERS NAME _____

PHONE NUMBER _____

ADDRESS _____

OBSERVED DATA

SEX OF USER: 1__Male 2__Female

ADMINISTRATIVE DATA

Interviewer _____

Interviewer comments _____

Edited by _____ Date _____

APPENDIX G
PURCHASER SURVEY #2

PURCHASER SURVEY #2

G-1 Purpose of the Survey

The purposes of the second Purchaser Survey are identical to those of the first Purchaser Survey; the reader is referred to Appendix F for the details of that survey. In Austin, the second Purchaser Survey had an additional objective: to obtain data regarding the during-sale trip rates of purchasers.

G-2 Methodology: Austin

The Austin Purchaser Survey #2 was conducted from February 22 - March 31, 1978. The survey had two components:

1. The "before" sample of purchasers, interviewed on the day of their TFP purchase in order to determine pre-sale trip behavior; and
2. The "during" sample of purchasers, interviewed three to five days after having purchased a discounted ticket or pass.

The "before" survey began on the first day of the sale: Wednesday, February 22. The minimum target size of the "before" sample was 190: 95 new purchasers and 95 old purchasers. Because none of those interviewed in the first series of Purchaser and Follow-Up Surveys could be recalled, serious difficulties in obtaining an adequate sample of purchasers - new purchasers, in particular - were anticipated. A Crain & Associates memo, "Decision Rules for Austin Purchaser Sampling" outlined a series of contingency plans in the event that the sampling pool proved smaller than desired. In essence: the decision was made to include all eligible purchasers in the "before" sample until the minimum target sample size was attained.

The "during" survey began on Wednesday, March 1. No eligibles from the "before" sample were diverted to the "during" sample; therefore, the "during" sample consisted of eligible persons from the "before" sample who could not be reached on the evening of purchase, including all of those purchasing discounted tickets or passes on weekends.

Four survey workers administered the Purchaser Survey. Three placed calls from 5:30 PM to 9:00 PM on weekday evenings; one came into the Project Office approximately an hour before the calls began to help sort the name-address stubs into "eligible" and "ineligible" categories. The Project Monitor, his assistant, and one surveyor collected pass stubs on a daily basis from all sales outlets by 5:00 PM of each day. As with Purchaser Survey #1, the success of Purchaser Survey #2 depended on the voluntary cooperation of ticket outlets - 51 were selling tickets and passes during the sale - and purchasers. Outlet personnel asked purchasers to fill out the attached stubs with their names and addresses. These stubs were then set aside for daily collection. As with the October sale, problems involved in this process included lack of cooperation on the part of outlet personnel, refusal of purchasers to complete stub data, and outlet loss of stubs. Outlet personnel reported frequent purchaser complaints expressing animosity at the prospect of being called again in any survey. Also, numerous purchasers registered their displeasure over the 20% level of discount. The friction between outlet personnel and purchasers was clearly a contributing factor in the post-sale decision on the part of several key TFP outlets to discontinue ticket and pass sales.

When all stubs were collected at the end of each sale day, the total number and types of stubs were recorded. The stubs were then checked against alphabetical files of persons previously called in the first Purchaser and Follow-up Purchaser Surveys to ensure that these people would not be called again; checks were also made against names of any people who

had completed Purchaser #2 questionnaires or had refused to do so when called. All stubs lacking adequate name and address information were eliminated. The remaining stubs were sorted by purchaser and marked as "eligible" for calling that evening. Memoranda on file document the survey procedures followed by the Program Monitor and his assistant.

At the completion of the sale on March 31, the "before" sample consisted of 223 old purchasers and 95 new purchasers, or a total of 318 completed questionnaires; thus, the minimum target sample size was obtained. The "during" survey yielded 99 old purchasers and 44 new purchasers, or a total of 143 completed questionnaires. All questionnaires were coded and keypunched by the City of Austin before being sent to Crain & Associates. Copies of the "before" and "during" questionnaires are included as Exhibits G-1 and G-2.

G-3 Methodology: Phoenix

The Phoenix Purchaser Survey #2 was conducted by BRC from September 28 - November 1, 1978. As in Austin, the survey had a "before" and a "during" component. BRC and City of Phoenix staff collected name-address stubs from 50% of the outlets on each survey day; as during the first Phoenix Purchaser Survey, telephoning was done on Wednesdays, Thursdays and Fridays. Repeaters were not included in the "during" sample, as explained in Appendix F.

The "before" sample yielded 208 completed questionnaires: 110 old purchasers and 98 new purchasers. The "during" sample yielded 400 completed questionnaires: 200 old purchasers and 200 new purchasers. Copies of the "before" and "during" questionnaires are included as Exhibits G-3 and G-4.

EXHIBIT G-1

AUSTIN TFP

MARCH PURCHASER SURVEY
"BEFORE" SAMPLE

Call Sheet
Record No.

Line No.

Caller No.

1 2 3

Serial No.

Hi, I am _____ with the City of Austin's Urban Transportation Department. We are conducting a survey of Austin Transit bus users, and we'd like to speak to _____ (*target*) who bought a bus pass today.

(If "target" is on the phone, say: "We would really appreciate your help in answering a few questions. This will only take a few minutes." Then begin immediately with question 1.)

(If "target" is not available, say: "Can you tell me when I can reach him/her at this number? - - work out appointment - - and end interview.)

(If "target" comes to phone, say: "Hi. I'm _____ with the City of Austin's Urban Transportation Department. We are conducting a survey of our bus system and we would really appreciate your help in answering a few questions. This will only take a few minutes.")

According to the receipt you filled out today, you bought a:

20-ride bus pass ¹

Commuter bus pass ²

Monthly bus pass ³

Shopper bus pass ⁴

8
89.3
9.7
0.6
0.3

Is this correct?

1. Could you tell me how many passes you bought?

Number: _____

(If the person bought more than 1 pass:)

Can you tell me what types of passes you bought?

- | | |
|---|------|
| <input type="checkbox"/> 20-ride bus pass ¹ | 97.6 |
| <input type="checkbox"/> Commuter bus pass ² | 2.4 |
| <input type="checkbox"/> Monthly bus pass ³ | 0.0 |
| <input type="checkbox"/> Shopper bus pass ⁴ | 0.0 |
| <input type="checkbox"/> Student bus pass ⁵ | 0.0 |

2. Can you tell me how far out of your way you had to go to buy the bus pass?

- | | |
|--|------|
| <input type="checkbox"/> Less than 4 blocks ¹ | 73.8 |
| <input type="checkbox"/> Less than 1 mile ² | 9.8 |
| <input type="checkbox"/> 1-3 miles ³ | 10.7 |
| <input type="checkbox"/> Over 3 miles ⁴ | 4.1 |
| <input type="checkbox"/> I don't know ⁵ | 1.6 |

3. How convenient was it for you to buy the bus pass there? Was it:

- | | |
|---|------|
| <input type="checkbox"/> Very convenient ¹ | 85.1 |
| <input type="checkbox"/> Fairly convenient ² | 12.0 |
| <input type="checkbox"/> Inconvenient ³ | 2.8 |

→ Can you tell me why it was inconvenient?

4. What means of transportation did you use to get to the place where you bought the pass(es)?

- | | | | |
|---|--|------|------|
| <input type="checkbox"/> Auto ¹ | <input type="checkbox"/> Motorcycle ⁴ | 14.2 | 0.0 |
| <input type="checkbox"/> Bus ² | <input type="checkbox"/> Bicycle ⁵ | 30.2 | 0.6 |
| <input type="checkbox"/> Taxi ³ | <input type="checkbox"/> Walk ⁶ | 0.3 | 52.2 |
| <input type="checkbox"/> Other ⁷ | _____ | 2.5 | |

5. Will you be the one using this bus pass (these passes)?

- Yes ¹
- No ²

What is the name of the person who will be the principal user of the pass (these passes)? May I speak with _____ (target) _____?

(If user is at home, say: "Hi, I'm _____ with the City of Austin's Urban Transportation Department. We are conducting a survey of our bus pass users, and we'd really appreciate your help in answering a few questions. This should only take a few minutes.")

(If user is not available, say: "Can you tell me when I can reach him/her at this number?" - - ask for user's name, work out appointment and end conversation.)

(When you have the user on the phone, ask:)

5a. Have you used any sale bus passes before this one - that is, since the sale started on February 22nd?

- Yes ¹ → (Go to "During" questionnaire, question 2b.)
- No ² → (Continue with "Before" questionnaire, question 6.)

6. Have you ever used one of Austin Transit's bus passes before today?

- Yes ¹
- No ²

(If no: skip to question 10.)

(If the total required number of persons in this group has already been interviewed, say: "Thank you very much for your help with this survey. The City of Austin really appreciates your assistance and time. We want you to know we'll be using this information to help analyze our bus service. Again, we thank you for your help. Goodbye.")

8

71.0

29.0

		<u>8</u>
7.	When did you first use a pass?	
	<input type="checkbox"/> Before the bus pass sale last October ¹	56.9
	<input type="checkbox"/> During the bus pass sale last October ²	24.9
	<input type="checkbox"/> After October but before this sale ³	18.2
	→ 7b. Did you buy any passes between the October sale and today?	
	<input type="checkbox"/> Yes ¹	51.7
	<input type="checkbox"/> No ²	48.3
8.	Before this bus pass sale, which type of pass did you use most often?	
	<input type="checkbox"/> 20-ride bus pass ¹	
	About how many 20-ride passes did you buy at a time? _____	
	How often did you buy them?	
	<input type="checkbox"/> Once a week ¹	
	<input type="checkbox"/> Twice a month ²	
	<input type="checkbox"/> Once a month ³	
	<input type="checkbox"/> Every other month ⁴	
	<input type="checkbox"/> Less than every other ⁵ month	
	<input type="checkbox"/> I don't remember ⁶	
	About how long did it take you to use up one book?	
	<input type="checkbox"/> One week or less ¹	8.3
	<input type="checkbox"/> Two weeks or less ²	45.8
	<input type="checkbox"/> One month or less ³	16.2
	<input type="checkbox"/> One to two months ⁴	12.5
	<input type="checkbox"/> More than two months ⁵	6.3
	<input type="checkbox"/> I don't remember ⁶	10.9
	<input type="checkbox"/> Commuter bus pass ²	85.0, 11.9
	<input type="checkbox"/> Monthly bus pass ³	1.8
	<input type="checkbox"/> Shopper bus pass ⁴	0.0
	<input type="checkbox"/> Student bus pass ⁵	1.3
	How often did you buy this type of pass?	
	<input type="checkbox"/> Once a week ¹	4.2, 0
	<input type="checkbox"/> Twice a month ²	31.3, 0
	<input type="checkbox"/> Once a month ³	23.4, 94.3
	<input type="checkbox"/> Every other month ⁴	5.2, 0
	<input type="checkbox"/> Less than every other ⁵ month	20.8, 5.7
	<input type="checkbox"/> I don't remember ⁶	15.1, 0

9. Did you buy any other types of bus passes before this sale?

Yes¹ → Which types?
 No²

- 20-ride bus pass¹
- Commuter bus pass²
- Monthly bus pass³
- Shopper bus pass⁴
- Student bus pass⁵

	#	%
	12.4	
	87.6	56.7
		23.3
		13.3
		0.0
		6.7

10. How did you find out about the bus pass that was bought today? _____

What other ways did you hear about the bus pass sale?

(probe) _____

11. Can you tell me why you wanted to use this pass?

(Note to interviewer: You must probe for specific responses to this question. For example, if the response is "convenience," you should ask the person to explain why the pass was more convenient than paying cash fares.)

12. Can you tell me how many one-way trips you make on Austin Transit buses in a typical week? For example, if you take the bus to work, that would be one one-way trip. Then, if you took the bus from work back home, that would be another one-way trip.

	#	%
0		0.3
1-2		7.1
3-5		17.0
6-10		64.3
11+		11.3

Number: _____

Now I'd like to ask you some questions about the trips you've made during the last two days.

A trip is any time you went at least three blocks from one place to another. You could have used any type of transportation including walking or bicycling. For example, going to work by automobile would be one trip; walking to a place for lunch, if it was at least 3 blocks away, would be a second trip; returning to work from lunch would be a third trip.

Yesterday's Trips

Let's begin by talking about trips you made yesterday. That would be *(give day of week)*

record:

Day of week _____

Date _____

13. Did you make any trips yesterday?

Yes¹

No² *(If "no", proceed to day before yesterday.)*

(If "yes", interviewer proceeds with the following series of questions and records the responses in grids provided:

"Where did you go on your first trip?"

"For what purpose?"

"What type of transportation did you use to get there?"

"Now, where did you go from there?"

"For what purpose?" *and so forth*)

YESTERDAY

Trip Number

Where did you go?

	1	2	3	4	5	6	7	8
Work ¹								
School ²								
Home ³								
Medical/Dental ⁴								
Shopping ⁵								
Personal business ⁶								
Social/recreational ⁷								
Eat Meal ⁸								
Other ⁹								

How did you get there?

	1	2	3	4	5	6	7	8
Private auto, driver ¹								
Private auto, passenger ²								
Bus, Austin Transit ³								
Bus, Other ⁴								
Taxi ⁵								
Motorbike ⁶								
Bicycle ⁷								
Walking ⁸								
Other ⁹								

Day Before Yesterday's Trips

Now I'd like to ask you about the trips you made the day before yesterday. That would be *(give day of week)*

record:

Day of week _____

Date _____

14. Did you make any trips that day?

Yes ¹

No ² *(If "no," proceed to question 15).*

(If "yes," interviewer proceeds with the following series of questions and records the responses in the grids provided:)

"Where did you go on your first trip?"

"For what purpose?"

"What type of transportation did you use to get there?"

"Now, where did you go from there?"

"For what purpose?" *and so forth.*)

DAY BEFORE YESTERDAY

Trip Number

Where did you go?

	1	2	3	4	5	6	7	8
Work ¹								
School ²								
Home ³								
Medical/Dental ⁴								
Shopping ⁵								
Personal business ⁶								
Social/recreational ⁷								
Eat Meal ⁸								
Other ⁹								

How did you get there?

	1	2	3	4	5	6	7	8
Private auto, driver ¹								
Private auto, passenger ²								
Bus, Austin Transit ³								
Bus, Other ⁴								
Taxi ⁵								
Motorbike ⁶								
Bicycle ⁷								
Walking ⁸								
Other ⁹								

Now, I would like you to answer a few questions about yourself so that we can understand our riders better.

- | | <u>8</u> |
|---|----------|
| 15. First, I would like to note your age: | |
| <input type="checkbox"/> Under 18 ¹ | 4.1 |
| <input type="checkbox"/> 18 - 44 ² | 57.8 |
| <input type="checkbox"/> 45 - 64 ³ | 19.4 |
| <input type="checkbox"/> 65 or over ⁴ | 17.8 |
| <input type="checkbox"/> No answer ⁵ | 1.0 |
| 16. Are you married or single? | |
| <input type="checkbox"/> Married ¹ | 38.6 |
| <input type="checkbox"/> Single ² | 61.4 |
| 17. Do you have a car or truck available to you as a driver or as a passenger for most of the trips you make? | |
| <input type="checkbox"/> Always ¹ | 30.1 |
| <input type="checkbox"/> Usually ² | 9.2 |
| <input type="checkbox"/> Sometimes ³ | 14.6 |
| <input type="checkbox"/> Rarely ⁴ | 9.5 |
| <input type="checkbox"/> Never ⁵ | 36.7 |
| 18. How many operating motorized vehicles are owned by people living in your household? | |
| <i>Number:</i> _____ | |
| 19. Please tell me which one of the following categories best applies to you: | |
| <input type="checkbox"/> Employed ¹ | 58.1 |
| <input type="checkbox"/> Student ² | 15.9 |
| <input type="checkbox"/> Homemaker ³ | 3.5 |
| <input type="checkbox"/> Retired ⁴ | 18.7 |
| <input type="checkbox"/> Other ⁵ _____ | 3.8 |

20.	Now, we would like to determine your educational background.		<u>8</u>	
	<input type="checkbox"/> Did you complete grade school? ¹		17.0	
	<input type="checkbox"/> Did you complete high school? ²		25.3	
	<input type="checkbox"/> Do you have some college education? ³		31.6	
	<input type="checkbox"/> Did you complete four years of college? ⁴		6.3	
	<input type="checkbox"/> Are you pursuing or have you completed a graduate degree? ⁵		19.8	
21.	Your ethnic background is			
	<input type="checkbox"/> Anglo ¹	<input type="checkbox"/> Mexican-American ³	60.6	15.7
	<input type="checkbox"/> Black ²	<input type="checkbox"/> Other ⁴	19.6	4.2
22.	How many people currently live in your household?			

23.	Would you say your total household income, -- I mean, before taxes and including everyone in your household, was			
	<input type="checkbox"/> Less than \$5,000 a year? ¹		32.7	
	<input type="checkbox"/> Between \$5,000 and \$15,000? ²		45.0	
	<input type="checkbox"/> Between \$15,000 and \$30,000? ³		21.5	
	<input type="checkbox"/> Over \$30,000 a year? ⁴		0.8	
	<input type="checkbox"/> Don't know ⁵			
	<input type="checkbox"/> Refuse to say ⁶			

24. Now, do you have any comments or suggestions about our bus pass program? _____

Thank you very much for your help with this survey. The City of Austin really appreciates your assistance and time. We want you to know we'll be using this information to help analyze our bus service. Again, we do thank you for your help. Goodbye.

(This ends interview)

25. (Sex - by observation)

Female ¹

Male²

8
74 2
25.8

Interviewer Remarks: _____

EXHIBIT G-2

AUSTIN TFP

PURCHASER SURVEY #2

"DURING" SAMPLE

Call Sheet Record No.

Line No.

Caller No.

1 2 3

Serial No.

Hi, I am _____ with the City of Austin's Urban Transportation Department. We are conducting a survey of Austin Transit bus users, and we'd like to speak to _____ (*target*) who bought a bus pass recently.

(If "target" is on the phone, say: "We would really appreciate your help in answering a few questions. This will only take a few minutes." Then begin immediately with question 1.)

(If "target" is not available, say: "Can you tell me when I can reach him/her at this number? - - work out appointment - - and end interview.)

(If "target" comes to phone, say: "Hi. I'm _____ with the City of Austin's Urban Transportation Department. We are conducting a survey of our bus system and we would really appreciate your help in answering a few questions. This will only take a few minutes.")

According to the receipt you filled out, you recently bought a:

20-ride bus pass ¹

Commuter bus pass ²

Monthly bus pass ³

Shopper bus pass ⁴

8
87.9
10.8
0.6
0.6

Is this correct?

1. Could you tell me how many passes you have bought since the sale began?

Number: _____

2a. Were you the principal user of the first sale ^{Repeaters only} pass(es) you bought?

- Yes¹
- No²

What is the name of the person who was the principal user of the pass(es)? May I speak with _____ (target) ?

(If user is at home, say: "Hi, I'm _____ with the City of Austin's Urban Transportation Department. We are conducting a survey of our bus pass users, and we'd really appreciate your help in answering a few questions. This should only take a few minutes.")

(If user is not available, say: "Can you tell me when I can reach him/her at this number?" -- ask for user's name, work out appointment and end conversation.)

(When you have the user on the phone, ask:)

2b. Could you tell me how many passes you have used since the sale began?

Number: _____

3. Did you ever use one of Austin Transit's bus passes before this sale began?

- Yes¹
- No²

(If the total required number of persons in this group has already been interviewed, say: "Thank you very much for your help with this survey. The City of Austin really appreciates your assistance and time. We want you to know we'll be using this information to help analyze our bus service. Again, we thank you for your help. Goodbye.")

8

68.2

31.8

*(Ask question 4 only if person is a 20-ride pass user.)

4. Did you have a valid 20-ride pass to use yesterday and the day before?

- | | |
|--|------|
| <input type="checkbox"/> Yes: Yesterday and the day before ¹ | 95.7 |
| <input type="checkbox"/> Yes: Yesterday only ² | 2.1 |
| <input type="checkbox"/> Yes: The day before yesterday only ³ | 0.7 |
| <input type="checkbox"/> No ⁴ | 1.4 |

5. Did you ride the bus at least once a week before March?

- | | |
|---|------|
| <input type="checkbox"/> Yes ¹ | 89.8 |
| <input type="checkbox"/> No ² → (If no, skip to question 8.) | 10.2 |
- (If yes:)

6. Do you currently ride the bus more, the same, or less than you did before March?

- | | | |
|--|---------------------------|------|
| <input type="checkbox"/> More ¹ | } → (Skip to question 8.) | 22.7 |
| <input type="checkbox"/> Same ² | | 71.6 |
| <input type="checkbox"/> Less ³ | | 5.7 |

7. About how many more one-way bus trips do you now make in a typical week than you did before March?

Number: _____

#	%
2	13.3
3-5	66.7
6-8	20.0

8. Can you tell me how many one-way trips you currently make on Austin Transit buses in a typical week? For example, if you take the bus to work, that would be one one-way trip. Then, if you took the bus from work back home, that would be another one-way trip.

Number: _____

1-2	7.1
3-5	18.7
6-10	62.6
11+	11.5

Now I'd like to ask you some questions about the trips you've made during the last two days.

A trip is any time you went at least three blocks from one place to another. You could have used any type of transportation including walking or bicycling. For example, going to work by automobile would be one trip; walking to a place for lunch, if it was at least 3 blocks away, would be a second trip; returning to work from lunch would be a third trip.

Yesterday's Trips

Let's begin by talking about trips you made yesterday. That would be *(give day of week)*

record:

Day of week _____

Date _____

9. Did you make any trips yesterday?

- Yes¹
- No² *(If "no", proceed to day before yesterday.)*
- *(If "yes", interviewer proceeds with the following series of questions and records the responses in grids provided:*

"Where did you go on your first trip?"

"For what purpose?"

"What type of transportation did you use to get there?"

"Now, where did you go from there?"

"For what purpose?" *and so forth.*)

YESTERDAY

Trip Number

Where did you go?

	1	2	3	4	5	6	7	8
Work ¹								
School ²								
Home ³								
Medical/Dental ⁴								
Shopping ⁵								
Personal business ⁶								
Social/recreational ⁷								
Eat Meal ⁸								
Other ⁹								

How did you get there?

	1	2	3	4	5	6	7	8
Private auto, driver ¹								
Private auto, passenger ²								
Bus, Austin Transit ³								
Bus, Other ⁴								
Taxi ⁵								
Motorbike ⁶								
Bicycle ⁷								
Walking ⁸								
Other ⁹								

Day Before Yesterday's Trips

Now I'd like to ask you about the trips you made the day before yesterday. That would be *(give day of week)*

record:

Day of week _____

Date _____

10. Did you make any trips that day?

- Yes ¹
- No ² *(If "no," proceed to question 11).*

(If "yes," interviewer proceeds with the following series of questions and records the responses in the grids provided.)

"Where did you go on your first trip?"
 "For what purpose?"
 "What type of transportation did you use to get there?"
 "Now, where did you go from there?"
 "For what purpose?" and so forth.)

DAY BEFORE YESTERDAY	Trip Number							
Where did you go?	1	2	3	4	5	6	7	8
Work ¹								
School ²								
Home ³								
Medical/Dental ⁴								
Shopping ⁵								
Personal business ⁶								
Social/recreational ⁷								
Eat Meal ⁸								
Other ⁹								

How did you get there?	1	2	3	4	5	6	7	8
Private auto, driver ¹								
Private auto, passenger ²								
Bus, Austin Transit ³								
Bus, Other ⁴								
Taxi ⁵								
Motorbike ⁶								
Bicycle ⁷								
Walking ⁸								
Other ⁹								

Now, I would like you to answer a few questions about yourself so that we can understand our riders better.

	<u>%</u>
11. First, I would like to note your age:	
<input type="checkbox"/> Under 18 ¹	4.5
<input type="checkbox"/> 18 - 44 ²	55.8
<input type="checkbox"/> 45 - 64 ³	20.8
<input type="checkbox"/> 65 or over ⁴	18.8
<input type="checkbox"/> No answer ⁵	
12. Are you married or single?	
<input type="checkbox"/> Married ¹	30.7
<input type="checkbox"/> Single ²	69.3
13. Do you have a car or truck available to you as a driver or as a passenger for most of the trips you make?	
<input type="checkbox"/> Always ¹	39.4
<input type="checkbox"/> Usually ²	6.5
<input type="checkbox"/> Sometimes ³	6.5
<input type="checkbox"/> Rarely ⁴	2.6
<input type="checkbox"/> Never ⁵	45.2
14. How many operating motorized vehicles are owned by people living in your household?	
<i>Number:</i> _____	
15. Please tell me which one of the following categories best applies to you:	
<input type="checkbox"/> Employed ¹	66.7
<input type="checkbox"/> Student ²	14.4
<input type="checkbox"/> Homemaker ³	1.3
<input type="checkbox"/> Retired ⁴	16.3
<input type="checkbox"/> Other ⁵ _____	1.3

16. Now, we would like to determine your educational background.

	<u>%</u>
<input type="checkbox"/> Did you complete grade school? ¹	14.4
<input type="checkbox"/> Did you complete high school? ²	25.9
<input type="checkbox"/> Do you have some college education? ³	31.7
<input type="checkbox"/> Did you complete four years of college? ⁴	8.6
<input type="checkbox"/> Are you pursuing or have you completed a graduate degree? ⁵	19.4

17. Your ethnic background is

<input type="checkbox"/> Anglo ¹	<input type="checkbox"/> Mexican-American ³	66.7	13.3
<input type="checkbox"/> Black ²	<input type="checkbox"/> Other ⁴	16.0	4.0

18. How many people currently live in your household?

19. Would you say your total household income, -- I mean, before taxes and including everyone in your household, was

<input type="checkbox"/> Less than \$5,000 a year? ¹	31.6
<input type="checkbox"/> Between \$5,000 and \$15,000? ²	42.7
<input type="checkbox"/> Between \$15,000 and \$30,000? ³	18.8
<input type="checkbox"/> Over \$30,000 a year? ⁴	6.8
<input type="checkbox"/> Don't know ⁵	
<input type="checkbox"/> Refuse to say ⁶	

20. Now, do you have any comments or suggestions about our bus pass program? _____

Thank you very much for your help with this survey. The City of Austin really appreciates your assistance and time. We want you to know we'll be using this information to help analyze our bus service. Again, we do thank you for your help. Goodbye.

(This ends interview)

21. (Sex - by observation)

Female ¹

Male²

8

71.2

28.8

Interviewer Remarks: _____

EXHIBIT G-3

BEHAVIOR RESEARCH CENTER
2214 N. Central Avenue
Phoenix, Arizona 85004
(602) 258-4554

PHOENIX TFP
PURCHASER SURVEY - #2
BEFORE
September/October 1978

Resp. No. 1-3:

Card No. 4: 1

Hello, my name is _____ and I'm an interviewer for the City of Phoenix. We're conducting a study on Phoenix Transit bus users and I'd like to speak with you for a few moments.

IF DESIGNATED RESPONDENT IS NOT HOME, DETERMINE CALL BACK TIME. TIME: _____

1. First, are you a resident of the Phoenix area, or are you just visiting? %

1 ___ Resident 100.0
2 ___ Just visiting (TERMINATE) 0.0
(explanation if respondent's status is unclear)

2. According to the receipt you filled out today, you bought a:

1 ___ 10-ride bus pass 84.1
2 ___ monthly bus pass 15.9

3. Was this the first discounted pass you've bought since the bus pass sale started?

1 ___ Yes
2 ___ No (GO TO DURING QUESTIONNAIRE - Q.3)

4. How far out of your way did you have to go to buy the pass(es)?

1 ___ Less than one block 53.8
2 ___ 1-4 blocks 15.4
3 ___ 5 blocks-1 mile 9.6
4 ___ over 1 mile 20.7
5 ___ Don't know 0.5

5. Will you be the primary user of the pass(es)?

1 ___ Yes
2 ___ No

IF RESPONDENT IS NOT THE PRIMARY USER OF THE PASS, ASK TO SPEAK TO PRIMARY USER AND CONTINUE. IF PRIMARY USER IS NOT HOME, ARRANGE TO CALL BACK.

NAME _____ TIME _____

6. Have you ever used one of the Phoenix Transit bus passes before?

1 ___ Yes 52.9
2 ___ No (Go to Q.7) 47.1

6a. When did you first use a pass? %

1 ___ Before the bus pass sale last February (Go to Q6c) 41.3
2 ___ During the bus pass sale last February 11.9
3 ___ After the February sale but before this sale (Go to Q6c) 46.8

6b. Between the February sale and today, have you used any type of bus pass?

1 ___ Yes 70.8
2 ___ No 29.2

6c. Before this bus pass sale, which type of pass did you use most often?

1 ___ 10-ride bus pass 56.9
2 ___ 20-ride bus pass 26.6
3 ___ monthly bus pass 9.2
4 ___ student bus pass 7.3

6d. Did you buy any other types of bus passes before this sale?

1 ___ No 66.7
Yes: which types?

2 ___ 10-ride bus pass 13.9
3 ___ 20-ride bus pass 11.1
4 ___ monthly bus pass 6.5
5 ___ student bus pass 1.9

7. How did you find out about the bus pass that was bought today? How else did you find out about it?

7a. Do you recall whether or not you have seen or heard the bus pass sale advertising on any of the following media? (READ EACH) (Yes)

	Yes	No/DK	%
On the radio	1	X	23.7
On television	1	X	42.5
In the newspaper	1	X	46.9
In magazines	1	X	1.4
On a flyer in your utility bill	1	X	19.8
On billboards	1	X	15.5
On the bus	1	X	65.7
At the bus station	1	X	27.5

8. People have been giving us many different reasons why they're buying the sale passes. What are your reasons for buying them? What other reasons do you have for buying them?

9. In a typical week, about how many one-way bus trips do you usually make? For example, if you take the bus to work and home again, that counts as two one-way trips.

_____ Number
 99 _____ None - New user

10. Now I'd like to ask you about the trips you have taken during the last two days. For our purposes, a trip is anytime you went more than three blocks by any type of transportation including bicycling and walking. For example, going to work would be one trip; going to lunch from work would be a second trip; returning to work from lunch would be a third trip, and so on. Remember, the trip has to be more than three blocks in length to be counted.

Okay, let's begin by talking about the trips you made yesterday. That would be (give day of week).

RECORD:

Day of week _____

Date _____

Did you make any trips yesterday?

1. Yes (GO TO Q.10a)
 2. No (GO TO Q.11)

10a. ASK RESPONDENT

"Where did you go on your first trip?"
 "For what purpose?"
 "Who did you get there?"
 "Where did you go from there?"

Repeat sequence until all trips are accounted for

WHERE DID YOU GO?

	TRIP NUMBER										
	1	2	3	4	5	6	7	8	9	10	
Work (1)											2)
School (2)											3)
Home (3)											4)
Medical/Dental (4)											5)
Shopping (5)											6)
Personal Business (6)											7)
Social/Recreation (7)											8)
Eat a meal (8)											9)
Other (9)											0)

HOW DID YOU GET THERE?

	1	2	3	4	5	6	7	8	9	10	
Auto-driver (1)											2)
Auto-passenger (2)											3)
Pub. Transit Bus (3)											4)
Dial-a-Ride (4)											5)
Taxi (5)											6)
Motorcycle (6)											7)
Bicycle (7)											8)
Walk (8)											9)
Other (9)											0)

11. Now I'd like to ask you about the trips you made the day before yesterday. That would be (give day of week).

RECORD:

Day of week _____

Date _____

Did you make any trips two days ago?

1. Yes (GO TO Q.11a)
 2. No (GO TO Q.12)

11a. ASK RESPONDENT

"Where did you go on your first trip?"
 "For what purpose?"
 "How did you get there?"
 "Where did you go from there?"

Repeat sequence until all trips are accounted for

WHERE DID YOU GO?

	TRIP NUMBER									
	1	2	3	4	5	6	7	8	9	10
Work (1)										
School (2)										
Home (3)										
Medical/Dental (4)										
Shopping (5)										
Personal Business (6)										
Social/Recreation (7)										
Eat a meal (8)										
Other (9)										

HOW DID YOU GET THERE?

	TRIP NUMBER									
	1	2	3	4	5	6	7	8	9	10
Auto-driver (1)										
Auto-passenger (2)										
Phx. Transit Bus (3)										
Dial-a-Ride (4)										
Taxi (5)										
Motorcycle (6)										
Bicycle (7)										
Walk (8)										
Other (9)										

Okay, now before we finish I need to ask you a few questions for classification purposes.

Before & During

12. First, is a car or truck available to you as a Driver or passenger for most trips you need to make... (READ EACH)
- 1__Always 4__Rarely or never
 2__Usually 5__Refused
 3__Sometimes
13. Do you have a driver's license?
- 1__Yes 2__No 3__Refused
14. Which of the following categories best applies to you.... (READ EACH)
- 1__Employed 5__Other (specify)
 2__Student
 3__Homemaker
 4__Retired 6__Refused

15. What is the last year of regular school you've had the opportunity to complete?

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

- 5__Refused
16. Are you married or single?
- 1__Married 2__Single 3__Refused
17. Which of the following categories best describes your age?
- 1__Under 18 4__45 to 64
 2__18 to 34 5__65 or over
 3__35 to 44 6__Refused
18. How many people currently live in your household?
- _____ Number
 + _____ Refused
19. Is your ethnic origin... (READ EACH)
- 1__White 4__Oriental
 2__Black 5__American Indian
 3__Mex-American 6__Refused
20. Thinking back to last year, would you say your total family income, before taxes and including everyone in your household, was under or over \$15,000?
- 1__under 15K 2__over 15K 3__Ref.
- Was it under or over \$5,000 Was it under or over \$30,000
- 1__under \$5K 3__under \$30K
 2__over \$5K 4__over \$30K
 5__Refused 5__Refused

Thank you very much for your time. That completes this interview. (IF USER OF PASS IS DIFFERENT PERSON THAN PURCHASER OF PASS ASK USERS NAME AND RECORD BELOW)

USERS NAME _____
 PHONE NUMBER _____
 ADDRESS _____

OBSERVED DATA
 SEX OF USER: 1__Male 2__Female

ADMINISTRATIVE DATA

Interviewer _____
 Interviewer comments _____
 Edited by _____ Date _____

Hello, my name is _____ and I'm an interviewer for the City of Phoenix. We're conducting a study on Phoenix Transit bus users and I'd like to speak with you for a few moments.

IF DESIGNATED RESPONDENT IS NOT HOME, DETERMINE CALL BACK TIME. TIME: _____

- | | % |
|--|------------|
| 1. First, are you a resident of the Phoenix area, or are you just visiting? | |
| 1 ___ Resident | 100.0 |
| 2 ___ Just visiting (TERMINATE)
(explanation if respondent's status is unclear) | 0.0 |
| | |
| 2. According to our records, on (DAY/DATE) you bought a: | |
| 1 ___ 10-ride bus pass | 92.2 |
| 2 ___ monthly bus pass | 7.5 |
| | (both) 0.2 |
| 3. Are you the primary user of the pass(es) | |
| 1 ___ Yes | |
| 2 ___ No | |
| <p>IF RESPONDENT WAS NOT THE PRIMARY USER OF THE FIRST PASSES BOUGHT, ASK TO SPEAK TO PRIMARY USER AND CONTINUE. IF PRIMARY USER IS NOT HOME, ARRANGE TO CALL BACK:</p> <p>NAME: _____ TIME: _____</p> | |
| 4. Did you have a valid bus pass to use yesterday and the day before? | |
| 1 ___ Yes - yesterday & day before | 96.2 |
| 2 ___ Yesterday only | 0.5 |
| 3 ___ Day before only | 1.5 |
| 4 ___ No - neither day | 1.7 |
| 5. Did you use Phoenix Transit bus passes before this sale began? | |
| 1 ___ Yes | 50.0 |
| 2 ___ No (GO TO 0.6) | 50.0 |
| 5a. When did you first use a pass? | |
| 1 ___ Before the bus pass sale last February (GO TO 0.6) | 50.2 |
| 2 ___ During the bus pass sale last February | 12.4 |
| 3 ___ After the February sale but before this sale (GO TO 0.6) | 37.3 |
| 5b. Between the February sale and today, have you used any type of bus pass? | |
| 1 ___ Yes | 73.1 |
| 2 ___ No | 26.9 |

6. In a typical week, about how many one-way bus trips do you usually make? For example, if you take the bus to work and home again, that counts as two one-way trips.

	#	%
___ Number	0	0.5
1-2	3.3	
3-5	13.6	
6-10	76.8	
11+	5.8	

7. Now I'd like to ask you about the trips you have taken during the last two days. For our purposes, a trip is anytime you went more than three blocks by any type of transportation including bicycling and walking. For example, going to work would be one trip; going to lunch from work would be a second trip; returning to work from lunch would be a third trip, and so on. Remember, the trip has to be more than three blocks in length to be counted.

Okay, let's begin by talking about the trips you made yesterday. That would be (give day of week).

RECORD:

Day of week _____

Date _____

Did you make any trips yesterday?

- 1 ___ Yes (GO TO 0.7a)
2 ___ No (GO TO 0.8)

7a. ASK RESPONDENT

"Where did you go on your first trip?"
 "For what purpose?"
 "How did you get there?"
 "Where did you go from there?"

Repeat sequence until all trips are accounted for

WHERE DID YOU GO?

	TRIP NUMBER									
	1	2	3	4	5	6	7	8	9	10
Work (1)										
School (2)										
Home (3)										
Medical/Dental (4)										
Shopping (5)										
Personal Business (6)										
Social/Recreation (7)										
Eat a meal (8)										
Other (9)										

HOW DID YOU GET THERE?

	TRIP NUMBER									
	1	2	3	4	5	6	7	8	9	10
Auto-driver (1)										
Auto-passenger (2)										
Pub. Transit Bus (3)										
Dial-a-Ride (4)										
Taxi (5)										
Motorcycle (6)										
Bicycle (7)										
Walk (8)										
Other (9)										

8. Now I'd like to ask you about the trips you made the day before yesterday. That would be (give day of week).

RECORD:

Day of week _____

Date _____

Did you make any trips two days ago?

- 1 ___ Yes (GO TO Q.8a)
- 2 ___ No (GO TO Q.9)

8a. ASK RESPONDENT

"Where did you go on your first trip?"
 "For what purpose?"
 "How did you get there?"
 "Where did you go from there?"

Repeat sequence until all trips are accounted for

WHERE DID YOU GO?

	TRIP NUMBER									
	1	2	3	4	5	6	7	8	9	10
Work (1)										
School (2)										
Home (3)										
Medical/Dental (4)										
Shopping (5)										
Personal Business (6)										
Social/Recreation (7)										
Eat a meal (8)										
Other (9)										

HOW DID YOU GET THERE?

	TRIP NUMBER									
	1	2	3	4	5	6	7	8	9	10
Auto-driver (1)										
Auto-passenger (2)										
Pub. Transit Bus (3)										
Dial-a-Ride (4)										
Taxi (5)										
Motorcycle (6)										
Bicycle (7)										
Walk (8)										
Other (9)										

See "Before" Questionnaire

Okay, now before we finish I need to ask you a few questions for classification purposes.

9. First, is a car or truck available to you as a driver or passenger for most trips you need to make... (READ EACH)

- 1 ___ Always
- 2 ___ Usually
- 3 ___ Sometimes
- 4 ___ Rarely or never
- 5 ___ Refused

10. Do you have a driver's license?

- 1 ___ Yes
- 2 ___ No
- 3 ___ Refused

11. Which of the following categories best applies to you...(READ EACH)

- 1__Employed 5__Other (specify)
- 2__Student
- 3__Homemaker
- 4__Retired 6__Refused

12. What is the last year of regular school you've had the opportunity to complete?

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
			1						2					3		4

5__Refused

13. Are you married or single?

- 1__Married 2__Single 3__Refused

14. Which of the following categories best describes your age?

- 1__Under 18 4__45 - 64
- 2__18 - 34 5__65 or over
- 3__35 - 44 6__Refused

15. How many people currently live in your household?

_____ Number
+ _____ Refused

16. Is your ethnic origin...(READ EACH)

- 1__White 4__Oriental
- 2__Black 5__American Indian
- 3__Mex-American 6__Refused

17. Thinking back to last year, would you say your total family income, before taxes and including everyone in your household, was under or over \$15,000?

- 1__under \$15K 2__over \$15K 3__Ref.

- | | |
|------------------------------|-------------------------------|
| Was it under or over \$5,000 | Was it under or over \$30,000 |
| 1__under \$5K | 3__under \$30K |
| 2__over \$5K | 4__over \$30K |
| 5__Refused | 5__Refused |

Thank you very much for your time. That completes this interview. (IF USER OF PASS IS DIFFERENT PERSON THAN PURCHASER OF PASS ASK USERS NAME AND RECORD BELOW)

USERS NAME _____

PHONE NUMBER _____

ADDRESS _____

OBSERVED DATA

SEX OF USER: 1__Male 2__Female

ADMINISTRATIVE DATA

Interviewer: _____

Interviewer comments: _____

Listed by: _____ Date _____

APPENDIX H
BULK BUYER INTERVIEWS

BULK BUYER INTERVIEWS

H-1 Purpose of the Interviews

The bulk buyer interviews had several purposes: to determine the effects (if any) of the two TFP sales on the purchasing behavior of the social service agencies which purchase tickets in bulk from the two transit systems; to determine whether transit-riding on the part of agency clients increased as a result of the sales; and to obtain a socioeconomic profile and travel pattern description of the agency clients using tickets.

H-2 Methodology: Austin

Representatives from those organizations purchasing tickets in bulk from Austin Transit during the sales were interviewed in Austin by Pamela Bloomfield of Crain & Associates. (A bulk purchase was defined as 20 tickets or more.) In addition, one individual purchased 50 20-ride tickets during the October sale; he was interviewed by telephone to determine whether the tickets he purchased were to be resold or distributed to others, or whether they were bought for his personal use. The Discussion Guide used in conducting the interviews is provided as Exhibit H-1. The interviews, which were conducted after each sale, are documented in two "Highlights" memos, attached as Exhibits H-2 and H-3.

H-3 Methodology: Phoenix

As in Austin, Pamela Bloomfield of Crain & Associates interviewed representatives of business and social organizations purchasing tickets in bulk from Phoenix Transit. The Discussion Guide used in Phoenix is attached as Exhibit H-4. The interviews, which were conducted after each sale, are documented in two "Highlights" memos. (See Exhibits H-5 and H-6.)

EXHIBIT H-1

AUSTIN BULK BUYER SURVEY
DISCUSSION GUIDE

1. Organization:

2. Contact Person:

3. Time-Series Data:

Type of pass purchased:

Twenty-ride

Monthly

Number of passes purchased:

January through December, 1976 _____

1976 Average _____

January through September, 1977 _____

January through September Average _____

October, 1977 _____

November, 1977 _____

December, 1977 _____

4. Client and Pass User Profiles:

Number:

Description:

- o Age
- o Auto Availability
- o Employment Status
- o Educational Background
- o Ethnic Background
- o Total Household Income
- o Handicaps

5. Transportation Program:

6. Before October 1977, how frequently did you purchase passes?

20-ride

Monthly

Frequency:

(Ave. # purchased)

7. How long did it take to use up your supply?

8. Why do you buy them?

9. How convenient is it for you to purchase the passes?

10. Re users of 20-ride passes: How long does it normally take each client to use up a 20-ride pass?

Restrictions on trip frequency?

Restrictions on trip purpose?

11. Were you aware of the bus pass sale?

12. How did you find out about it?

What other ways:

13. Did the October sale influence the number and type of passes purchased during October?

(Did clients take more trips during Oct.?)

14. Are you continuing to purchase bus passes?

(Which types)?

15. Impressions of the transit system:

MEMO

Crain & Associates

To: File Date: 11 January 1978
From: Pamela Bloomfield Reference: DOT-TSC-1408-04
Subject: Austin Bulk Buyer Interviews: Highlights cc: Sy Prensky, TSC
Elizabeth Page, TSC
Vince Milione, UMTA
Pat Gregory, Austin
Howard Goldman, Austin
Jon Wendt, Phoenix

The bulk buyer interviews have several purposes: to determine the effects (if any) of the October sale on the purchasing behavior of the social service and governmental organizations who purchase TFP in bulk from Austin Transit, and to obtain a socio-economic profile and travel pattern description of the agency clients using the TFP. Four organizations purchase TFP in bulk, either infrequently or regularly, from Austin Transit; representatives from each of these organizations were interviewed by Crain & Associates on January 5, 6 and 9. In addition, one individual purchased 50 20-ride tickets during the October sale; he was interviewed by telephone to determine whether the tickets he purchased were to be resold or distributed to others, or whether they were bought for his personal use. This memo highlights the findings of the four agency interviews; Appendix A documents the telephone interview.

1. Organization: Marbridge House of Austin

Program Description:

Marbridge House, a non-profit organization funded by the Marbridge Foundation, is a half-way house for retarded male men. Forty-five men reside in the building and work or attend vocational training programs in the community.

TFP Purchasing Behavior:

For the past two years Marbridge House has sold 20-ride tickets to the male residents, at no discount. During 1977, Marbridge House purchased 33 tickets every two weeks, or 66 per month; this number is based on the available cash in the program's operating budget, not upon demand. Because clients sometimes lose their tickets and have to purchase replacements,* the more expensive monthly pass is not felt by program staff to be as practical, even for those clients who ride Austin Transit buses to and from work at peak periods of the day.

Pass User Profile:

Approximately 20 clients purchase tickets from Marbridge House. Most of these have regular jobs as janitors or dishwashers, some, but not all, ride the buses to and from work at peak periods. This group includes Anglos, Blacks, and Mexican-Americans; their average age is 20-35; their earnings range from \$25-100 per week; and none own automobiles.

Effects of the October TFP Sale:

Marbridge House purchased an extra lot of 33 tickets at the end of October in response to the TFP sale. The staff director said that when she called Austin Transit to place her regular order, she was told of the sale; she tightened the budget on other regular expenses (such as cigarettes for resale to the clients) in order to purchase the extra 33 sale tickets; all tickets bought during October were resold to the clients at the sale price. According to program staff,

*According to staff estimates, the program purchases an extra 10 tickets per month to replace tickets which have been lost or stolen.

this supply of sale tickets had been used up by late November. Since the sale, Marbridge House has continued to purchase 33 tickets on a bi-monthly basis; therefore, it seems reasonable to conclude that transit riding by program clients increased due to the sale.

Notes:

The program operates a 12-passenger van seven days per week, for a total of roughly 5 hours per day, on a regular basis. This van provides transportation only to clients who either work in an area not served by Austin Transit, work during non-transit hours, or cannot cope with the mechanics of using the public transit system. Clients are charged \$.15 per mile for this service.

2. Organization: Austin Housing Authority

Program Description:

This local agency functions as a TFP outlet; tenants of the housing project run by the Authority purchase 20-ride tickets from the project managers, at no discount.

TFP Purchasing Behavior:

AHA obtained 200 20-ride tickets on consignment from Austin Transit in 1974. In September of 1977, Austin Transit collected payment for 150 of those tickets; 40 had been sold but had not yet been paid for; and 10 were returned to Austin Transit. AHA has since purchased tickets on an "as-needed" basis; because they send a representative to buy the tickets directly from an Austin Transit outlet, rather than calling in an order to be delivered, Austin Transit has no record of their purchases since September.

Pass User Profile:

AHA was unable to furnish this information.

Effects of the October Sale:

An AHA representative said that they had purchased 30 additional tickets as a result of the sale, and had sold a few more than they would have sold in a typical month. This evidence would suggest the possibility of an increase in transit riding by housing project tenants due to the sale.

Notes:

The 30 stubs from the sale tickets were never returned to or collected by Austin Transit; therefore, the AHA purchasers were not sampled during the purchaser survey. During the next sale, we will ensure that any sale stubs are promptly collected from AHA.

3. Organization: Caritas

Program Description:

Caritas is a non-profit, church-sponsored welfare organization providing emergency financial relief to needy families in crisis situations. It operates on a budget of \$100,000 per year, half of which is furnished by the City of Austin, \$15,000 of which is comprised of federal revenue-sharing funds from Travis County, and the remainder of which consists of private donations from churches and individuals.

TFP Purchasing Behavior:

Caritas has furnished needy clients with 20-ride tickets, at no charge, for many years. Prior to May 1977, Caritas gave each client needing a ticket a check for \$3.00 made out to the

ticket outlet; in May, Caritas started buying 20-ride tickets in bulk. Since then, the organization has purchased approximately 50 tickets every 3-4 weeks. According to staff estimates, Caritas spends roughly \$1,800 per year on Austin Transit tickets.* The number of tickets distributed by Caritas in recent months has increased over previous years.

Pass User Profile:

Approximately one-third of clients to whom Caritas gives tickets are employed; the rest are looking for work. During a given month, they number somewhat fewer than 50; their average age is 30-35; most are high-school dropouts; and they are Anglo, Black, and Mexican-American, in roughly equal proportions. Those with incomes earn less than \$400 per month; most are destitute.

Effects of the October Sale:

During the October sale, Caritas purchased 200 20-ride tickets; this supply lasted approximately two months. Staff members estimate that they purchased 50 extra tickets in response to the sale. They learned of the sale from the brochures mailed to Caritas by Austin Transit. Since Caritas did not order more tickets until January 1978, it can be concluded that transit riding by Caritas clients did not increase due to the sale.

Comments:

Of the 200 sale tickets purchased, 50 were ordered one week prior to the sale. As a service to Caritas, Austin Transit permitted these to be sold at the sale price.

*If staff members feel that a particular client does not need a full 20-ride ticket, the client is given some change from petty cash to ride the bus.

4. Organization: Texas Rehabilitation Commission,
Riverside Office

Program Description:

This office is one of four district offices run by the State of Texas and funded jointly by the State and federal matching funds. This office serves 150 clients with diagnosable physical or psychological vocational handicaps; 40% of these are severely-handicapped. Many are referred by other social service agencies, high school counselors, and juvenile correctional facilities. Statewide, the annual budget of the Commission is \$60 million; this office has a budget of \$1 million.

TFP Purchasing Behavior:

This office buys 300-500 20-ride tickets per quarter for distribution, at no charge, to clients needing transportation to and from work, job interviews, job training programs, and/or appointments with psychiatrists or other clinical specialists. Nine counselors work in this office; periodically, each sends a memo to the director stating which clients need tickets and for what purposes, and the total number of tickets required for the coming quarter. The other three district offices also purchase tickets in varying amounts and at varying intervals.

Pass User Profile:

In this office, roughly 30-40 clients are issued tickets on a regular or semi-regular basis. Over 50% are high school dropouts; most are young (15-25 years of age); those with incomes earn less than \$400 per month; most have no earnings. Their ethnic backgrounds vary. The Commission regards the distribution of tickets to these clients, not as charity, but as an "investment in their future".

Effects of the October Sale:

Although Commission staff received sale brochures from Austin Transit and were aware of the billboard, TV and newspaper advertising, the sale had no effect on their purchases of TFP.

Notes:

Staff Members indicated that their budget amply meets the needs of their clients, and that they experience no difficulty in obtaining operating funds, as needed, from the State. Their incentive to achieve cost savings by purchasing TFP at a discount is, not surprisingly, therefore rather low.

Appendix A

Telephone Conversation with Purchaser of 50 Tickets, 1/5/78:

This person purchased 50 20-ride tickets at the end of the October sale. When I spoke with him over the phone on Thursday, January 5, he told me that prior to the October sale, he had been a regular (daily) rider of Austin Transit. However, he had paid cash fares until October. At the beginning of October, he bought a monthly pass; then, at the end of the month, at the suggestion of a bus operator, he bought 50 20-ride tickets for his own use over the subsequent year. He rides the bus to and from work five days per week; therefore, a single 20-ride ticket lasts him approximately one week. He paid \$100 for the 50 20-ride tickets, thereby saving \$1 per ticket, or a total of \$50.

When I asked him if he rode the bus more frequently after purchasing the 50 tickets, he said that his trips to and from work have remained constant; however, "I'm a little less hesitant to go to the store on weekends" on the bus, as a result of his bulk purchase.

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He said that he did not plan to sell any of his supply to others, unless he were to acquire a car or other form of transportation, an eventuality he regarded as unlikely. It should be noted that the tickets are stamped with an explicit warning to the effect that sale of Austin Transit passes "for a profit" is a criminal offense entailing a substantial fine. Despite this, I believe that this person has no intention of selling off his supply.

EXHIBIT H-3

MEMO

Crain & Associates

To: File Date: April 13, 1978
From: Pamela Bloomfield Reference: DOT-TSC-1408-4
Subject: Austin Bulk Buyer Interviews, Round #2: Highlights
cc: Elizabeth Page, TSC Ed Colby, Phoenix
Vince Milione, UMTA John Crain, C&A
Pat Gregory, Austin Dick Edminster, C&A
Howard Goldman, Austin
Betsy Todd, GSD&M, Austin

Three of the four social agencies interviewed after the first transit sale purchased more than 20 tickets during the second sale:

Caritas

Caritas, an emergency relief organization which normally purchases 100 20-ride tickets per month, purchased a total of 200 discounted tickets over the course of the sale. However, though this purchase represented a \$100 saving to Caritas, the agency is continuing to dispense the tickets to needy clients at the same rate as it has in prior, non-sale months. Therefore, it can be concluded that no increased transit-riding on the part of Caritas' clients resulted from that agency's purchase of tickets during the March sale.

Marbridge House

Marbridge House, a halfway house for retarded male men, purchased 66 20-ride tickets during the sale period. This figure does not constitute an increase over the normal number of tickets purchased each month. During the October sale, this organization did purchase an extra lot of 33 discounted tickets by tightening the budget on other regular expenses. However, Marbridge House staff felt that the savings they would derive from purchasing an extra lot of tickets during the 20 percent sale would be outweighed by the effort required to manipulate the program budget. Thus, transit-riding by program clients did not increase due to the sale.

Texas Rehabilitation Commission

This office is one of four district offices run by the State of Texas and funded jointly by the State and federal matching funds. At the outset of the sale, TRC purchased 240 tickets; then, in mid-March, 14 more discounted tickets were purchased. According to

TRC staff, however, these purchases would have been made whether or not the tickets were on sale. Usage of the tickets has increased since February; however, this increase is attributed by program staff to factors other than the 20 percent discount since the counselors who distribute the tickets to their clients (at no charge) are not responsible for ordering the tickets for TRC. Therefore, it can be concluded that, while transit-riding by TRC clients appears to have increased in recent months, TRC's ticket purchases and transit-riding by TRC clients were unaffected by the TFP sale.

The fourth organization interviewed after the first sale, Austin Housing Authority, decided in mid-March to discontinue their policy of making periodic bulk purchases of 20-ride tickets. However, one AHA office did obtain 20 discounted tickets on consignment; of these, 16 were sold.*

In addition to Caritas, Marbridge House, and the Texas Rehabilitation Commission, three new bulk purchasers were identified as having bought more than 20 discounted tickets during the March sale period. One, identified by the ticket stub as "Casa Blanca Apartments," was unreachable by telephone; 50 tickets were purchased under this name. The other two bulk buyers, Southpoint and Austin State Hospital, were interviewed regarding their use of TFP as well as their purchase and distribution of discounted tickets and passes during the two sales. These interviews are documented below.

Southpoint

Southpoint is a residential facility for 36 retarded women, most of whom are in their 20's and 30's. The majority of clients have steady jobs; none own cars. Each woman is given a fixed budget for which she is responsible; if she decides to purchase a 20-ride ticket, the price of the ticket is deducted from her budget. Every Saturday morning, the clients may purchase tickets from Southpoint staff; approximately 10-12 clients do so each week.

Southpoint purchased a total of 49 tickets during the month of March; once each week, a Southpoint staff member bought 12 tickets or so from Austin Transit. According to the staff purchaser, Southpoint clients purchased no more tickets than they normally do, despite the 20 percent discount (which, of course, was passed on to the clients). Therefore, the March sale does not appear to have increased transit-riding by Southpoint clients.

*These purchasers were included in the March Purchaser Survey sample.

Austin State Hospital

Among the many services offered by Austin State Hospital is an outpatient program known as the Interphase Day Hospital Program. This consists of a community mental health center with the capacity to serve 75 outpatients; the center, funded by Travis County, runs discussion groups, Arts and Crafts programs, group therapy sessions, and similar sorts of activities. The program serves approximately 30 clients per day; according to staff estimates, the number of "active cases" totals approximately 60.

Clients of the program range in age from 18-66; their average age is about 40. About 10 have handicaps severe enough to qualify them for special transportation services. Fees for participation in the program vary according to ability to pay; 90 percent of the clients pay nothing and therefore have incomes below the poverty level. Very few (5 percent) own automobiles. A handful have jobs, most of which are janitorial or clerical in nature.

Until several years ago, the program relied entirely upon staff vehicles for providing client transportation. At one time, staff members furnishing such transportation were reimbursed at a rate of 10-12¢ per mile; recently, however, this rate was increased to 16¢ per mile. At that point, it became clear to program staff that subsidizing clients to ride the public transit system constituted a less costly method of providing client transportation.

Since then, the program has purchased 20-ride tickets from Austin Transit, usually by mail, regularly but infrequently. Most tickets are resold to program clients; approximately 10-15 percent are given away to needy clients. Regular ticket users number about 10-15; another five clients purchase tickets less frequently than once a month. Generally, clients use the tickets for bus transportation between their homes and the program, to job interviews, and to other mental health programs in the Austin area.

The program purchases about 30 tickets every four to six months. There are no budgetary constraints on ticket purchases; the tickets are bought as needed. Thirty tickets were purchased during the sale last October. In February of 1978, 15 more tickets were bought; usage of the tickets was so heavy that the program purchased 28 more tickets in March, during the second sale. Staff members heard of both sales from program clients, who had seen the advertising and were interested in purchasing tickets at the discounted price(s).

According to program staff, a number of clients clearly stated that they had purchased extra tickets due to the discounted price. Staff

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April 13, 1978
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members believe that clients are riding the bus more often, for several reasons: the weather is improving; some program clients are moving from one group residence to another; and the clients have extra 20-ride tickets purchased during the sale. In sum, then, the recent sale does appear to have had a positive effect on transit-riding by clients of the Interphase Day Hospital Program.

rc

EXHIBIT H-4

**PHOENIX BULK BUYER SURVEY
DISCUSSION GUIDE**

1. Organization:

2. Contact Person:

3. Time-Series Data:

4. Program Description:

5. Convenience of Pass Purchases:

6. Were you aware of the recent bus pass sale?

7. How did you find out about it?

What other ways?

EXHIBIT H-5

MEMO

Crain & Associates

To: File
From: Pamela Bloomfield
Subject: Phoenix Bulk Buyer
Interviews : Highlights

Date: 22 March 1978
Reference: DOT-TSC-1408-07
cc: Elizabeth Page, TSC
Stewart McKeown, UMTA
Ed Colby, Phoenix
TJ Ross, Phoenix
Bruce Hernandez, Phoenix
John Crain, C&A

Phoenix Transit does not sell TFP in bulk to social service and governmental organizations, whereas in Austin, a number of such agencies purchase 20-ride tickets and resell or donate them to their clients. However, two large banks in Phoenix do purchase TFP from Phoenix Transit on a regular basis and resell them to their employees at a discount. These two banks, Valley National Bank and First National Bank, also serve as regular sales outlets for TFP. On March 16, interviews with the personnel in charge of selling the tickets and passes to employees at both banks were conducted.

Both banks sold the discounted tickets and passes to their employees at the regular, subsidized prices; that is, the sale discount was not passed on to bank employees. Consequently, the sale had no relationship to the purchase decisions of either the banks or their employees; demand for TFP during the sale period remained correspondingly stable. It can therefore be assumed that the TFP sale had no impact on transit riding by bank employees. The cases of these bulk purchasers will not be taken into account in the analysis of the sale's impacts, since, for the employees of the two banks, the tickets and passes were not "on sale" during February.

For future reference, the procedures followed by each bank in the purchase and resale of tickets and passes are documented in this memo.

VALLEY NATIONAL BANK

Program Description:

The 1973 energy crisis prompted the bank to start its transit pass program, whereby the bank resells monthly passes and 20-ride tickets to bank employees at a discount of approximately 50 percent of the face value of the pass or ticket.* The bank also subsidizes parking and carpools.

A bank employee calls Phoenix Transit to re-order passes and tickets every six to eight weeks; normally, she orders approximately 400 tickets - 200 for zone 1, 200 for zone 2 - and approximately 24 monthly passes - 12 for zone 1, 12 for zone 2. Since several employees have expressed interest in purchasing the 10-ride tickets, she has investigated the possibility of selling them as well. The Employee Services Department operates totally independently of the Valley National Bank's ticket outlets. While the latter receive TFP on consignment, Employee Services must purchase the tickets and passes to be resold. They are allowed to order tickets from Phoenix Transit at any time, but may only order monthly passes once a month. Phoenix Transit delivers the passes and tickets to the Employee Services Department along with an invoice; the latter is paid by the bank's Accounts Payable Department.

The tickets - but not the passes - are advertised in an in-house weekly supplement distributed to bank employees. Since

*Employees receive a subsidy of \$4.50 per 20-ride ticket, regardless of zone, and a subsidy of \$9.00 per monthly pass, regardless of zone. Tickets regularly cost \$7.00 and \$8.00; passes, \$18.00 and \$20.00, for zones 1 and 2, respectively.

there is a certain amount of fluctuation in the number of employees purchasing TFP each month, the Employee Services Department does not know the total number of employees served by the program. However, each employee is restricted to purchasing no more than two 20-ride tickets per month; this conforms with the bank's dictum that the subsidized TFP are to be used only for employee transportation to and from work. All employee orders must be placed via inter-office mail; a file of order forms is maintained as a guard against "abuse" - i.e., impermissible large or frequent employee ticket orders. The Department is about to perform a small-scale study of the program in order to determine the nature of the demand for tickets and passes: e.g., the geographic distribution of employees using the transit system to commute to work.

TFP Sale Procedures (February - March, 1978)

In late January, the decision was made within the Department to offer the discounted tickets and passes to bank employees, at the same subsidized price as the regular TFP,* despite the extra work this decision involved. This extra work consisted of the following:

1. Unlike the regular TFP, the discounted TFP were consigned rather than sold to the bank. Therefore, separate records for the discounted TFP had to be kept.
2. The payment method differed as well. Phoenix Transit collected payment for the TFP at the same time that the unsold discounted TFP were picked up, at the end of the sale period.

*The decision not to pass on the additional discount to bank employees was a function, at least in part, of the lack of advance notice given to the bank regarding the TFP sale. Nevertheless, no employees expressed any dissatisfaction whatsoever about this situation; they are, in general, very appreciative of the subsidy they receive.

3. Because the bank generally keeps about 100 20-ride tickets in stock, the Department decided to sell the regular tickets simultaneously, for the benefit of those employees who would be unable to use up their discounted tickets by the expiration date(s). This policy created a fair amount of complexity and confusion. For example, as many employees routinely purchase two tickets at a time, a number of orders came in for one discounted ticket and one regular ticket. Because of the impossibility of splitting a single check, and so forth, the Department had to send two regular tickets to these people, thereby forfeiting some potential savings to the bank.

Regular and discounted ticket and pass sales to Valley National Bank employees during February were as follows:

DISCOUNTED TFP SALES*				
	<u>Monthly Pass Zone 1</u>	<u>Monthly Pass Zone 2</u>	<u>20-ride Zone 1</u>	<u>20-ride Zone 2</u>
February	10	8		
March	10	9		
Total	20	17	96	102

REGULAR TFP SALES		
	<u>20-ride Zone 1</u>	<u>20-ride Zone 2</u>
January 1 - March 1	264	266
March 1 - March 14	94	92

*Because of the lack of advance notice of the sale, the discounted passes and tickets did not go on sale to bank employees until the month of February. Hence, the pass sales figures may be somewhat depressed.

Thus, Valley National Bank sold 37 discounted passes and 198 discounted 20-ride tickets, thereby saving approximately \$493.00.

Bank personnel feel that, given sufficient advance notice of the details, the bank can be better prepared for the next sale than it was for the first sale. Ten-ride ticket sales to employees are scheduled to begin in late April, so this ticket would then be included in the bank's purchase of discounted TFP next time. They also would like to publicize the details of the sale to employees in advance, and to avoid selling the regular tickets, if possible, during the sale period.

FIRST NATIONAL BANK

Program Description:

The First National Bank has sold Phoenix Transit tickets and passes to bank employees at a 50% discount since approximately 1973; the bank does not advertise the program, and demand has remained relatively stable over the years. When the "Big 10" ticket book was introduced on the market, the bank discontinued sales of the 20-ride ticket to employees. Therefore, 10-ride tickets and monthly passes* are purchased by the bank, once or twice a month as needed, and resold to employees at half-price. There are no restrictions on the number of tickets an employee may purchase, nor is the use of the passes and tickets restricted to work-related transportation, as in the case of Valley National Bank. Most employees buy the TFP directly from the Personnel Department although some place their orders via inter-office mail.

*According to bank personnel, demand for monthly passes is scant-to-nonexistent.

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The bank orders about 100 regular 10-ride tickets and 100 express 10-ride tickets at a time; the invoice goes to the Corporate Accounting Department which pays Phoenix Transit. Ticket sales to employees average about \$200-300 each week. The bank has experienced some problems concerning ticket delivery: it sometimes take Phoenix Transit four or five days to deliver the tickets after the order has been placed. Otherwise, however, the people at Phoenix Transit are generally considered to be very helpful.

TFP Sale Procedures (February-March, 1978)

Unlike the Employee Services Department at Valley National Bank, the Personnel Department does not keep a significant number of extra tickets on hand; therefore, only discount tickets were sold to employees during February. The limited validity period was explained to each employee who purchased such a ticket. Although the sale discount was not passed on to the bank's employees during this period, literally no employee complaints on this subject were registered.

The bank sold approximately the same number of tickets during February as it normally does: roughly 200 regular zone 1 10-ride tickets and 100 regular zone 2 10-ride tickets,* thereby saving approximately \$275.

Within the last year, according to bank personnel, employee ticket purchases have increased; therefore, the bank intends to continue offering the discount on tickets and passes to bank employees. Given sufficient advance notice of another sale, bank personnel said they would attempt to keep a larger supply of regular-priced tickets on hand.

*The bank returned all discounted express 10-ride tickets to Phoenix Transit on the grounds that the limited validity period would make it too difficult for many employees to use them.

MEMO

Crain & Associates

To: File
Date: January 31, 1979

From: Pamela Bloomfield
Reference: DOT-TSC-1408-7

Subject: Phoenix Bulk Buyer
Interviews, Round II:
Highlights

cc: Elizabeth Page, TSC
Stewart McKeown, UMTA
Ed Colby, City of Phoenix
Don Hildebrandt, J&T,
Phoenix
John Crain, C&A

In March of 1978, I conducted interviews with two banks which purchase Phoenix Transit tickets and passes in bulk for resale to their employees; these interviews were summarized in a memorandum (Bloomfield to File, March 22, 1978). In that memorandum, I reported that Phoenix Transit does not sell the regular TFP instruments* in bulk to social service and governmental organizations. Since then, further investigation of Phoenix Transit's records has uncovered at least seven organizations which purchase tickets in bulk for distribution to their clients, as well as four more business organizations which resell bus tickets and passes to their employees. During the week of January 22-26, I interviewed all the bulk buyers cited above; this memo documents these interviews. For the most part, the recent 40% discount sale had little or no impact on the purchasing and transit riding behavior of the organizations' employees or clients. However, all of those interviewed expressed enthusiasm for the ongoing ticket program; many anticipated that their bulk purchases will increase in the near future, for a variety of reasons.

BUSINESS ORGANIZATIONS

1. First National Bank

The First National Bank purchases 10-ride tickets and monthly passes in bulk from Phoenix Transit, and resells them to bank employees at a 50% discount. (A detailed account of the procedures employed may be found in the March 1978 memo.) During the first TFP sale, the banks did not pass on the 20% discount; therefore, employee demand for the tickets and passes remained stable. The second sale was treated in the same manner: for the employees, the 40% discount had no impact on their purchasing and transit riding behavior.

*I.e., monthly passes, 10-ride tickets, and 20-ride tickets (dropped in September 1978).

2. Valley National Bank

Like the First National Bank, Valley National Bank resells Phoenix Transit tickets and passes to bank employees at a 50% discount. As during the first sale, the discount during the second sale was not passed on to bank employees; therefore, their purchasing and transit riding behavior was unaffected by the 40% discount. In fact, employee purchases of the tickets may have dropped off somewhat during the recent sale period, since the sale tickets - unlike the regular tickets - had a two-month validity period.

3. Republic and Gazette

This corporation publishes two daily newspapers: the Arizona Republic and the Arizona Gazette. Phoenix Transit tickets are sold to company employees at regular prices; sales average about 20-25 ticket books per month. The company does publicize the availability of the bus tickets to employees, who are encouraged to ride the bus to work. The 20% discount sale in February caused no significant increase in sales; however, ticket sales jumped to 69 during the 40% discount sale in October. Although only 19 tickets were sold in November, sales rose again to 40 in December, suggesting that the post-sale demand for the tickets may have been boosted somewhat by the October sale. Because both TFP sales were advertised heavily in the Republic and the Gazette, most employees were aware of the discounted prices. The company is very pleased with the in-house ticket program and with Phoenix Transit's assistance in delivering tickets on request.

4. Arizona Public Service

APS is the local utility. The company purchases small blocks of tickets from Phoenix Transit periodically; these are sold at regular prices to company employees, who are allowed to pay via a payroll deduction. APS usually sells about six ticket books each month. The program receives no in-house publicity, so most people hear about it by word-of-mouth. During both TFP sales, APS did offer the tickets at the reduced prices, and sales levels were quite a bit higher than usual: they sold 40 ticket books in February and 25 in October.

5. Del Webb

Del Webb, a large developer with about 300 Phoenix-based employees, purchases Phoenix Transit tickets and passes and resells them to employees at a 50% discount. Approximately seven employees buy tickets or passes on a regular basis. During the October TFP sale, Del Webb passed on the additional

40% discount, and picked up two new TFP purchasers at that time. According to the person who sells the TFP instruments at Del Webb, one of the two new purchasers has since dropped out of the program; the other is still buying.

6. Mountain Bell

Mountain Bell, a subsidiary of Bell Telephone, employs approximately 2000 people in the Phoenix metropolitan area. Since August 1978, the company has purchased tickets and passes in bulk from Phoenix Transit for resale to employees; Mountain Bell subsidizes one-third of the cost. Every week, employees wishing to purchase the discounted instruments must notify the purchasing agent, who then places the order with Phoenix Transit. Employee purchases of tickets and passes have increased steadily since the program was initiated.* During the recent TFP sale, the additional 40% discount was passed along to the employees; Mountain Bell's records show a corresponding increase in TFP sales during October. However, the records do not indicate whether or not any new employees joined the program at that time.

Mountain Bell has invested considerable time and corporate resources in an effort to promote three forms of employee transportation to and from work:

- a) The local bus system (in Tucson as well as in Phoenix);
- b) Employee carpools, for which a computer matching system has been devised; and
- c) Employee vanpools.

A few months ago, the Public Relations Department designed and produced a very engaging, humorous eleven-minute color film** urging employees to take advantage of the discounted bus tickets and passes and/or the computerized carpool matching service. For a week or so, the film was shown continuously during the lunch hour in the company cafeteria; in addition, the two transit options were publicized in the company newsletter,

*Average weekly sales range from \$100-200, or about 30-50 tickets and passes. (Ticket sales greatly exceed pass sales.)

**On my visit to the Mountain Bell administrative offices, the Public Relations Department showed me a videotape of the film. The company would be delighted to make and send a copy of the tape to anyone at the City of Phoenix, TSC, or UMTA who might be interested. (The name of the film is "The Lone Stranger.")

which is read by "99% of all employees," according to one staff member. Exhibit 1 consists of a page from one of these newsletters. The film, which cost approximately \$400-500* to produce, caused a jump in ticket sales. Since the film was aired in September 1978 - just prior to the 40% sale - its effect on TFP sales are difficult to distinguish from those of the 40% discount.

The nature of Mountain Bell's corporate commitment to public transit and ride-sharing is two-fold. First, the directives issued by the headquarter's office in Denver have continually stressed top management's desire to promote ecologically sound programs; and, in fact, the above mentioned film did stress the increasing levels of pollution in the Phoenix urbanized area. Second, parking space at the administrative offices in Phoenix is severely limited; and employee morale has suffered as a result. The company now awards preferential parking spaces - close to the building - free of charge to carpools consisting of three or more employees. Nevertheless, the waiting list for parking spaces, which cost employees only \$6 per month, continues to grow.

SOCIAL SERVICE ORGANIZATIONS

1. State of Arizona Department of Economic Security, Division of Vocational Rehabilitation

Unbeknownst to the Purchasing Department of this State agency, some counselors in the Vocational Rehabilitation Division frequently purchase 10-ride (and Handicapped) Phoenix Transit tickets for distribution to clients in need of transportation. The counselor must determine how many clients need bus tickets before ordering them; 10-ride ticket books are taken apart after purchase so that individual (one-ride) tickets can be given out. Most often, the regular bus tickets are distributed to temporarily handicapped clients who need transportation to job interviews or vocational training sessions. Occasionally, the counselor issues a transportation check or cash to the client, who then purchases the tickets directly from a Phoenix Transit outlet; the counselor with whom I spoke prefers to distribute cash, thereby encouraging the client to budget properly. However, "some can't handle it." The agency operates no vehicles; most clients rely on the bus or on friends and family for transportation.

This counselor was not aware of the October TFP sale. In any event, she is not allowed to use Department funds to stockpile tickets and thus could not have bought up a large quantity. She orders the tickets as needed, and if the need

*Includes salaries and overhead.

arizona memo

Mountain Bell
August 16, 1978

Editor Sue Peterson, 263-3008
Special edition for employees at
16 W. McDowell and Bell Plaza

NEW PROGRAMS SAVE ENERGY AND MONEY

Are you tired of searching for a parking place every day and walking three or five blocks in the sun?

Are you bothered by the layer of pollution that sometimes hangs over the Valley?

Would you like to save nearly \$1,000 a year?

If you answered any of these questions "yes", you will be interested in new Mountain Bell programs to help cut down traffic congestion, pollution, and wasted energy and money. Effective immediately, the company will provide incentives for those who ride the bus or take a car pool to work.

Bus riders will be able to get tickets through the company at one-third off the regular price. That means that a Big-10 ride book is now \$2.50 instead of \$3.75 and the monthly pass is \$12 instead of \$18. Reduced price tickets may be purchased from motor pool dispatchers at 16 W. McDowell and Bell Plaza.

The big news to car poolers is that company-assigned spaces at 16 W. McDowell and Bell Plaza will now be made available at no charge on a priority basis to those who are in car pools. "The company is actively encouraging car pooling. So, we will no longer provide new company spaces to individuals until every car pool group that wants a space has one," says Harry Kennedy, staff supervisor-motor vehicles. "Between the two buildings, we expect to have almost 20 spaces available for car pools by the end of the month."

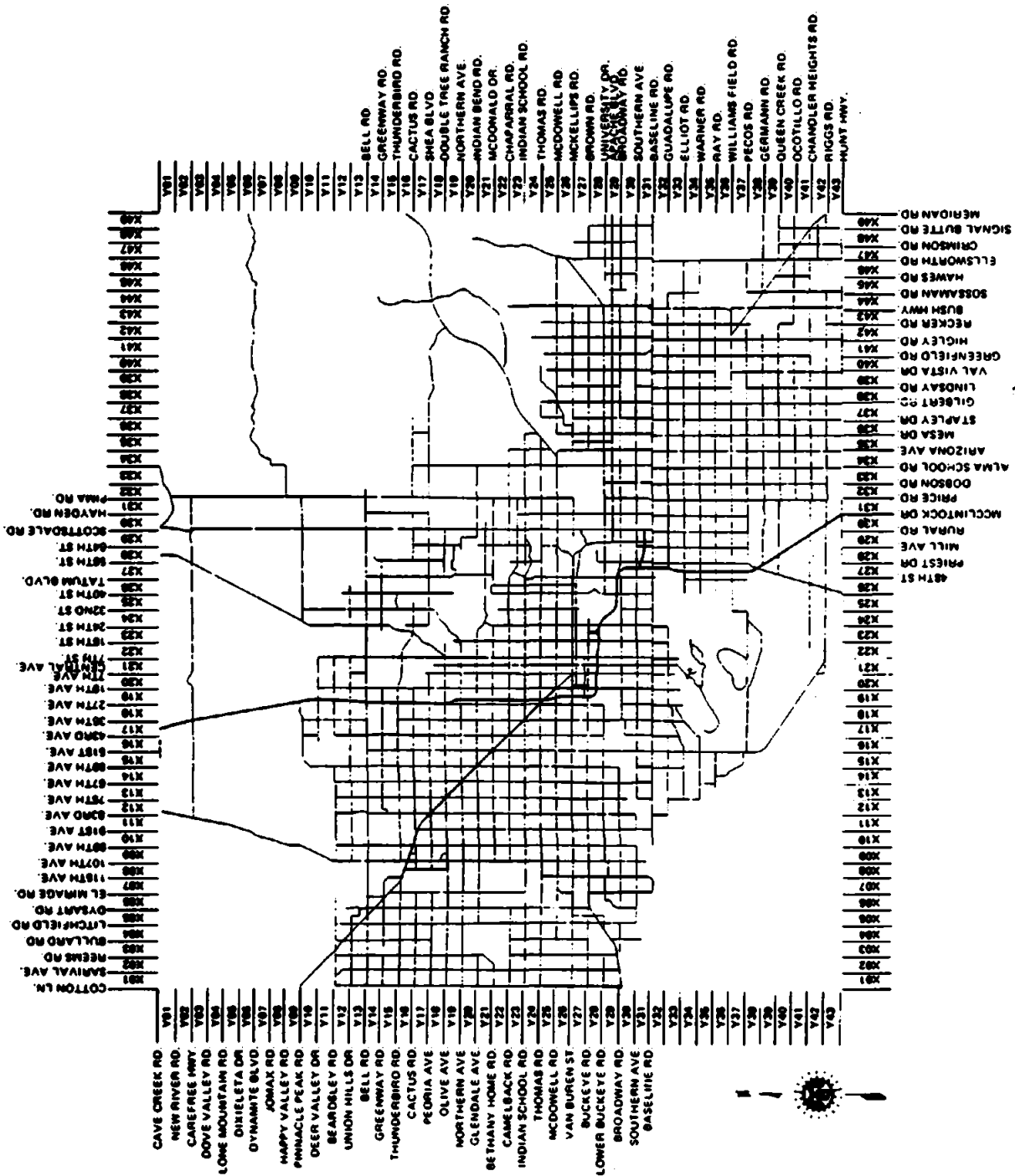
Car pools of three or more employees will have priority assignment in the company lots closest to 16 W. McDowell. At Bell Plaza, the car pooling spaces are at the building; parking at First St. and Earl, two blocks away, will still be available for individuals.

"Many people are surprised to find how much it costs just to drive their car to work and back," Harry says. "We estimate it costs about 17 cents a mile to operate a standard size car and 14 cents for a compact car. Driving one car to work with four people in it can save each person \$800 to \$1,000 in a year. That in itself is a good reason to car pool."

If you are already in a car pool of three or more employees, and you don't have a company-assigned space, Harry has one available for you right away. Otherwise, if you want a space, start getting your car pool together. Requests for car pool spaces are assigned first-come, first-served. The sooner you get your request in, the sooner you'll have a close-in spot which could get you on your way home cooler and ten or fifteen minutes faster than where you're parking now.

If you'd like to car pool but all your co-workers live in Glendale while you live in Tempe, there's still an option. Project POOL-IT has agreed to make special runs of Mountain Bell employees through its matching computer. All you need do is fill out the car pooling information form inside this special issue of MEMO and return it to Harry Kennedy at room 901, Bell Plaza.

- More on back page -



Why not fill it out right now, even if you're not sure you want to be in a car pool. Who knows, you might find others who live close to you and are a lot more fun to pool with than you think.

"As a company, Mountain Bell has an obligation to conserve energy. We would like to help our employees save energy and money too -- and also contribute to less pollution and less traffic congestion. The best ways to do this is to have more car pools and more people riding the bus."

CAR POOLING GUIDELINES

1. An official car pool consists of three or more employees who regularly drive to work together.
2. The company will help car pools form by providing computer matching for employees.
3. A car pool will receive company assigned parking space at their building on a priority basis. There will be no charge.
4. Employees who join a car pool and who have company assigned parking spaces must relinquish their spots. However, in case a car pool disbands, those who have relinquished parking spots will go to the head of the individual waiting list to have parking spots reassigned.
5. If a car pool loses one or more members and drops below three employees, 30 days will be allowed for replacement members to be found. If the number in the car pool is not brought to three or more by that time, the car pool will lose its parking space.
6. All members of a car pool will sign a form stating that they regularly come to work in the car pool.

should increase, the funds to purchase the tickets will be available. By all indications, client usage of the bus service - and, correspondingly of the bus tickets - will increase in the future; in her words: "I'm afraid we'll always be in the bus ticket business."

2. Maricopa County Hospital

The person in charge of purchasing the bus tickets was on vacation and, thus, unavailable for an interview at the time of my visit to Phoenix. However, another hospital employee explained to me that the hospital does purchase 10-ride tickets and distribute them, one at a time, to indigent patients who need transportation from the hospital to their homes.

3. Phoenix Indian Center, Social Services Division

The Phoenix Indian Center is a private, nonprofit organization serving the urban Indian population in the Phoenix area. Although clients of all ages and incomes are served, most clients are low-income, young, single women with children. The Center used to buy 20-ride bus tickets; in April 1978, they switched to the 10-ride tickets, which can be taken apart (as noted earlier). Since April, their purchases have increased from about \$20 per month to the current level of \$56 - or 15 10-ride tickets - per month. The money for the tickets comes out of the United Way Emergency Fund; this fund is limited, and, thus, the program cannot easily increase the amount currently being spent on tickets. The tickets are given out, one or two at a time, to low-income clients needing transportation to job interviews, foodstamp appointments, or - occasionally - work. Cash is never given to clients. In addition to the ticket program, the Division shares use of an agency van with the other divisions; staff vehicles are also used to furnish client transportation when necessary.

Typically, the Social Services Director goes down to the bus terminal and purchases the 15 ticket books every month; she pays by check. Although she heard rumors about a ticket sale in October, she saw none of the advertising and promotion. On October 23, she went down to the terminal, handed over the usual check for \$56.50 and received the usual 15 tickets. She expressed regret at having missed the opportunity to obtain almost twice as many tickets for the money; clients' need for transportation exceeds the current supply. "We could give out bus tickets all day."

4. Phoenix Indian Center, Employment Services Division

Each month this Division purchases 40-60 ticket books, at a cost of \$187.50, from Phoenix Transit. The tickets are paid for by U.S. Department of Labor funds, which are more plentiful than the United Way funds cited above: the number of tickets purchased reflects the existing need for tickets rather than budgetary constraints. The Employment Services Division has purchased tickets in bulk for about nine months; roughly 25-30 clients each month use the tickets to get to job interviews or work.

The head counselor saw newspaper advertisements for both TFP sales; during each sale, the Division bought the usual number of tickets and spent less money. (Thus, the sales did not cause an increase in client usage of the bus system.) The money saved on tickets was spent on other client necessities, such as child care and clothing.

Although the Division has access to the agency van (described in the preceding section), staff members prefer to distribute bus tickets to clients; the bus tickets are viewed as a tool by means of which clients learn to "get around" on their own. Three-quarters of this Division's clients are entirely dependent on the bus system for transportation; client transportation is and will continue to be this program's biggest problem. As the client population expands, the program's use of bus tickets will also increase.

5. Downtown Indian Program

This federally funded program provides assistance to Indians in the downtown Phoenix area; services range from employment counseling to medical referrals. For the last four years, the program has purchased bus tickets from Phoenix Transit; currently, ticket purchases total about 100 per month. The 10-ride ticket books are taken apart, and each client is issued one ticket at a time. To obtain a bus ticket, the client must have a verifiable employment or medical appointment. (Occasionally, a client starting a new job will be given a book of tickets to furnish transportation to and from work until his/her first paycheck.) Program staff saw the advertising for both TFP sales at Phoenix Transit; during both sales, the program purchased the usual number of tickets, thereby saving money. Overall, they are very pleased with the bus tickets and the bus system; both serve their clients well.

6. Phoenix Indian Hospital, Transportation Center

This hospital is part of the Indian Health Service, under the Bureau of Indian Affairs (U.S. Department of the Interior). As such, it constitutes the main area hospital for Indians in four states. The Phoenix Indian High School, a boarding school for Indian students, is located nearby; thus, students comprise a large proportion of the hospital's clients.

The Transportation Center has been purchasing bus tickets from Phoenix Transit for over five years. Currently, they purchase 100 10-ride tickets every two or three months. Individual tickets are distributed to about three to six people each day; most are students returning to the Indian High School after having received medical treatment at the hospital. (Program staff had never heard of the student ticket, which costs half as much as the regular 10-ride ticket. We discussed the relative advantages of the two instruments; unfortunately, the student ticket would not serve their needs, since it is a punch ticket which can be used by only one individual at a time.) In addition to the ticket program, the Transportation Center operates two station wagons, with full-time drivers; taxi and ambulance services are also purchased regularly by the hospital.

Program staff happened to call Phoenix Transit to order bus schedules in early October; the person who delivered the schedules told her about the 40% discount sale. She then purchased double the usual number: i.e., 200 tickets instead of 100. The tickets only lasted until the end of November; during the months of October and November, an unusually large number of clients with illnesses were treated at the hospital, and many of these required transportation. Therefore, the timing of the October sale proved fortunate for the Transportation Center.

The Indian Health Service has recently authorized coverage of the Yaki Indians, a Mexican tribe, many of whose members live in Guadalupe. The Phoenix Indian Hospital will have to serve this tribe; at least 1000 new Yaki patients are anticipated. Consequently, the Transportation Center may need to order larger quantities of bus tickets in the near future.

7. First Presbyterian Church

The First Presbyterian Church in downtown Phoenix provides emergency assistance and referrals to other social agencies to needy inner-city persons of all ages - "people off the streets," in one staff member's words. The church's services are funded entirely by private contributions. Counselors distribute individual Phoenix Transit tickets to clients who cannot afford the bus fare; in order to receive a ticket, the client must have a job interview or some comparable valid reason for requiring transportation. The church buys about 50 10-ride tickets at a time; they are delivered by Phoenix Transit. There is a continual need for bus tickets; if they could afford more, they would buy more. While the counselors knew about the recent TFP sale, they did not buy any of the discounted tickets: they did not feel they should risk purchasing tickets which had a two-month validity period, since their use of the tickets is not steady or predictable.

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APPENDIX I
FOLLOW-UP PURCHASER SURVEYS #1 AND #2

APPENDIX I

FOLLOW-UP PURCHASER SURVEYS #1 AND #2

I-1 Purpose of the Surveys

The Follow-Up Purchaser Surveys were designed to track the post-sale purchasing behavior of those who purchased discounted passes or tickets, and to assess changes, if any, in purchasers' trip rates from before to after the sale. For those who had stopped purchasing TFP four months after the sale, the surveys attempted to determine their reasons for no longer purchasing.

I-2 Methodology: Austin

Follow-Up Purchaser Survey #1 was conducted from February 3-16, 1978. Multiple attempts were made to reach and reinterview the 487 persons interviewed in the Purchaser Survey on the same day of the week that they were called before, in order to ensure comparable before-after trip rates.

Three survey workers were hired to place calls from 5:00 to 9:00 PM on survey days. A two-hour orientation session preceded the survey. Each survey worker received a copy of Interviewer Guidelines, a stack of paired questionnaires,* and a call record sheet on which to record the outcome of each call. Each respondent was called up to five times on the appropriate evening; if the call could not be completed at that time, the number was called again the following week on the same day. In several cases, it proved necessary to choose an alternative call day; these alternative call days were selected in order to minimize the anticipated variation in trip patterns among different days. Thus, if a respondent had been asked about his/her trips on two weekdays, the alternative call day also yielded trip data on two weekdays.

The Austin Follow-Up Purchaser Survey #1 yielded 389 completed questionnaires. Refusals were fewer than anticipated; there

*The Original Purchaser Survey forms were paired with Follow-Up Purchaser Survey forms.

were 12 over the survey period. In addition, 17 persons were unable to answer the survey questions; the remainder of the original Purchaser Survey #1 sample were not at home or had telephones which were not in service. Coding and keypunching of the questionnaires were done by the City of Austin.

The Follow-Up Purchaser Survey #2 ran from June 5-21, 1978. As in the first Follow-Up Survey, respondents were reinterviewed on the same day of the week as their initial Purchaser Survey interviews when possible. Three survey workers were hired to administer the second Follow-Up Survey; an additional survey worker was hired to code completed questionnaires. All four attended a two-hour training session. The telephone interviewing took place from 5:00-9:00 PM on weeknights; occasionally, appointments were made to call respondents at prearranged times between 8:00 AM and 5:00 PM on weekdays. The survey yielded 233 completed questionnaires. A total of 13 refusals were registered over the course of the survey. The questionnaires for the Austin Follow-Up Purchaser Surveys #1 and #2 may be found in Exhibits I-1 and I-2; the frequency distributions of the responses are shown.

I-3 Methodology: Phoenix

The Phoenix Follow-Up Purchaser Survey #1 was administered by BRC from June 7 - July 7, 1978, on Wednesday, Thursday and Friday of each week. Of the 407 purchasers in the Purchaser Survey #1 "before" sample, 316 were successfully contracted and reinterviewed.

The Follow-Up Purchaser Survey #2 ran from March 7 - March 30, 1979; as before, telephoning was done by BRC on Wednesday, Thursday and Friday. Of the "before" sample of 208, interviewed in the Purchaser Survey #2, 145 people were reinterviewed. Exhibits I-3 and I-4 are the survey questionnaires used in the Phoenix Follow-Up Purchaser Surveys #1 and #2; the frequency distributions of the responses are shown.

EXHIBIT I-1
AUSTIN TFP
FOLLOW-UP PURCHASER
TELEPHONE SURVEY QUESTIONNAIRE

Call Sheet
Record No.

Line No.

Caller No.

Hi; I am _____ with the City of Austin's Urban Transportation Department. We are conducting a follow-up survey of Austin Transit bus pass users, and we'd like to speak to (target).

(If "target" is on the phone, say: "About three months ago, we talked with you about the bus pass you purchased during the October sale. Now that the sale is over, we'd really appreciate your help in answering some final questions about how you have used the pass. This will only take a few minutes." Then begin immediately with question 1.)

(If "target" is not available, say: "Can you tell me when I can reach him/her at this number?" - - work out appointment, and end interview.)

(If "target" comes to the phone, say: Hi; I am _____ with the City of Austin's Urban Transportation Department. About three months ago, we talked with you about the bus pass you purchased during the October sale. Now that the sale is over, we'd really appreciate your help in answering some final questions about how you used the pass. This will only take a few minutes." Then begin immediately with question 1.)

1. When we first contacted you last October, you had just bought:

- A commuter bus pass ¹
- A monthly bus pass ²
- A shopper bus pass ³

_____ 20-ride bus passes ⁵

18.6 74.0
5.9
1.5

Did you buy any 20-ride tickets during the October bus sale?

- Yes ¹
 - No ²
- How many?

Did you buy any more 20-ride tickets during the sale?

- Yes ¹
 - No ²
- How many?

28.6 60.2
71.4 39.8

(If no, skip to question 4.)

2. About how long has it taken you to use up one 20-ride bus pass?

- One week or less ¹
- Two weeks or less ²
- One month or less ³
- Between one and two months ⁴
- More than two months ⁵
- I don't remember ⁶

19.2
30.3
23.0
10.7
8.8
8.0

3. Do you have any left?

Yes¹

No²

→ How many?

42.2

57.8

4. Are you now using any type of bus pass?

Yes¹

No²

→ Which type?

20-ride bus pass¹

Commuter bus pass²

Monthly bus pass³

Shopper bus pass⁴

Student bus pass⁵

53.5

46.5

73.5

18.6

6.4

0.0

1.5

Can you tell me why not? _____

#	%
0	9.4
1-2	8.1
3-5	15.5
6-10	58.5
11+	8.4

7. Can you tell me how many one-way trips you make on Austin Transit buses in a typical week? For example, if you take the bus to work, that would be one one-way trip. Then, if you took the bus from work back home, that would be another one-way trip.

8. Now I'd like to ask you some questions about the trips you've made during the last two days. As you may remember from the last interview, a trip was any time you went at least three blocks from one place to another. You could have used any type of transportation including walking or bicycling. For example, going to work by automobile would be one trip; walking to a place for lunch, if it was at least 3 blocks away, would be a second trip; returning to work from lunch would be a third trip.

Yesterday's Trips

Let's begin by talking about trips you made yesterday. That would be *(give day of week)*

record:

Day of week _____

Date _____

9. Did you make any trips yesterday?

Yes¹

No² If "no", proceed to day before yesterday.

If "yes", interviewer proceeds with the following series of questions and records the responses in grids provided:

"Where did you go on your first trip?"

"For what purpose?"

"What type of transportation did you use to get there?"

"Now, where did you go from there?"

"For what purpose?" *and so forth*)

YESTERDAY

Trip Number

Where did you go?

	1	2	3	4	5	6	7	8
Work ¹								
School ²								
Home ³								
Medical/dental ⁴								
Shopping ⁵								
Personal business ⁶								
Social/recreational ⁷								
Other ⁸								
Eat Meal ⁹								

How did you get there?

	1	2	3	4	5	6	7	8
Private auto, driver ¹								
Private auto, passenger ²								
Bus ³								
Taxi ⁴								
Motorbike ⁵								
Other ⁶								
Bicycle ⁷								
Walking: ⁸								

Day Before Yesterday's Trips

Now I'd like to ask you about the trips you made the day before yesterday. That would be *(give day of week)*

record:

Day of week _____

Date _____

10. Did you make any trips that day?

Yes ¹

No ² *(If "no," proceed to question 11).*

(If "yes," interviewer proceeds with the following series of questions and records the responses in the grids provided:)

"Where did you go on your first trip?"
 "For what purpose?"
 "What type of transportation did you use to get there?"
 "Now, where did you go from there?"
 "For what purpose?" *and so forth.*)

DAY BEFORE YESTERDAY	Trip Number							
Where did you go?	1	2	3	4	5	6	7	8
Work ¹								
School ²								
Home ³								
Medical/dental ⁴								
Shopping ⁵								
Personal business ⁶								
Social/recreational ⁷								
Other ⁸								
Eat Meal ⁹								

How did you get there?	1	2	3	4	5	6	7	8
Private auto, driver ¹								
Private auto, passenger ²								
Bus ³								
Taxi ⁴								
Motorbike ⁵								
Other ⁶								
Bicycle ⁷								
Walking ⁸								

11. Can you tell me how far out of your way you have to go to buy a bus pass?

- Less than 4 blocks ¹ 63.4
- Less than 1 mile ² 14.0
- 1-3 miles ³ 11.4
- Over 3 miles ⁴ 8.8
- I don't know ⁵ 2.3

12. How do you get there?

- Walk ¹ 58.1
- Auto ² 15.6
- Bus ³ 26.1
- Bicycle ⁴ 0.3
- Other: _____ 0.0

13. Finally, can you tell me how many people currently live in your household?

Number: _____

Thank you very much for all your help with this survey. This is the last time that you will be called. The City of Austin really appreciates your assistance and time. We want you to know we'll be using this information to help analyze our bus pass program. Again, we do thank you for your help.

(This ends interview.)

Interviewer Remarks: _____

EXHIBIT I-2

AUSTIN TFP
FOLLOW-UP PURCHASER
TELEPHONE SURVEY QUESTIONNAIRE #2

Call Sheet Record No.	<input type="text"/>			
Line No.	<input type="text"/>	1	2	3
Caller No.	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
		Serial No.		

Hi; I am _____ with the City of Austin's Urban Transportation Department. We are conducting a follow-up survey of Austin Transit bus pass users, and we'd like to speak to (target).

(If "target" is on the phone, say: "About three months ago, we talked with you about the bus pass you purchased during the October sale. Now that the sale is over, we'd really appreciate your help in answering some final questions about how you have used the pass. This will only take a few minutes." Then begin immediately with question 1.)

(If "target" is not available, say: "Can you tell me when I can reach him/her at this number?" - - work out appointment, and end interview.)

(If "target" comes to the phone, say: Hi; I am _____ with the City of Austin's Urban Transportation Department. About three months ago, we talked with you about the bus pass you purchased during the March sale. Now that the sale is over, we'd really appreciate your help in answering some final questions about how you used the pass. This will only take a few minutes." Then begin immediately with question 1.)

1. When we first contacted you a few months ago, you had just bought a:

- | | | |
|--------------------------|--------------------------------|------------------|
| <input type="checkbox"/> | 20-ride bus pass ¹ | <u>8</u>
87.7 |
| <input type="checkbox"/> | Commuter bus pass ² | 11.1 |
| <input type="checkbox"/> | Monthly bus pass ³ | 0.9 |
| <input type="checkbox"/> | Shopper bus pass ⁴ | 0.4 |

2a. Can you tell me the total number of passes you purchased during the bus pass sale?

(Ask number of each type.)

<u>Type</u>	<u>Number</u>
20-ride	_____
Commuter	_____
Monthly	_____
Shopper	_____

2b. About how long did it take you to use up one 20-ride ticket?

- | | | |
|--------------------------|---|------|
| <input type="checkbox"/> | One week or less ¹ | 14.7 |
| <input type="checkbox"/> | Two weeks or less ² | 44.1 |
| <input type="checkbox"/> | One month or less ³ | 21.8 |
| <input type="checkbox"/> | Between one and two months ⁴ | 6.2 |
| <input type="checkbox"/> | More than two months ⁵ | 7.1 |
| <input type="checkbox"/> | Don't remember ⁶ | 6.2 |

2c. Do you have any left?

- | | |
|------------------|------|
| Yes ¹ | 35.6 |
| NO ² | 64.4 |
-

8
60.6
39.4

3. Are you now using any type of bus pass?

Yes → Which type?

No ⁵

Can you tell me why not?

20-ride bus pass ¹

Commuter bus pass ²

Monthly bus pass ³

Shopper bus pass ⁴

4. Can you tell me how many one-way trips you make on Austin Transit buses in a typical week? For example, if you take the bus to work, that would be one one-way trip. Then, if you took the bus from work back home, that would be another one-way trip.

5. Now I'd like to ask you some questions about the trips you've made during the last two days. As you may remember from the last interview, a trip was any time you went at least three blocks from one place to another. You could have used any type of transportation including walking or bicycling. For example, going to work by automobile would be one trip; walking to a place for lunch, if it was at least 3 blocks away, would be a second trip; returning to work from lunch would be a third trip.

Yesterday's Trips

Let's begin by talking about trips you made yesterday.

That would be *(give day of week)*

record:

Day of week _____

Date _____

6. Did you make any trips yesterday?

Yes ¹

No ² *If "no", proceed to day before yesterday.*

If "yes", interviewer proceeds with the following series of questions and records the responses in grids provided:

- "Where did you go on your first trip?
- "For what purpose?"
- "What type of transportation did you use to get there?"
- "Now, where did you go from there?"
- "For what purpose?" *and so forth.*

YESTERDAY

Trip Number

Where did you go?

	1	2	3	4	5	6	7	8
Work ¹								
School ²								
Home ³								
Medical/dental ⁴								
Shopping ⁵								
Personal business ⁶								
Social/recreational ⁷								
Eat Meal ⁸								
Other ⁹								

How did you get there?

	1	2	3	4	5	6	7	8
Private auto, driver ¹								
Private auto, passenger ²								
Bus, Austin Transit ³								
Bus, Other ⁴								
Taxi ⁵								
Motorbike ⁶								
Bicycle ⁷								
Walking ⁸								
Other ⁹								

Day Before Yesterday's Trips

Now I'd like to ask you about the trips you made the day before yesterday. That would be *(give day of week)*

record:

Day of week _____

Date _____

10. Did you make any trips that day?

Yes ¹

No ² *(If "no," proceed to question 11).*

(If "yes," interviewer proceeds with the following series of questions and records the responses in the grids provided:)

"Where did you go on your first trip?"
 "For what purpose?"
 "What type of transportation did you use to get there?"
 "Now, where did you go from there?"
 "For what purpose?" *and so forth.*)

DAY BEFORE YESTERDAY	Trip Number							
Where did you go?	1	2	3	4	5	6	7	8
Work ¹								
School ²								
Home ³								
Medical/dental ⁴								
Shopping ⁵								
Personal business ⁶								
Social/recreational ⁷								
Eat Meal ⁸								
Other ⁹								

How did you get there?	1	2	3	4	5	6	7	8
Private auto, driver ¹								
Private auto, passenger ²								
Bus, Austin Transit ³								
Bus, Other ⁴								
Taxi ⁵								
Motorbike ⁶								
Bicycle ⁷								
Walking ⁸								
Other ⁹								

Now I'd like to ask you two final questions to help us compare this interview with the last one.

8. Since the last time we interviewed you, has anything happened that would change your travel habits? For example, buying a car or changing jobs might change your travel habits.

Yes¹ → (probe)

8

29.5

No²

70.5

9. Finally, what about the last two days? Did your trips in the last two days differ in any way from your normal routine - for example, because of illness or vacation?

Yes¹ → (probe)

7.7

No²

92.3

Thank you very much for all your help with this survey. This is the last time that you will be called. The City of Austin really appreciates your assistance and time. We want you to know we'll be using this information to help analyze our bus pass program. Again, we do thank you for your help.

(This ends interview.)

Interviewer Remarks: _____

Hello, my name is _____ and I'm an interviewer for the City of Phoenix. We're conducting a follow-up survey of Phoenix Transit bus pass users, and I'd like to speak to TARGET.

IF DESIGNATED TARGET IS NOT HOME DETERMINE CALL BACK TIME. TIME: _____

About three months ago, we talked with you about the bus pass you purchased during the February sale. Now that the sale is over, we'd appreciate your help in answering some final questions about how you used the pass. This will only take a few minutes.

First, when we contacted you a few months ago, you had just bought a:

- 1 ___ 10-ride bus pass
- 2 ___ 20-ride bus pass
- 3 ___ Monthly bus pass

1. Did you buy any more passes during the bus pass sale?

- 1 ___ Yes
- 2 ___ No (GO TO Q.2)

1a. Which types did you purchase? How many of each?

Type	Number
<input type="checkbox"/> 10-ride	_____
<input type="checkbox"/> 20-ride	_____
<input type="checkbox"/> Monthly (GO TO Q.2)	_____

1b. About how long did it take you to use up one (10-ride)(20-ride) pass.

10-ride	20-ride
1 ___ 1 week or less	___ 1
2 ___ 2 weeks or less	___ 2
3 ___ 1 month or less	___ 3
4 ___ Between 1 & 2 months	___ 4
5 ___ More than 2 months	___ 5
6 ___ Don't remember	___ 6

2. Are you currently using any type of bus passes?

- 1 ___ Yes
- 2 ___ No (GO TO Q.2b)

2a. Which type?

- 1 ___ 10-ride
 - 2 ___ 20-ride
 - 3 ___ Monthly
- (GO TO Q.3)

2b. Why aren't you currently using them?

3. In a typical week, about how many one-way bus trips do you usually make? For example, if you take the bus to work and home again that counts as two one-way trips.

- ____ Number
- 99 ___ None

#	X
0	21.0
1-2	5.8
3-5	13.0
6-10	55.5
11+	4.7

4. Now I'd like to ask you about the trips you have taken during the last two days. For our purposes, a trip is any time you went more than three blocks by any type of transportation including bicycling and walking. For example, going to work would be one trip; going to lunch from work would be a second trip; returning to work from lunch would be a third trip, and so on. Remember, the trip has to be more than three blocks to be counted.

Okay, let's begin by talking about the trips you made yesterday. That would be (give day of week).

RECORD: Day of week _____ Date _____

Did you make any trips yesterday?

- 1 ___ Yes (GO TO Q.4a) 2 ___ No (GO TO Q.5)

4a. ASK RESPONDENT

"Where did you go on your first trip?"

"For what purpose?"

"How did you get there?"

"Where did you go from there?"

Repeat sequence until all trips are accounted for

WHERE DID YOU GO? TRIP NUMBER

	1	2	3	4	5	6	7	8	9	10
Work (1)										
School (2)										
Home (3)										
Medical/Dental (4)										
Shopping (5)										
Personal Business (6)										
Social/Recreation (7)										
Eat a meal (8)										
Other (9)										

HOW DID YOU GET THERE? TRIP NUMBER

	1	2	3	4	5	6	7	8	9	10
Auto-driver (1)										
Auto-passenger (2)										
Bus (3)										
Taxi (4)										
Motorcycle (5)										
Bicycle (6)										
Walk (7)										
Other (8)										

X
63.9
33.9
2.2

57.1, 0.9
30.0, 69.4
8.8, 23.4
0.9, 3.6
1.4, 2.7

45.6
54.4
44.8
48.3
7.0

5. Now I'd like to ask you about the trips you made the day before yesterday. That would be (give day of week).

RECORD: Day of wk _____ Date _____

Did you make any trips two days ago?

1 ___ Yes (GO TO Q.5a) 2 ___ No (GO TO Q.6)

5 a. ASK RESPONDENT

- "Where did you go on your first trip?"
- "For what purpose?"
- "How did you get there?"
- "Where did you go from there?"

Repeat sequence until all trips are accounted for

WHERE DID YOU GO?

	TRIP NUMBER									
	1	2	3	4	5	6	7	8	9	10
Work (1)										
School (2)										
Home (3)										
Medical/Dental (4)										
Shopping (5)										
Personal Business (6)										
Social/Recreation (7)										
Eat a meal (8)										
Other (9)										

HOW DID YOU GET THERE?

	TRIP NUMBER									
	1	2	3	4	5	6	7	8	9	10
Auto-driver (1)										
Auto-passenger (2)										
Bus (3)										
Taxi (4)										
Moped/cycle (5)										
Bicycle (6)										
Walk (7)										
Other (8)										

Now I'd like to ask you two final questions to help us compare this interview with the last one.

6. Since the last time we interviewed you, has anything happened that would change your travel habits? For example, buying a car or changing jobs might change your travel habits.

1 ___ Yes 2 ___ No (GO TO Q. 7)

6a. What happened? _____

7. Finally, what about the last two days? Did your trips in the last 2 days differ in any way from your normal routine--for example because of illness or vacation?

1 ___ Yes 2 ___ No

7a. Why did they differ? _____

%
35.6
64.4

8.9
91.1

Thank you very much for all your help with this survey. This is the last time that you will be called. The City of Phoenix appreciates your assistance and time. We want you to know we'll be using this information to help analyze our bus pass program. Again, we do thank you for your help.

Respondent's Name: _____

Interviewer's Name: _____

Edited by: _____ Date: _____

Hello, my name is _____ and I'm an inter-
 viewer for the City of Phoenix. We're conducting
 a follow-up survey of Phoenix Transit bus pas-
 sengers, and I'd like to speak to TARGET.

IF DESIGNATED TARGET IS NOT
 SOME DETERMINE CALL BACK TIME: TIME: _____

About three months ago, we talked with you about
 the bus pass you purchased during the October
 sale. Now that the sale is over, we'd appreciate
 your help in answering some final questions about
 how you used the pass. This will only take a few
 minutes.

First, when we contacted you a few months ago
 you had just bought a:

- 1 ___ 10-ride bus pass
- 2 ___ monthly bus pass

What was the total number of bus passes
 you purchased during the entire bus pass
 sale?

NUMBER _____

1a. Which types did you purchase? How
 many of each?

Type	Number
1 ___ 10-ride	_____
2 ___ monthly (GO TO Q 2)	_____

1b. About how long did it take you to use
 up one 10-ride pass?

- 1 ___ 1 week or less
- 2 ___ 2 wks or less
- 3 ___ 1 month or less
- 4 ___ Between 1 & 2 mos.
- 5 ___ More than 2 mos.
- 6 ___ Don't remember

Are you currently using any type of bus
 passes?

- 1 ___ Yes
- 2 ___ No (GO TO Q. 2b)

2a. Which type? 1 ___ 10 ride } (GO TO Q 3)
 2 ___ Monthly }

2b. Why aren't you currently using them?

In a typical week, about how many one-way
 bus trips do you usually make? For example,
 if you take the bus to work and home again,
 that counts as two one-way trips.

_____ Number 99 ___ None

4. Now I'd like to ask you about the trips
 you have taken during the last 3 days.
 For our purposes, a trip is any time you
 went more than 3 blocks by any type of
 transportation including bicycling and
 walking. For example, going to work
 would be one trip; going to lunch from
 work would be a second trip; returning to
 work from lunch would be a third trip,
 and so on. Remember, the trip has to be
 more than 3 blocks to be counted.

Okay, let's begin by talking about the
 trips you made yesterday. That would be
 (GIVE DAY OF WEEK).

RECORD: Day of wk _____ Date _____

Did you make any trips yesterday?

- 1 ___ Yes (GO TO Q 4a)
- 2 ___ No (GO TO Q 5)

4a. ASK RESPONDENT:
 "Where did you go on your first trip?"
 "For what purpose?"
 "How did you get there?"
 "Where did you go from there?"

REPEAT SEQUENCE UNTIL ALL TRIPS ARE
 ACCOUNTED FOR.

WHERE DID YOU GO? Trip Number

	1	2	3	4	5	6	7	8	9	10
Work (1)										
School (2)										
Home (3)										
Medical/Dental (4)										
Shopping (5)										
Personal Business (6)										
Social/Recreation (7)										
Eat a meal (8)										
Other (9)										

HOW DID YOU
 GET THERE? 1 2 3 4 5 6 7 8 9 10

	1	2	3	4	5	6	7	8	9	10
Auto-driver (1)										
Auto-passenger (2)										
Phx. Transit bus (3)										
Dial-a-Ride (4)										
Taxi (5)										
Motorcycle (6)										
Bicycle (7)										
Walk (8)										
Other (9)										

86.2
 13.8

63.9
 27.7
 7.6
 0.0
 0.0
 0.8

57.3
 42.7
 82.9
 15.9
 1.2

2
 0 16.6
 1-2 5.5
 3-5 14.6
 6-10 60.0
 11+ 3.2

5. Now I'd like to ask you about the trips you made the day before yesterday. That would be (GIVE DAY OF WEEK).

RECORD: Day of wk _____ Date _____

Did you make any trips two days ago?

1 ___ Yes (GO TO Q 5a) 2 ___ NO (GO TO Q 6)

5a. **ASK RESPONDENT:**

- "Where did you go on your first trip?"
- "For what purpose?"
- "How did you get there?"
- "Where did you go from there?"

REPEAT SEQUENCE UNTIL ALL TRIPS ARE ACCOUNTED FOR.

WHERE DID YOU GO?	Trip Number									
	1	2	3	4	5	6	7	8	9	10
Work (1)										
School (2)										
Home (3)										
Medical/Dental (4)										
Shopping (5)										
Personal business(6)										
Social/Recreation(7)										
Eat a meal (8)										
Other (9)										

HOW DID YOU GET THERE?	Trip Number									
	1	2	3	4	5	6	7	8	9	10
Auto-driver (1)										
Auto-passenger (2)										
Phx. Transit Bus (3)										
Dial-a-ride (4)										
Taxi (5)										
Motorcycle (6)										
Bicycle (7)										
Walk (8)										
Other (9)										

Now I'd like to ask you two final questions to help us compare this interview with the last one.

6. Since the last time we interviewed you has anything happened that would change your travel habits? For example, buying a car or changing jobs might change your travel habits.

1 ___ Yes 2 ___ No (GO TO Q 7)

6a. What happened? _____

7. Finally, what about the last two days? Did your trips in the last 2 days differ in any way from your normal routine--for example, because of illness or vacation?

1 ___ Yes 2 ___ No

7a. Why did they differ? _____

Thank you very much for all your help with this survey. The City of Phoenix appreciates your assistance and time. We want you to know we'll be using this information to help analyze our bus pass program. Again, we do thank you for your help.

RESPONDENT'S NAME: _____

Interviewer's name _____

Edited by: _____ Date _____

7

29.7
70.3

12.4
87.6

APPENDIX J
FOLLOW-UP PUBLIC AWARENESS SURVEY

FOLLOW-UP PUBLIC AWARENESS SURVEY

J-1 Purpose of the Survey

The purpose of the Follow-Up Awareness Survey was to assess changes in the measurements taken at the outset of the demonstration project via the Public Awareness Survey. (See Appendix A.) The Follow-Up Awareness Survey also measured public awareness of the two TFP promotional campaigns.

J-2 Methodology: Austin

The Austin Follow-Up Awareness Survey was administered from May 11-18, 1978. The original Awareness Survey sample was not recalled, on the grounds that the initial interview may have affected each respondent's level of awareness of transit, independent of the two TFP sales. Therefore, a new sample of telephone numbers was selected in the same manner as in September. (See Appendix A.) As in September, the target sample size was 300. Eight survey workers were hired to make calls from 5:00 to 9:00 PM on weeknights and from 10:00 AM to 1:00 PM on Saturday; the number of interviewers varied each night. All attended a one-hour training session before the survey began. The procedures followed were identical to those used to conduct the General Public Awareness Survey in September.

Completed questionnaires totaled 300; the Follow-Up Awareness Survey also yielded an unexpectedly high refusal rate of close to 30 percent. Persons with unlisted telephone numbers apparently accounted for a number of refusals. A copy of the survey questionnaire showing the frequency distributions of responses is provided as Exhibit J-1.

J-3 Methodology: Phoenix

The Phoenix Follow-Up Awareness Survey was administered by BRC from January 28 - February 2, 1979 to a random sample of 300 Phoenix residents. A copy of the survey questionnaire showing the frequency distributions of responses is provided as Exhibit J-2.

EXHIBIT J-2

AUSTIN FOLLOW-UP
PUBLIC AWARENESS
TELEPHONE SURVEY QUESTIONNAIRE

Call Sheet
Record No.
Line No.
Caller No.

Hi, I'm _____ calling for the City of Austin's Urban Transportation Department. We are conducting a final follow-up survey concerning some recent transit experiments conducted by Austin Transit, and we'd really appreciate your help in answering a few questions. This should only take about four minutes.

Is this _____? *(If no, say "I'm sorry, I have the wrong number." Redial.)*
(phone #)

1. First, is this a private residence?

Yes ¹
 No ²

→ *(If no, say:)* "This is a survey of private residences, thank you, and I needn't bother you any further."
(This ends interview)

2. Have we at Austin Transit called you regarding any surveys in the last eight months or so?

Yes ¹
 No ²

→ *(If yes: explanation and apology)*

3. Do you live within the city limits of Austin?

Yes ¹

No ²



(If no, ask:)

3(a) Is any bus service available in your area?

Yes ¹

No ²

3(b) Does (lack of) accessibility to bus service create a problem for you?

Yes ¹

No ²

Thank you very much for your help with this survey. The City of Austin really appreciates your assistance and time. We want you to know we'll be using this general information to help analyze our bus service. Again, we do thank you for your help. Goodby. *(This ends interview)*

4. Now I need to determine who in your household I should speak with. How many people, age 13 and over, live at this residence?

5. How many of these are males?

Determine the target person from the selection key.

Adult ¹

Youngest Woman ⁴

Youngest Man ⁷

Woman ²

Middle Woman ⁵

Middle Man ⁸

Man ³

Oldest Woman ⁶

Oldest Man ⁹

ASK TO SPEAK WITH DESIGNATED RESPONDENT - IF THAT PERSON IS NOT HOME, ASK WHEN TO CALL BACK AND RECORD OUTCOME ON CALL RECORD SHEET.

Target respondent's name if known _____

When you finally speak with target person you wish to interview, reintroduce yourself and explain the purpose of the survey.

6. Do you ever use the Austin Transit System?

- Yes ¹
- No ²
- Sometimes ³

(Skip to 8)

		%
		19.6
		71.9
		8.5

7. How many one-way trips do you make on Austin Transit buses in a typical week? For example, if you take the bus to work, that would be one one-way trip. Then, if you took the bus from work back to home, that would be another one-way trip.

#	%
0	30.8
1-2	27.7
3-5	12.3
6-10	24.6
11+	4.6

8. Do you know how to get downtown from your house on the bus?

- Yes ¹
- No ²
- Not sure ³
- No buses run near my house ⁴

		%
		48.0
		46.7
		5.0
		0.3

(Only if they ask how, say) "I only deal with the survey, but we do have trained people to answer those questions. Shall I give you that number or should we go on to the next question? *(pause)*
The number is 478-8581. or Shall we go on?"

9. Do you know how much it costs to take the bus downtown from your house? How much?

- 15¢ and 30¢ ¹ 30¢ ² No, or ³ not sure *(tell fares)* 15¢ ⁴ Wrong ⁵ amount *(amount) (tell fares)*
- "Do you know it costs only 15¢ during non-rush hours? (9a.m. to 3p.m., and after 6p.m.)
- "Do you know it costs 30¢ during the rush period? (6 to 9a.m. and 3 to 6p.m.)

- Yes ¹
- No ²

- Yes ³
- No ⁴

		%
		14.4
		7.4
		59.5
		8.0
		10.7
57.2	47.4	
42.8	52.6	

10(a) Do you know if you can buy city bus tickets and passes in advance? %

Yes ¹ 67.6

No ² 32.4

↓
(Skip to 13)

10(b) Have you ever heard of any of the following items?

a) The 20-ride bus ticket?

Yes ¹ 56.7

No ² 43.3

b) The commuter bus pass?

Yes ¹ 54.4

No ² 45.6

c) The monthly bus pass?

Yes ¹ 61.1

No ² 38.9

d) The shopper pass?

Yes ¹ 42.0

No ² 58.0

e) The 10-ride student bus ticket?

Yes ¹ 37.3

No ² 62.7

(If "No" to all pass questions, skip to 13)

11. How did you find out about these tickets or passes?

12(a) Do you know where you can buy these tickets and passes?	<u>%</u>
<input type="checkbox"/> Yes ¹	26.6
Where do you or where would you buy them? _____	
<input type="checkbox"/> No ²	73.4
12(b) We do have several outlet locations at various businesses and public buildings in the city. Can you think of a (more) convenient type of place that you <i>(if Yes)</i> would like to buy them? _____ _____ _____	
13. Can you tell me if these tickets and passes are the same price, more expensive, or cheaper than paying cash each time you ride the bus?	
<input type="checkbox"/> Same price ¹	4.9
<input type="checkbox"/> More expensive ²	0.5
<input type="checkbox"/> Cheaper ³	72.4
<input type="checkbox"/> Don't know ⁴	22.2
<i>(If they ask advantages say:)</i> "People that are frequent bus riders do find that they can save money using any of our calendar month bus passes (Commuter, Monthly, Shoppers). All of our passes are a definite convenience to riders because they don't have to have exact change."	
14. Were you aware that these passes were on sale within the last year or so?	
<input type="checkbox"/> Yes ¹	54.8
<input type="checkbox"/> No ² <i>(Skip to q. 18)</i>	45.2
15. How did you hear about this? _____ _____ _____	

16. Do you know which month or months these passes were on sale?

17. Actually, the passes were on sale last October and last March. Were you aware of either or both of these sales?

	<u>%</u>
<input type="checkbox"/> October only ¹	13.0
<input type="checkbox"/> March only ²	28.7
<input type="checkbox"/> October and March ³	18.3
<input type="checkbox"/> Neither ⁴	40.0

18. Based on your knowledge, how would you rate the bus system on a scale of 1 to 5, with 5 being the highest rating?

<input type="checkbox"/> Rating 5 ¹	19.4
<input type="checkbox"/> Rating 4 ²	30.0
<input type="checkbox"/> Rating 3 ³	36.7
<input type="checkbox"/> Rating 2 ⁴	10.7
<input type="checkbox"/> Rating 1 ⁵	3.2

(If they have trouble responding, say)

"5 would mean you thought the service was excellent, 1 would mean it was not good at all, and 3 would be in the middle of those two extremes."

19. If there were direct, convenient, inexpensive bus service to where you want to go, would you take the bus?

<input type="checkbox"/> Yes ¹	60.5
<input type="checkbox"/> No ²	22.7
<input type="checkbox"/> Maybe ³	13.4
<input type="checkbox"/> Don't know ⁴	3.4

20. What would you say is your major complaint about Austin's bus service? _____

(If they have trouble answering, ask:) "Is there anything about the bus system that you particularly dislike?"

21. What do you like best about the bus service?

(If they have trouble answering, ask:) Is there something about the bus system that you particularly like?

22. Can you tell me the street you live on and the nearest cross-street? _____

23. Finally, I want to note your age.

(Start at appropriate category if obvious)

<input type="checkbox"/> Under 18 ¹	<u> </u> 6.4
<input type="checkbox"/> 18 - 44 ²	62.6
<input type="checkbox"/> 45 - 64 ³	19.7
<input type="checkbox"/> 65 and over ⁴	11.0
<input type="checkbox"/> No answer ⁵	0.3

Thank you very much for your help with this survey. The City of Austin really appreciates your assistance and time. We want you to know we'll be using this general information to help analyze our bus service. Again, we do thank you for your help. Goodby.

(This ends interview)

24. (Sex - by observation)

Female ¹

Male ²

2

52.7

47.3

(Interviewer comments) _____

BEHAVIOR RESEARCH CENTER
 2214 E. Central Ave.
 Phoenix, Arizona 85004
 (602) 258-4554

EXHIBIT J-2
 PHOENIX TFP
 General Public Survey - #2
 January 1979

Study # 1 5
 Resp. # 1-4

Hello, my name is _____ and I'm an interviewer for the City of Phoenix. Am I calling a private residence?

(IF NO, TERMINATE INTERVIEW AND RECORD OUTCOME ON CALL RECORD SHEET)

We're conducting a survey on the City of Phoenix bus system and I'd like to speak with someone in your household. First, however, I need to determine who in your household I should speak with.

SCREENER

A. How many people, age 13 & over, live at this residence? _____

B. How many of these are males? _____

(ASK TO SPEAK WITH DESIGNATED RESPONDENT, IF THAT PERSON IS NOT HOME FIND OUT THEIR NAME, WHEN TO CALL BACK & RECORD OUTCOME ON CALL RECORD SHEET.)

NAME: _____

TIME: _____

SELECTION CHART
 TO BE INSERTED
 HERE - 6 VERSIONS

1. First, what are your general impressions of the quality of city bus service? What else?

2. In a typical week, do you make use of the city bus system?

1__Yes (GO TO Q. 2a) 2__No (GO TO Q. 3)

↓
 2a. About how many one-way bus trips do you make in a typical week? For example, if you take the bus to work and home again, that counts as two one-way trips.

Number
 (GO TO Q3)

3. If you wanted to go from your house to downtown Phoenix, do you know what bus you would take and where you would catch it?

1__Yes 2__No 3__Not sure 4__No buses run near my house

4. How much would it cost the average adult to take the regular city bus from your house to downtown Phoenix?

_____Cost 1__Correct 2__Incorrect 3__DK

5. Do you know if you can buy city bus tickets and passes in advance?

1__Yes 2__No (GO TO Q. 6)

↓
 5a. Have you heard of any of the following types of city bus tickets or passes? (READ EACH)

- A-the 10-ride city bus ticket book
- B-The monthly city bus pass

YES	NO
1	2
1	2 (IF NO TO BOTH, SKIP TO Q. 6)

COL CODE

	<u>X</u>
	11.0
	89.0
	(Riders)
#	<u>X</u>
1-2	30.3
3-5	27.3
6-10	36.4
11+	6.0
	<u>X</u>
	46.0
	45.3
	8.0
	0.7
	18.0
	22.7
	59.3
	57.7
	42.3
	(Yes)
	63.6
	39.3

Sb. How did you find out about these tickets or passes? How else did you find out about these tickets or passes? _____ _____	%
Sc. Do you know where you can buy these tickets or passes? ____ Yes (Where? _____) 1__ No	55.0 45.0
Sd. Are these tickets and passes the same price as, more expensive than, or cheaper than paying cash each time you ride the bus? 1__ Same price 2__ More expensive 3__ Cheaper 4__ Don't know	2.5 0.0 78.2 19.3
Se. Were you aware that these passes were on sale within the last year or so? 1__ Yes 2__ No (GO TO Q. 6)	55.9 44.1
Sf. How did you hear about this? _____ _____	
Sg. Do you know which month or months these passes were on sale? _____	
Sh. Actually, the passes were on sale last February and last October, were you aware of either or both of these sales? 1__ Feb. only 2__ Oct. only 3__ Feb & Oct. 4__ Neither	1.5 20.6 17.6 60.3
6. Based on your knowledge, how would you rate the bus system on a scale of 1 to 5, with 5 being the highest rating? 1__ Rating 5 2__ Rating 4 3__ Rating 3 4__ Rating 2 5__ Rating 1 6__ DK (IF THEY HAVE TROUBLE RESPONDING BECAUSE THEY HAVE NEVER RIDDEN THE BUS, SAY: "I realize that you don't ride the bus; we are only asking for your impressions of Phoenix Transit. Based on your impressions, would you give it a high rating, a low rating, or a rating in between the two extremes?" etc.)	8.3 16.7 25.7 12.7 9.7 27.0
7. If there were direct, convenient, inexpensive bus service to where you wanted to go, would you definitely, probably, probably not, or definitely not start to ride the bus? 1__ Definitely 2__ Probably 3__ Probably not 4__ Definitely not 5__ DK	29.0 35.3 21.7 12.7 1.3
Okay, now before we finish, I need a few pieces of information for classification purposes.	
8. What are the closest two cross streets to your residence? _____ _____	
9. Which of the following categories comes closest to your age? (READ EACH) 1__ Under 18 2__ 18-34 3__ 35-44 4__ 45-64 5__ 65 or over 6__ Refused	4.3 37.7 13.3 28.3
Thank you very much, that completes this interview. My supervisor may want to call you to verify that I conducted this interview, so may I have your name so that she may do so?	16.0 0.3
NAME: _____ PHONE: _____	
10. OBSERVED DATA: 1__ Male 2__ Female	42.7 57.3
INTERVIEWER NAME: _____ DATE: _____	

APPENDIX K
YEAR-LATER FOLLOW-UP SURVEY

APPENDIX K

YEAR-LATER FOLLOW-UP SURVEY

K-1 Purpose of the Survey

The purpose of the Year-Later Follow-Up Survey was to determine the attrition rate, after one year or so, of those purchasers from the first TFP sale who reported that they were "still buying" TFP instruments three months after the sale.

K-2 Methodology: Austin

The Year-Later Survey was administered by Austin Transit staff from May 8 - 12, 1979. Of the 130 purchasers who were "still buying" three months after the second TFP sale, 109 were recontacted and reinterviewed. The rest were unreachable by telephone. A copy of the survey questionnaire is attached as Exhibit K-1.

K-3 Methodology: Phoenix

BRC administered the Year-Later Survey from mid-February to the end of February, 1979. Of the 144 purchasers who were "still buying" three months after the first sale, 129 were reinterviewed. The rest had moved away or were otherwise unreachable. A copy of the survey questionnaire used in Phoenix is attached as Exhibit K-2.

EXHIBIT K-1
AUSTIN TFP DEMONSTRATION
YEAR-LATER FOLLOW-UP SURVEY

May 1979

RESPONDENT NAME _____ PHONE NUMBER _____

C A L L N U M B E R

1	2	3	4	5	6	7

B = Telephone line busy D = Disconnected telephone
 NA = No answer CQ = Completed questionnaire
 C = Qualified respondent R = Refused
 not home; call back

Hello, my name is _____ and I'm an interviewer for the City of Austin. Last year we talked with you about bus passes, and I'd like to ask you a couple of quick questions for our final follow-up survey. This will only take about one minute.

1. First, are you currently using any type of bus pass? %
- | | | | |
|------------------------------|---|--|------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No (GO TO Q.3) | | 56.0 |
| | | | 44.0 |
2. Which type are you using? (CHECK ALL THAT APPLY) %
- | | | |
|--|---|------|
| <input type="checkbox"/> 20-Ride bus pass | <input type="checkbox"/> Anytime ticket | 14.1 |
| <input type="checkbox"/> Commuter bus pass | <input type="checkbox"/> Other | 15.6 |
| | | 1.6 |
| <input type="checkbox"/> Monthly bus pass | | 1.6 |
| <input type="checkbox"/> Shopper bus pass | | 3.1 |
| <input type="checkbox"/> Student bus pass | | 62.5 |
| | | 1.6 |

(TERMINATE INTERVIEW.)

3. Why aren't you currently using them? Why else?

Thank you very much; that completes this survey. The City of Austin really appreciates your help. Goodbye.

Interviewer _____ Date _____

BEHAVIOR RESEARCH CENTER
 2214 N. Central Avenue
 Phoenix, Arizona 85004
 (602) 258-4554

Phoenix TFP - Year
 Later Follow-Up Survey
 February 1979
 EXHIBIT K-2

Study # 1-2: 10
 Resp. # 3-5:

RESPONDENT NAME _____ PHONE NUMBER _____

CALL NUMBER

1	2	3	4	5	6	7

B = Telephone line busy D = Disconnected telephone
 NA = No answer CQ = Completed questionnaire
 C = Qualified respondent R = Refused
 not home; call back

Hello, my name is _____ and I'm an interviewer for the City of Phoenix. Last year we talked with you about bus passes, and I'd like to ask you a couple of quick questions for our final follow-up survey. This will only take about one minute.

1. First, are you currently using any type of bus pass?

1__Yes 2__No (GO TO Q.3)



 72.9
 27.1

2. Which type are you using? (CHECK ALL THAT APPLY)

1__10-ride 2__Monthly

87.1
 7.5
 (Other) 5.4

3. Why aren't you currently using them? Why else?

8 _____
 9 _____
 10 _____

THANK YOU VERY MUCH, THAT COMPLETES THIS SURVEY.

INTERVIEWER _____ DATE _____

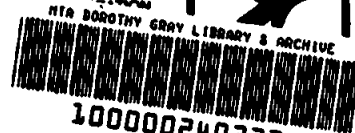


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