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16. Abstract

Through the Cooperative Research Program with the Texas State Department of Highways and Public Transportation, the Texas Transportation Institute has been involved in extensive evaluations of high-occupancy vehicle facilities throughout Texas. Park-and-Ride studies were performed in the Dallas area in 1979. In 1980, data collection efforts were extended to the Houston and San Antonio Metropolitan Areas. In 1982 The Texas Transportation Institute completed investigations and surveys of Park-and-Go facilities in Fort Worth and Park-and-Pool facilities along the I-30 freeway corridor in the Dallas/Fort Worth region. This study presents and compares the result of this investigation of Park-and-Pool activity in the Fort Worth area with previous research efforts.

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PARK-AND-POOL LOTS IN THE FORT WORTH AREA

AN ANALYSIS OF SURVEY DATA

by

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Research Report 205-21
Research Study Number 2-10-74-205

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Federal Highway Administration

Texas Transportation Institute
The Texas A&M University System
College Station, TX 77843

August 1983

ACKNOWLEDGEMENTS

To successfully undertake a project of this nature, the cooperation and assistance of a number of organizations and agencies are necessary. The Texas Transportation Institute was provided with this assistance, and the cooperation of the City of Fort Worth and District 2 of the State Department of Highways and Public Transportation is gratefully acknowledged. Special recognition is due Messrs. J.R. Stone (District 2), Bob Hodge (District 2), Don Walden (Regional Planning Office) and Gary L. Santerre (City of Fort Worth). In addition, Mr. Don Bean (City of Fort Worth) and Mr. Mark Young (Regional Planning Office) are recognized for their roles and contributions to the successful completion of the project.

ABSTRACT

Through the Cooperative Research Program with the Texas State Department of Highways and Public Transportation, the Texas Transportation Institute has been involved in extensive evaluations of high-occupancy vehicle facilities throughout Texas. Park-and-Ride studies were performed in the Dallas area in 1979. In 1980, data collection efforts were extended to the Houston and San Antonio Metropolitan Areas. In 1982 The Texas Transportation Institute completed investigations and surveys of Park-and-Go facilities in Fort Worth and Park-and-Pool facilities along the I-30 freeway corridor in the Dallas/Fort Worth region. This study presents and compares the result of this investigation of Park-and-Pool activity in the Fort Worth area with previous research efforts.

Key Words: Park-and-Ride, Park-and-Go, Park-and-Pool, Transit, Mass Transportation, HOV Facilities, Ridesharing, Carpool, Vanpool, Buspool, Corridor Parking, Transportation Planning, Priority Treatment.

SUMMARY

The increasing cost of commuting has resulted in more acceptance of ride-sharing by the traveling public as a viable mode of transportation. The purpose of this research effort was to investigate Park-and-Go/Park-and-Pool activity in the Fort Worth area and to formulate planning guidelines for assessing the user characteristics and resulting transportation benefits from these types of mode change facilities.

Thirty-seven sites were selected for study, including 8 Park-and-Go facilities served by the city transit system (CITRAN) in Fort Worth and 29 Park-and-Pool lots located in 9 counties surrounding Fort Worth. A total of 928 questionnaires were distributed on the windshields of parked commuter vehicles, and 363 (39%) were returned for analysis. The user surveys resulted in the identification of personal characteristics and travel behavior of commuters engaged in pooling activity.

This report presents the results of this data collection effort and compares those findings with previous rideshare studies conducted in the Fort Worth/Dallas area. Data from this research were then aggregated with two prior, but similar, study efforts to provide a data base of 711 observations to allow a user profile comparison by pooling mode (i.e., carpool, vanpool, buspool) and by lot location (i.e., rural, urban fringe, urban).

Personal Characteristics

Table S-1 provides a summary of the personal characteristics of Park-and-Go users and of Park-and-Pool users observed in the Fort Worth area.

Table S-1. Summary of Personal Characteristics of Park-and-Go Lot Users And of Park-and-Pool Lot Users

Characteristics	Users of Park-and-Go Lots:	Users of Park-and-Pool Lots:
Sex:		
Male	43.5%	49.9%
Female	56.5%	50.1%
Age:		
50th Percentile	35.4 years	36.0 years
Average (mean)	39.2 years	38.3 years
Occupation:		
Professional	37.8%	32.7%
Clerical	30.9%	24.6%
Managerial	11.5%	15.1%
Craftsman	8.8%	14.7%
Education:		
50th Percentile	13.7 years	13.2 years
Average (mean)	14.5 years	14.2 years

Travel Characteristics

Based upon the surveys of parked commuter vehicles at the two types of mode change facilities, some 40% of Park-and-Go users buspool, 53% carpool and 7% vanpool, while some 3% of the Park-and-Pool users buspool, 58% carpool and 38% vanpool. The survey of parked vehicles at Park-and-Go lots underestimates the actual transit (buspool) usage by some 35% due to those patrons who arrive at the facility by some means (i.e., walked, dropped off, etc.) other than an auto that is left parked at the lot. Table S-2 summarizes the observed travel characteristics for the users of the two types of mode change facilities.

Table S-2. Summary of Travel Characteristics of Park-and-Go Lot Users and of Park-and-Pool Lot Users

Characteristics	Users of Park-and-Go Lots	Users of Park-and-Pool Lots
Mode Split Based Upon Parked Vehicles:		
Carpool to Destination	52.6%	58.4%
Vanpool to Destination	7.0%	38.0%
Buspool to Destination	40.4%	3.2%
Pool Size from Lot to Destination: (persons/vehicles)		
Carpool	3.70	3.43
Vanpool	12.50	9.85
Travel Frequency: (days per week)	4.83	4.95
Prior Mode of Travel:		
Drove Alone	59.3%	49.6%
Carpool or Vanpool	19.0%	35.8%
Did Not Make Trip	9.3%	8.5%
Buspool	7.1%	3.6%
Other Mode	5.3%	2.5%
Home-to-Lot Travel Distance:		
50th Percentile	2.4 miles	3.2 miles
Average (mean)	4.6 miles	5.4 miles
Lot-To-Destination Travel Distance:		
50th Percentile	19.4 miles	23.0 miles
Average (mean)	19.8 miles	25.9 miles
Daily Round Trip Travel Distance:		
50th Percentile	43.6 miles	52.4 miles
Average (mean)	48.8 miles	62.6 miles

As expected, a significantly higher number of Park-and-Go users (40%) travel from the mode change facility to their final destination by bus after leaving their vehicle parked than do users of Park-and-Pool lots (3%). A major difference in travel characteristics between the two types of facilities is

found in the trip distances; the average daily round trip distance for a Park-and-Go user is about 49 miles versus some 63 miles traveled by a Park-and-Pool lot user. The geographic location of the Park-and-Pool facility also was found to have a relationship to the travel patterns of commuters. Table S-3 presents travel characteristics of Park-and-Pool users responding to the commuter surveys in and around the City of Fort Worth based upon geographic setting or location of the lot.

Table S-3. Summary of Park-and-Pool Travel Characteristics by Geographic Location of the Lot

Characteristics	Users of Park-and-Pool Lots Located In:		
	Urban Areas	Urban Fringe Areas	Rural Areas
Mode Split Based Upon Parked Vehicles:			
Carpool to Destination	57.9%	60.0%	58.5%
Vanpool to Destination	39.2%	40.0%	34.2%
Buspool to Destination	2.5%	---	6.5%
Travel Frequency: (days per week)	4.94	4.96	4.98
Home-to-Lot Travel Distance:			
50th Percentile	2.9 miles	2.7 miles	4.0 miles
Average (mean)	5.3 miles	4.8 miles	6.1 miles
Lot-to-Destination Travel Distance:			
50th Percentile	20.4 miles	24.1 miles	32.4 miles
Average (mean)	22.3 miles	24.5 miles	34.6 miles
Daily Round Trip Travel Distance:			
50th Percentile	46.6 miles	53.6 miles	72.8 miles
Average (mean)	55.2 miles	58.6 miles	81.4 miles

Benefits of Pooling

The net annual reduction in vehicle miles of travel (VMT) and the related annual fuel savings resulting from the commuters' use of Park-and-Go and Park-and-Pool facilities were estimated. Table S-4 presents a summary of annual benefits per pooling commuter calculated for the two types of mode change facilities.

Table S-4. Estimated Annual Reduction in VMT and Fuel Consumption per Pooling Commuter

Benefits	Commuter Using Park-and-Go Lot	Commuter Using Park-and-Pool Lot
Annual VMT Reduction per:		
Buspooler	4,375 vehicle miles	7,897 vehicle miles
Carpooler	6,362 vehicle miles	6,203 vehicle miles
Vanpooler	7,504 vehicle miles	9,333 vehicle miles
Average Annual VMT Reduction per Pooler:	5,647 vehicle miles	7,443 vehicle miles
Annual Fuel Savings per:		
Buspooler	263 gallons	505 gallons
Carpooler	383 gallons	397 gallons
Vanpooler	452 gallons	597 gallons
Average Annual Fuel Savings per Pooler:	340 gallons	476 gallons

From the table on estimated benefits for Park-and-Go users and Park-and-Pool users, the typical commuter saves between 263 and 597 gallons of fuel per year and from 4,375 to 9,333 annual vehicle miles of travel. The benefits derived per commuter vary by type of ridesharing facility and type of pooling mode. Due to the travel characteristics of Park-and-Pool users observed in the studies, considerably more benefits can be realized from these types of mode change facilities than from Park-and-Go lots. The estimated VMT reductions and fuel

savings per commuter vary by geographic location of the Park-and-Pool lot as shown in Table S-5. A commuter originating from a rural Park-and-Pool lot saves almost 11,000 vehicle miles of travel per year or approximately 59% more than a commuter traveling from a facility located in an urban area.

Table S-5. Estimated Annual Benefits per Park-and-Pool Users by Lot Location

Benefits	User of Park-and-Pool Lot Located in Urban Area	User of Park-and-Pool Lot Located in Urban Fringe Area	User of Park-and-Pool Lot Located in Rural Area
Annual Average VMT Reduction per Pooler	6,877 miles	7,531 miles	10,944 miles
Annual Average Fuel Savings per Pooler	440 gallons	482 gallons	700 gallons

IMPLEMENTATION STATEMENT

Project 205 is oriented toward assisting the State Department of Highways and Public Transportation in the planning, implementation, and evaluation of priority treatment projects. Park-and-Go and Park-and-Pool lots are integral parts of these improvements.

Numerous new Park-and-Pool lots and other mode change facilities continue to be built in the State, and the Department is frequently involved in the planning and the funding of those improvements. The results from this and other similar studies should enhance the cost-effectiveness of Park-and-Pool and Park-and-Go improvements.

DISCLAIMER

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INTRODUCTION

The rapid population growth of the State's urbanized areas has resulted in a correspondingly rapid growth in transportation demand and traffic congestion. In addition to rapid population growth, the problem of sustaining urban mobility is compounded by a general reduction in the people-moving capacity of existing freeways. During the last 30 years, the average vehicle occupancy rate has declined from about 4 persons per vehicle to less than 1.3 persons per vehicle. This vehicle occupancy reduction has essentially resulted in a 68% decrease in the effective capacity of existing freeways and highways.

The State Department of Highways and Public Transportation is responsible for the design, construction and operation of highways and freeways to accommodate present and future transportation demand. In an attempt to increase the effective capacity and productivity of existing transportation facilities and to reduce related energy consumption, the Department has initiated studies and evaluations of various priority treatment strategies for high-occupancy vehicles. Park-and-Pool and Park-and-Go facilities are examples of priority treatment strategies to increase the productivity of the highway system in Texas and to reduce transportation energy consumption.

Park-and-Pool is a term used to describe a parking area or facility where commuters can rendezvous, park one or more of their vehicles, and share a ride to a common destination. The parking areas are normally designated lots which are delineated by signs or by promotional activities of public agencies. The State Department of Highways and Public Transportation has constructed parking lots in both rural and urban areas to encourage ridesharing by the commuting public.

The research effort documented herein is a continuation of, and a complement to, previous studies of priority treatment strategies sponsored by the

State Department of Highways and Public Transportation and conducted by the Texas Transportation Institute. A 1981 study (Research Report 205-13) first investigated some 25 formal Park-and-Pool lots within the San Antonio and Houston urbanized areas. This initial work was expanded to the Dallas/Fort Worth region in 1982 and resulted in an analysis of Park-and-Pool activity along the I-30 freeway corridor (Research Report 205-18) and an investigation of Park-and-Go lots in the City of Fort Worth (Research Report 205-19). The results of this research effort, in combination with prior work, provide guidelines for planning future Park-and-Pool and/or Park-and-Go facilities in and around major urbanized areas throughout the State.

This report presents the results of data analyses and is organized into four major sections:

1. Survey Results;
2. Park-and-Go versus Park-and-Pool;
3. Market Area Considerations; and
4. Pooling Benefits

The "Survey Results" section summarizes the travel and personal characteristics of commuters surveyed in this study and compares those characteristics with similar ones observed in prior studies. The "Park-and-Go versus Park-and-Pool" section aggregates all available data from the two types of facilities located in the DFW region and presents a comparison of user characteristics. The catchment zones or market areas for commuters using the two types of mode change facilities are presented in the section entitled "Market Area Considerations." The "Pooling Benefits" section investigates the net annual savings in vehicle miles of travel (VMT) and gallons of fuel resulting from commuters' use of Park-and-Go and Park-and-Pool facilities.

STUDY OBJECTIVES AND PROCEDURE

The objective of this research effort was to provide data useful in locating, sizing and assessing the effectiveness of mode change facilities known as Park-and-Go and Park-and-Pool lots. This study investigates ridesharing activity within the City of Fort Worth and in rural locations surrounding the Fort Worth urbanized area. In addition to presenting the results of a commuter survey conducted as part of this research, comparisons are made with previous investigations of ridesharing in Fort Worth, Arlington, Dallas and surrounding areas.

The major tasks accomplished in performing this study were:

- Review of relevant literature, local data, and prior studies;
- Identification of Park-and-Go Sites within the City of Fort Worth for data collection;
- Identification of Park-and-Pool Sites both within and surrounding the Fort Worth urbanized area for data collection;
- Design and distribution of a commuter survey instrument;
- Analysis of survey data and comparison of data with previous investigations; and
- Documentation of the study, major findings and appropriate recommendations.

RELEVANT LITERATURE AND STUDIES

This investigation of Park-and-Pool activity in the Fort Worth area is a complement to previous research efforts sponsored by the State Department of Highways and Public Transportation and conducted by the Texas Transportation Institute. Efforts were made to design and conduct this study so as to enhance the quality and reliability of data associated with the commuters engaged in ridesharing to and from a common location.

The information obtained from a commuter survey is analyzed and compared to data obtained in three previous research projects. The three relevant research efforts, accomplished under Project 205, are:

Park-and-Pool Facilities, Survey Results and Planning Data, Research Report 205-13, February 1981.

Park-and-Pool Lots, Dallas/Fort Worth Area: An Analysis of Survey Data, Research Report 205-18, May 1982.

Fort Worth Park-and-Go Facilities, An Evaluation of Survey Data, Research Report 205-19, August 1982.

Report 205-13 documents the first investigation of Park-and-Pool facilities undertaken in the San Antonio and Houston areas. This research included the distribution of commuter surveys at 25 different sites and the analysis of 266 returned surveys.

Report 205-18 presents the findings of a 1981-82 study of Park-and-Pool lots within the I-30 freeway corridor of Dallas/Fort Worth. A total of 21 sites were investigated and resulted in 235 survey forms being returned for analysis.

The 205-19 effort looked at the characteristics of bus patrons in Fort Worth using change of mode facilities known as Park-and-Go Lots. A total

of 8 Park-and-Go lots were surveyed using an on-board questionnaire distributed to boarding bus patrons. The study resulted in the return of 113 questionnaires with subsequent data analysis of commuter characteristics and perceptions.

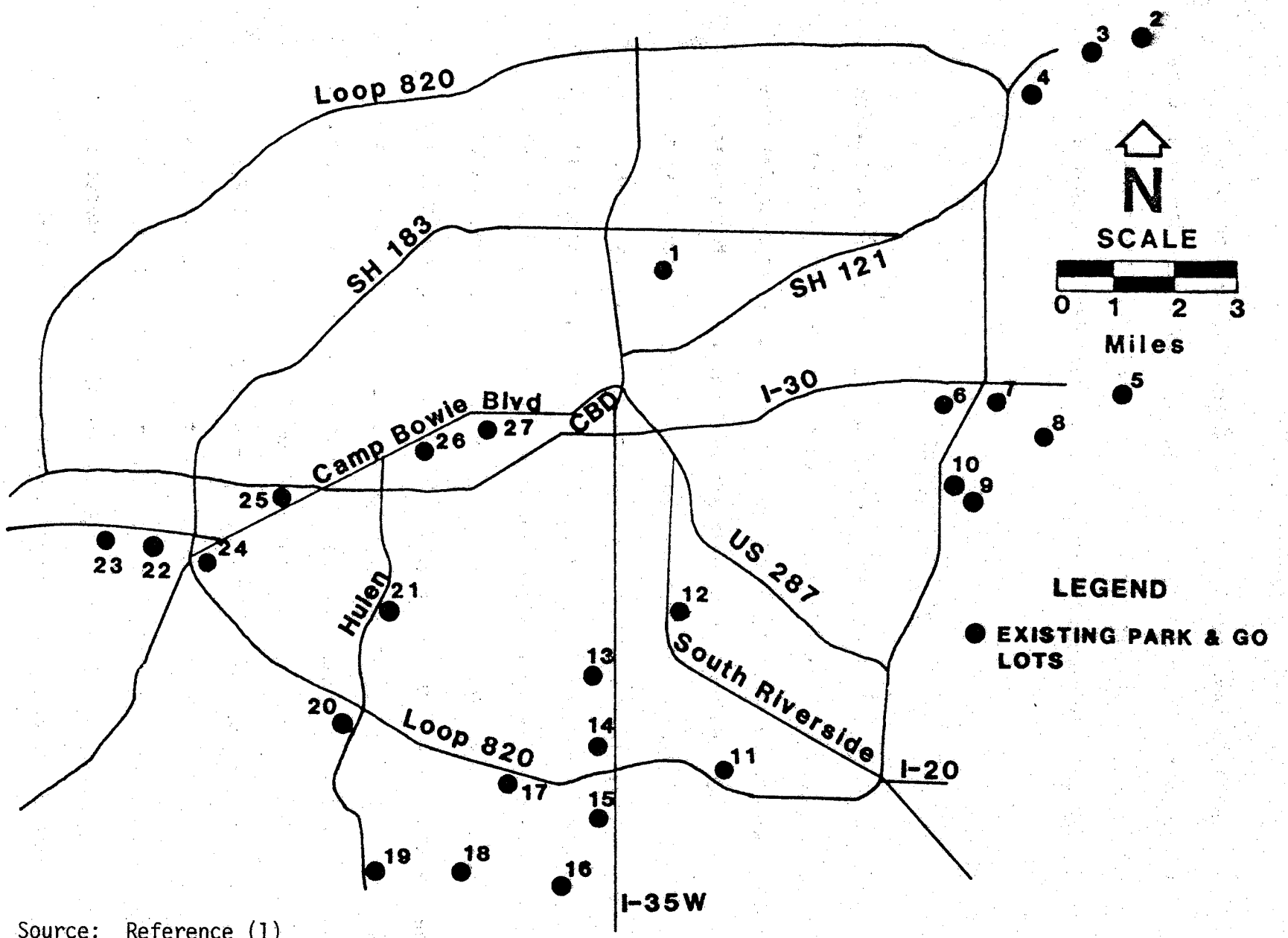
STUDY SITES

With the cooperation and assistance of the District 2 personnel, the Regional Planning Office and the City of Fort Worth, study sites for conducting the ridesharing investigation were identified. A total of 37 locations were selected for study which included 8 Park-and-Go lots and 29 Park-and-Pool lots.

Park-and-Go Sites

Research Report 205-19 (Fort Worth Park-and-Go Facilities, An Evaluation of Survey Data) documents a 1981-82 study of both users and non-users of Fort Worth's Park-and-Go service. "Park-and-Go" is a unique name to describe a change of mode facility similar to Park-and-Ride facilities; the primary difference being the type of transit service that is provided to and from the facility. Whereas Park-and-Ride lots are typically served by express buses to one or more selective destinations (i.e., CBD, major industrial park), Park-and-Go is simply an additional stop designated along an existing local bus route. Park-and-Go lots are also intended to serve commuters other than the transit patron. People commuting to work are encouraged to utilize the Park-and-Go facility as a place to rendezvous, park one or more of their vehicles, and carpool or vanpool to their final destination. In this regard, Park-and-Go lots are similar to Park-and-Pool facilities.

The 1981-82 study surveyed only transit patrons utilizing 8 of Fort Worth's 27 Park-and-Go facilities. No investigation was made of the commuters carpooling or vanpooling from the lots to their final destinations. Figure 1 shows the location of all 27 Park-and-Go lots sponsored and promoted by the City of Fort Worth which were in service during 1981. Table 1



Source: Reference (1)

Figure 1: Location of 27 Park-and-Go Lots

Table 1. Fort Worth Park-and-Go Lots

Lot No. and Name	Address/Location	*Survey 1981-82	1982-83
1. Springdale Baptist Church	3016 Selma		
2. First Baptist Church/Euless	Hwy. 157 & Airport Freeway		
3. Bedford Church	Brown Trail/Airport Freeway		
4. NorthEast Mall	Loop 820 & SH 183		
5. Six Flags	I-30		
6. Brentwood Church of Christ	6516 Brentwood Stair		
7. Fort Worth Bible Church	Terbert & Brentwood Stair		
8. Jefferson Unitarian Church	1950 Sandy	X	X
9. Handley Methodist Church	2929 North Forest Street		
10. Handley Baptist Church	6800 Church Street		
11. Herman E. Clark Stadium	TCJC Fowell Dr./Eastside	X	
12. Oakbrook Mall	3100 S. Riverside At Berry		
13. Seminary South NE corner	Bolt across from Library		
14. K-Mart Shopping Center	4812 South Freeway	X	
15. St. Mark's United Methodist Church	6250 S. Freeway		
16. St. Luke's Presbyterian Church	1404 Sycamore School Road		X
17. Edgepark Methodist Church	5616 Crowley Road	X	X
18. K-Mart	Alta Mesa and McCart		X
19. Altamesa Church of Christ	4600 Alta Mesa	X	
20. Montgomery Ward	Hulen Mall, Southside	X	X
21. Tanglewood Village	3100 Blk. Hulen/Bellaire St.		
22. Gibson's Shopping Center	Williams Rd. S. of US 80		
23. St. Giles Presbyterian Church	8700 Chapin Rd		
24. Levitz Furniture Warehouse	7100 Block of Camp Bowie		X
25. Ridglea Baptist Church	6037 Calmont/Guilford/I-30	X	X
26. Arlington Heights Christian Church	4600 Camp Bowie Blvd.	X	
27. Will Rogers Stadium	West Lancaster		X

*1981-82 Survey: Research Report 205-19
1982-83 Survey: Research Report 205-21

lists all of the Park-and-Go lots by name, address and year surveyed. Eight Park-and-Go facilities were selected for investigation as part of this research effort; as shown in Table 1, four of the 8 lots had previously been studied during the 1981-82 work effort.

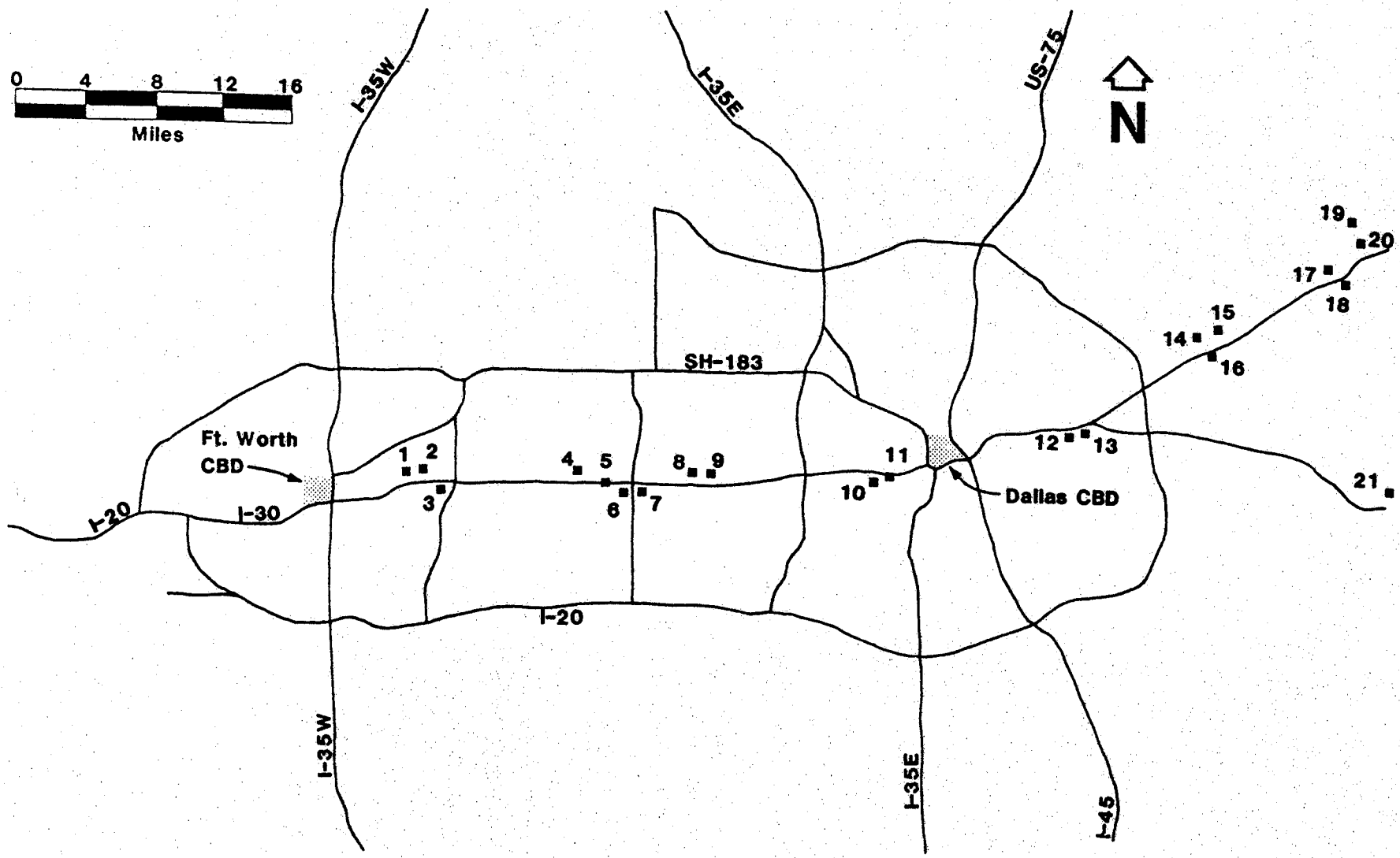
Park-and-Pool Sites

Twenty-one Park-and-Pool lots along the I-30 freeway corridor in the Dallas/Fort Worth urbanized area were investigated in 1981-82. The results of the 1981-82 study are documented in Research Report 205-18 (Park-and-Pool lots, Dallas/Fort Worth Area: An Analysis of Survey Data). The 21 study sites are shown in Figure 2 with their locations and abbreviated descriptions summarized in Table 2.

Twenty-nine additional Park-and-Pool sites were identified for inclusion in this study effort. The 29 locations included were geographically dispersed throughout the following 9 counties.

Ellis (2 lots)
Erath (1 lot)
Hood (3 lots)
Johnson (3 lots)
Palo Pinto (1 lot)
Parker (3 lots)
Somervell (1 lot)
Tarrant (12 lots)
Wise (3 lots)

Figure 3 shows the location of the 29 Park-and-Pool lots along with the 8 Park-and-Go lots selected for further study. Table 3 summarizes all 37 study sites investigated as part of this research.



Source: Reference (2).

Figure 2: Park-and-Pool Locations studied in 1981-82

Table 2. Park-and-Pool Sites Studied in 1981-82

Site Number	Location	Abbreviated Description
1	NE Quadrant of I-30 and Oakland Blvd; Ft. Worth	Paved parking lot; Oakland Mall-Buddies Store (Private Property)
2	N. Side of I-30 at Bridge and Woodhaven; Ft. Worth	Paved parking lot; Kroger (Private Property)
3	SW Quandrant of I-30 and Loop-820; Ft. Worth	Paved parking lot; Church of Christ (Private Property)
4	N. Side of I-30 within FM-157 Interchange Arlington	Unimproved, Grassy Area between Old Toll Booth Facility and SDHPT Maintenance Yard (Public Property)
5	Adjacent to I-30 (South and North sides) at Turnpike Plaza; Arlington	Paved parking area; adjacent to Mexican Food Restaurant and abandoned service station (Public Prop.)
6	SW Quadrant of I-30 and SH-360; Arlington	Paved Parking lot; Bowling Alley (Private Property)
7	SE Quadrant of I-30 and SH-360; Arlington	Paved parking area-very small; adjacent to Old Toll Booth Facility (Public Property)
8	NW Quadrant of I-30 and Beltline Rd; Grand Prairie	Paved parking lot; Fire Museum entrance/exit ramps by Old Toll Facility Site; (Public Property)
9	NE Quadrant of I-30 and Beltline Rd; Grand Prairie	Improved, gravel area adjacent to entrance/exit ramps by Old Toll Facility Site; (Public Property)
10	S. of I-30 on SW Corner of Hampton Rd. and US-80 Business; Dallas	Paved parking lot; Steven Park Shopping Center (Private Property)
11	S. of I-30 on NE Corner of Hampton Rd. and US-80 Business; Dallas	Paved parking lot; Food Basket (Private Property)
12	SE Quadrant of I-30 and Jim Miller/ Samuell; Dallas	Paved parking lot; Safeway (Private Property)
13	SW Quadrant of I-30 and Loop-12; Dallas	Paved parking lot; K-Mart (Private Property)
14	NW Quadrant of I-30 and Belt Line Rd; Garland	Paved parking lot; K-Mart (Private Property)
15	NE Quadrant of I-30 and Belt Line Rd; Garland	Paved parking lot; Shopping area (Private Property)
16	SW Quadrant of I-30 and Belt line Rd; Garland	Paved parking lot; Beltline 30 Shopping Center (Private Property)
17	NW Quadrant of I-30 and FM-740; Rockwall Co.	Improved gravel parking area; Mr. Catfish (Private Property)
18	SE Quadrant of I-30 and FM-740; Rockwall Co.	Unimproved area; adjacent to old abandoned gas station (Private Property)
19	N. of I-30 and S. of "Y" Intersection FM-740 and SH-205; Rockwall	Paved parking lot; Ridge Road Shopping Center (Private Property)
20	NW Quadrant of I-30 and SH-205; Rockwall	Paved parking lot; Wal-Mart (Private Property)
21	NE corner of US 80 and SH-205 (South of I-30 and just N. of I-20); Terrell	Paved parking lot; Wal-Mart (Private Property)

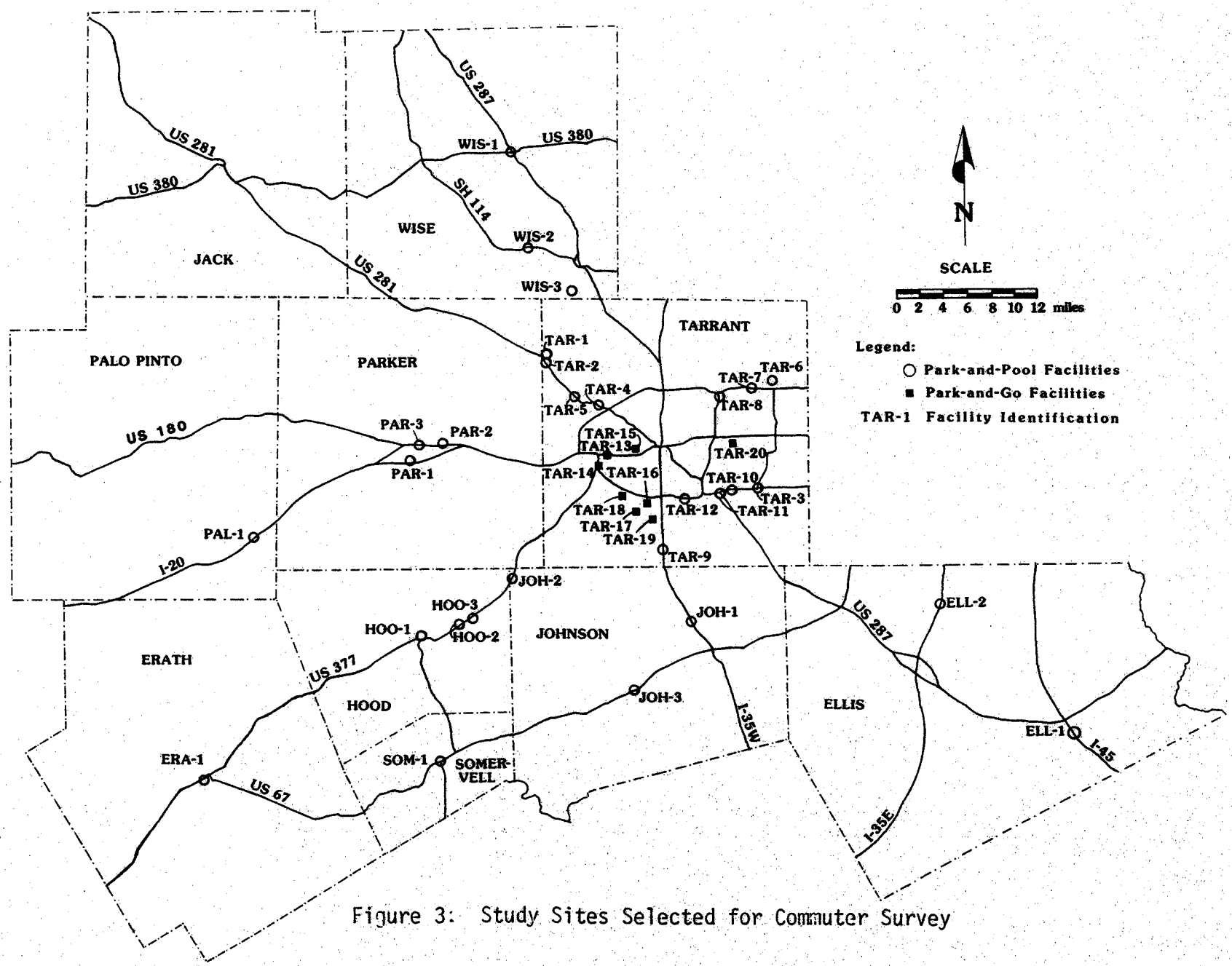


Figure 3: Study Sites Selected for Commuter Survey

Table 3. Summary of 37 Study Sites

Parking Area Designation	County	Nearest Town	Setting	Type of Facility	Location
ELL-1	Ellis	Ennis	Rural	Park-and-Pool	IH-45 & US-287
ELL-2	Ellis	Red Oak	Rural	Park-and-Pool	IH-35E & FM-664
ERA-1	Erath	Stephenville	Rural	Park-and-Pool	US-377 (K-Mart)
HOO-1	Hood	Granbury	Rural	Park-and-Pool	FM-51N (First Baptist Church)
HOO-2	Hood	Granbury	Rural	Park-and-Pool	US-377 & FM-167
HOO-3	Hood	Granbury	Rural	Park-and-Pool	US-377 & FM 208
JOH-1	Johnson	Egan	Rural	Park-and-Pool	IH-35W & FM 917
JOH-2	Johnson	Cresson	Rural	Park-and-Pool	US-377 & SH 171
JOH-3	Johnson	Cleburne	Rural	Park-and-Pool	US-67 (Wal-Mart)
PAL-1	Palo Pinto	New Salem	Rural	Park-and-Pool	IH-20 & US-281
PAR-1	Parker	Weatherford	Rural	Park-and-Pool	SH-171 & FM 1884
PAR-2	Parker	Weatherford	Rural	Park-and-Pool	US-80/180 & FM 1707
PAR-3	Parker	Weatherford	Rural	Park-and-Pool	US 80/180 & FM 2552
SOM-1	Somervell	Glen Rose	Rural	Park-and-Pool	US-67 (Church of Christ)
TAR-1	Tarrant	Azle	Urban Fringe	Park-and-Pool	SH-199 & FM-730
TAR-2	Tarrant	Azle	Urban Fringe	Park-and-Pool	SH-199 & FM 730
TAR-3	Tarrant	Arlington	Urban Fringe	Park-and-Pool	IH-20 & FM 157
TAR-4	Tarrant	Lake Worth	Urban	Park-and-Pool	SH-199 & Firehall
TAR-5	Tarrant	Lakeside	Urban Fringe	Park-and-Pool	SH-199 & FM 1886
TAR-6	Tarrant	Euless	Urban	Park-and-Pool	SH 121 & FM 157
TAR-7	Tarrant	Bedford	Urban	Park-and-Pool	SH 121 & Bedford Rd
TAR-8	Tarrant	Hurst	Urban	Park-and-Pool	IH Loop 820 & SH 183
TAR-9	Tarrant	Crowley	Rural	Park-and-Pool	IH 35W & FM 1187
TAR-10	Tarrant	Arlington	Urban Fringe	Park-and-Pool	IH-20 & Tate Spring
TAR-11	Tarrant	Arlington	Urban Fringe	Park-and-Pool	IH-20 & Little Rd
TAR-12	Tarrant	Forest Hill	Urban	Park-and-Pool	IH-Loop 820 & Forest Hill
TAR-13	Tarrant	Fort Worth	Urban	Park-and-Go	Ridglea Baptist Church (#25)
TAR-14	Tarrant	Fort Worth	Urban	Park-and-Go	Levitz Furniture (#24)
TAR-15	Tarrant	Fort Worth	Urban	Park-and-Go	Will Rogers Stadium (#27)
TAR-16	Tarrant	Fort Worth	Urban	Park-and-Go	Edge Park Methodist Church (#17)
TAR-17	Tarrant	Fort Worth	Urban	Park-and-Go	K-Mart (#18)
TAR-18	Tarrant	Fort Worth	Urban	Park-and-Go	Montgomery Wards (#20)
TAR-19	Tarrant	Fort Worth	Urban	Park-and-Go	St. Luke's Presbyterian Church #16
TAR-20	Tarrant	Fort Worth	Urban	Park-and-Go	Jefferson Unitarian Church (#8)
WIS-1	Wise	Decator	Rural	Park-and-Pool	US 81/287 & US 380
WIS-2	Wise	Boyd	Rural	Park-and-Pool	SH 114 & FM 730
WIS-3	Wise	Newark	Rural	Park-and-Pool	FM-718 (In NewarK)

DESCRIPTION OF SURVEYS

Two survey instruments were designed and used for data collection efforts associated with this research effort. One survey form, entitled Rideshare Site Investigation, was utilized by field personnel in collecting and summarizing information about each of the 37 study sites. The second survey form was designed for distribution to, and completion by, the commuters using the Park-and-Go and Park-and-Pool facilities. The commuter survey instrument, accompanied by a cover letter and a postage-paid return envelope, was placed on the windshield of each parked vehicle identified at the various rideshare lots. The survey instruments and cover letter are included in Appendix A. In addition, the previous commuter surveys used in San Antonio/Houston (Project 205-13), Dallas/Fort Worth (Project 205-18), and Fort Worth (Project 205-19) are also included in Appendix A.

Rideshare Site Investigation Form

The research team investigated each study site and recorded the following.

- Total number of parked vehicles
- Number of subcompact vehicles
- Number of standard vehicles
- Number of pickups
- Number of vans
- Number of other types of vehicles
- Date and time that lot was surveyed
- Approximate lot capacity
- The type of lot surface (i.e., gravel, asphalt, etc)
- Adjacent land use to the lot
- Improvements (if any) made to parking area.

In addition to the above, the observer sketched the layout of the parking area, verified the location and ownership of the lot, and noted the area or setting (rural, urban fringe or urban) of the facility.

Ridesharing Survey Form

The ridesharing survey was designed to collect both personal and travel information on the commuters using the Park-and-Go and Park-and-Pool facilities. The survey instrument was intended to complement previous studies and to provide similiar and comparable data. Each survey was coded with an identification number to cross reference the returned forms to the particular study sites.

SURVEY RESULTS

A total of 928 parked commuter vehicles identified at the 37 study sites received a survey questionnaire. Three hundred and sixty-three (363) surveys were returned representing a response rate of 39.1%. This section of the report presents the findings of the data collection and analysis.

Park-and-Go Lots

The number of parked vehicles at the 8 Park-and-Go facilities ranged from 0 to 78 and averaged 24.5 vehicles per site. The average lot capacity was about 76 spaces which indicates an overall utilization of approximately 32% of available parking. Table 4 presents a summary of vehicle types observed at the Park-and-Go locations.

Table 4. Vehicle Types at Park-and-Go Lots

Type of Vehicle	Number	Percent of Total
Subcompact	64	32.7
Standard	110	56.1
Pickup	18	9.2
Van	4	2.0
All Types	196	100.0

Responses from the commuter survey were received from 74 of the 196 distributed questionnaires representing a return of 37.8%. Results of the data analysis performed on the returned questionnaires are presented in a subsequent section of this report entitled "Commuter Characteristics."

Seven of the 8 Park-and-Go Lots were located on private property within the Fort Worth urbanized area; the eighth lot was on public property. Three

of the lots were located on commercial property with all but one of the remaining lots being on church parking areas. All lots were paved with asphalt and had marked parking stalls.

Park-and-Pool Lots

A total of 732 vehicles received surveys at the 29 Park-and-Pool facilities with 289 of these returned for a response rate of 39.5%. The number of parked vehicles ranged from 2 to 89 and averaged 25.2 per location. Table 5 summarizes the types of vehicles observed at the Park-and-Pool locations.

Table 5. Vehicle Types at Park-and-Pool Lots

Type of Vehicle	Number	Percent of Total
Subcompact	148	20.2
Standard	381	52.0
Pickup	182	24.9
Van	13	1.8
Other	8	1.1
All Types	732	100.0

Of the 29 lots surveyed, 17 or 58.6% were located on private property with the remaining lots being on public property or public right-of-way. The type of lot surface observed at the Park-and-Pool locations is shown in Table 6.

The use of land adjacent to 17 of the sites, or 58.6% of the locations surveyed, was commercial. Some 34% of the sites were lighted and 31% had some form of improved or controlled egress/ingress.

Table 6. Lot Surface for Park-and-Pool Facilities

Surface	Number	Percent of Total
Asphalt Pavement	14	48.3
Gravel or Stone	8	27.6
Dirt or Grass	6	20.7
Concrete Pavement	1	3.4
All Surfaces	29	100.0

Commuter Characteristics

Questions included on the commuter survey primarily dealt with personal and travel characteristics of the rideshare participants. Information on personal characteristics consisted of age, sex, occupation, years of education and time at present address. The travel characteristics indicate the mode of current and previous travel, trip length in miles and minutes, time of arrival at and departure from the lot, plus several other items dealing with the commuters' general impressions of ridesharing (e.g., feelings of security and perceptions on money and time savings).

This section of the report presents a summary of data for all respondents to the commuter survey and provides a comparison of those data with similar data obtained in previous studies of ridesharing activity within the Fort Worth area. The data presented within this section has not been sorted or disaggregated by lot type (Park-and-Go versus Park-and-Pool), or by setting (urban versus rural). Further analysis of the data is contained in subsequent sections of the report dealing with market area considerations and pooling benefits. The overall results of the survey are organized and presented in the following order of major topic headings.

- Personal Characteristics
- Travel Characteristics
- General Impressions and perceptions

Personal Characteristics

Age

The age of the participating commuters ranged from 18 to 68 and averaged 39.8 years. Figure 4 presents the cumulative frequency distribution of the commuters' ages observed in this study along with the ages of Park-and-Go users (1) and Park-and-Pool users (2) surveyed in 1981-82 in the Fort Worth/-Dallas region. Table 7 summarizes the age characteristics observed in this survey in addition to the ages determined in the other two studies.

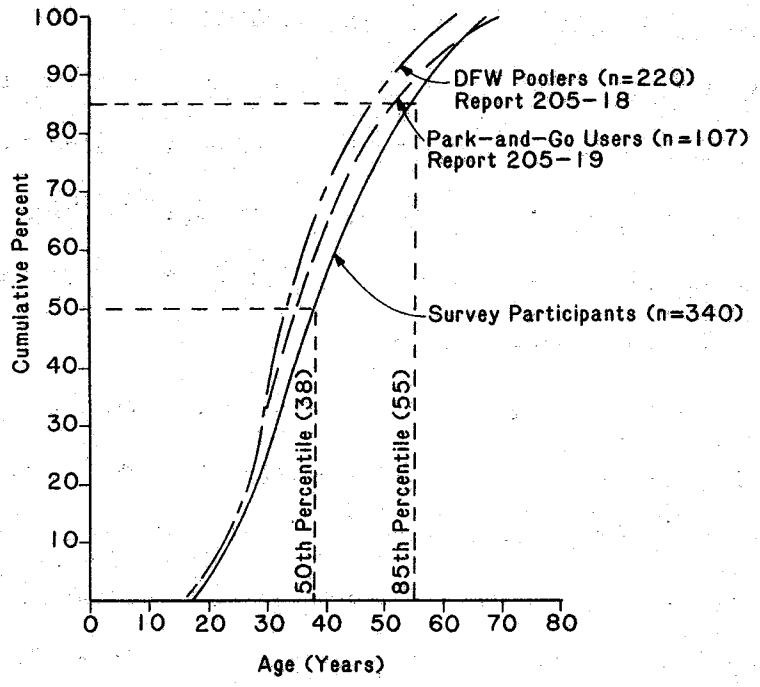


Figure 4: Cumulative Frequency Distribution, Age of Commuters

Sex

Table 8 summarizes the sex of survey participants of this and the other two research efforts conducted in the Fort Worth area.

Table 7. Age of Commuters

Age	Survey Participants (n=340)	Park-and-Go (Transit) Users (n=107) (1)	Park-and-Pool Users (n=220) (2)
50th Percentile	38	35	34
85th Percentile	55	54	51
Average (mean)	39.8	38.2	36.9

Table 8. Sex of Commuters

	Survey Participants (n=351)	Park-and-Go (Transit) Users (n=111) (1)	Park-and-Pool Users (n=228) (2)
Male	51%	37%	48%
Female	49	63	52

Occupation

The commuters were asked their current occupation in as specific terms as possible. Table 9 presents a summary of the occupations indicated by the survey participants. Professional, managerial and clerical positions accounted for some 80% of the commuters surveyed in this research effort.

Table 9. Occupation of Commuters

Occupation	Survey Participants (n=343)	Park-and-Go (Transit) Users (n=106) (1)	Park-and-Pool Users (n=224) (2)
Professional	35.3%	28.3%	35.7%
Clerical	26.8	35.8	21.9
Craftsman	18.1	9.4	6.2
Managerial	9.6	14.1	20.5
Operative	4.4	4.7	.4
Sales	3.8	.9	7.6
Service Worker	1.2	5.6	2.7
Student	.6	.0	1.3
Laborer	.2	.0	3.1
Other	.0	.2	.6

Education

The commuters were asked, "How many total years of school have you completed?" Figure 5 presents the cumulative frequency of the educational level indicated by those responding to the survey. Table 10 highlights the relative education of the commuters in each of the three studies conducted in the Fort Worth area.

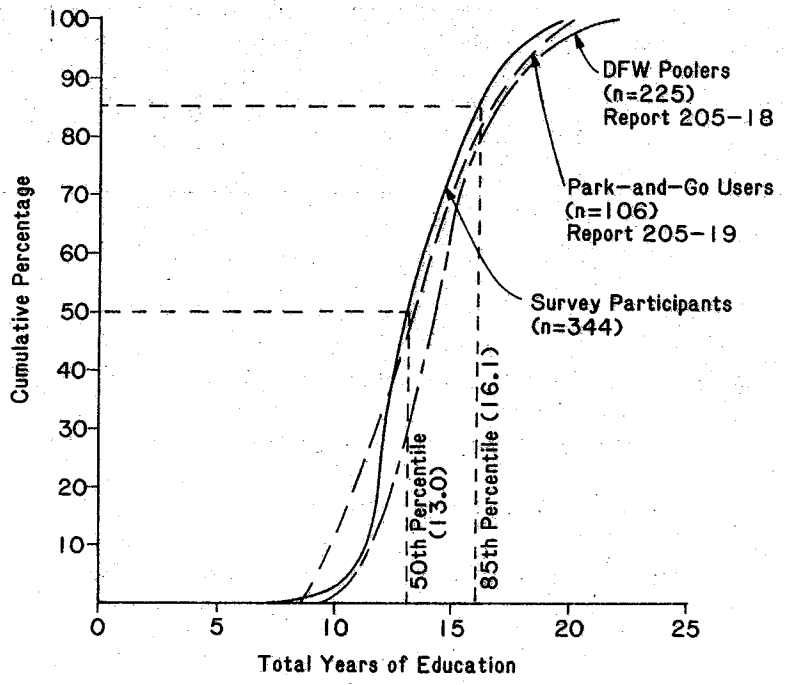


Figure 5: Cumulative Frequency Distribution, Education of Commuters

Table 10. Education of Commuters

Education	Survey Participants (n=344)	Park-and-Go (Transit) Users (n=106) (1)	Park-and-Pool Users (n=225) (2)
50th Percentile	13.0 years	13.1 years	14.4 years
85th Percentile	16.1 years	16.4 years	16.9 years
Average (mean)	14.0 years	13.9 years	14.8 years

Time at Present Address

The commuters were asked, "How long have you lived at your present address?" Responses to this question ranged from 1 to 35 years with an overall average of 7.8 years. Figure 6 presents the cumulative frequency distribution of commuters surveyed in this research and the responses received from Park-and-Go users surveyed in Project 205-19 (1). Table 11 summarizes and compares the two study results for the length of residency question.

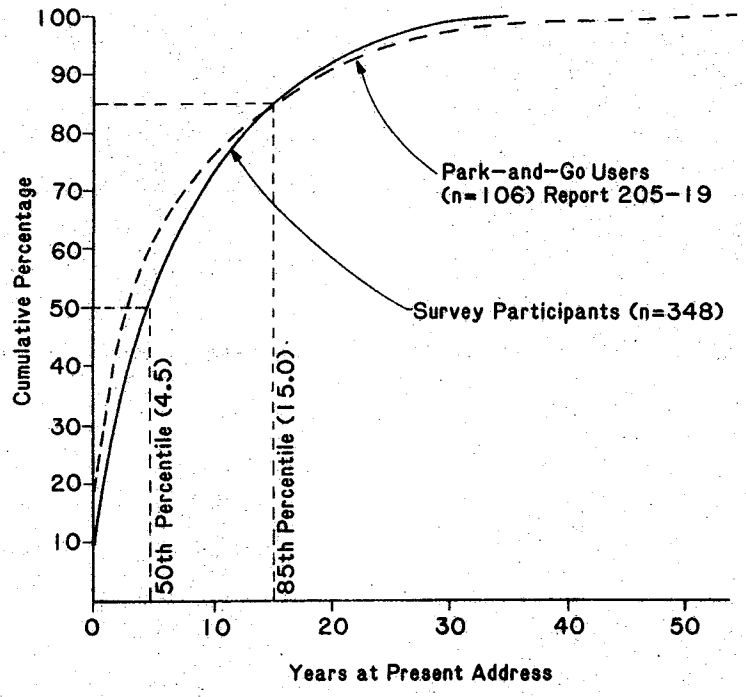


Figure 6: Cumulative Frequency Distribution, Length of Time at Present Address

Table 11. Length of Time at Present Address

Time	Survey Participants (n=348)	Park-and-Go (Transit) Users (n=111) (1)
50th Percentile	4.5 years	2.9 years
85th Percentile	15.0 years	15.7 years
Average (mean)	7.8 years	7.1 years

Travel Characteristics

Present Mode of Travel

All commuters were asked, "How many days per week do you travel from this parking area to your final destination by: carpool; vanpool; bus; or other?" Table 12 presents a summary of the travel modes indicated by the survey participants in this study and compares those reponses to the modes indicated by poolers surveyed in Project 205-18 (2).

Table 12. Present Travel Mode from Lot to Destination

Response	Survey Participants (n=362)	Park-and-Pool Users (2) (n=228)
Carpool	54.1%	62.3%
Vanpool	32.9	30.7
Bus	12.7	6.6
Other	.3	.4

The average vehicle occupancy rate (VOR) for carpools was 3.56 persons per vehicle and 10.66 persons per vehicle for vanpools. The VOR for vanpools is slightly higher than observed in the 1981-82 Park-and-Pool study documented in Report 205-18 (2). Table 13 provides a comparison of the VOR's recorded in the two studies.

Table 13. Vehicle Occupancy Rates in Persons Per/Vehicle (PPV)

Mode	Survey Participants	Park-and-Pool Users (2)
Carpool	3.56 ppv (n=193)	3.36 ppv (n=138)
Vanpool	10.66 ppv (n=115)	8.81 ppv (n=69)

Travel Frequency

The travel frequency, in days per week, for the responding commuters ranged from 2 to 7 and averaged 4.95 days that the trip was made from the lot to the final destination. Table 14 presents the frequency of travel observed in this and the other two Dallas/Fort Worth studies.

Table 14. Frequency of Travel from Lot to Destination, Days Per Week

Response (days per week)	Survey Participants (n=361)	Park-and-Go (Transit) Users (n=111) (1)	Park-and-Pool Users (n=229) (2)
7	.3%	.0%	.0%
6	1.7	1.8	1.3
5	93.1	86.5	92.6
4	3.0	3.6	4.8
3	1.7	3.6	.9
2	.2	3.6	.0
1	.0	.9	.4

Trip Purpose

The survey posed the question, "After leaving your car parked at this location, what was your final destination and trip purpose?" Over 99% of survey participants in this study were traveling for the purpose of work. Table 15 summarizes the travel purposes for this and the other Dallas/Fort Worth ridesharing studies. The final destination of commuters is presented in a subsequent section of this report entitled "Market Area Considerations."

Arrival at Lot

The survey left on parked commuter vehicles asked, "How many persons (including yourself) arrive at this location in this vehicle?" Responses ranged from 1 to 4 persons and averaged 1.13 persons per vehicle. Slightly more than 91% of the commuters drove alone to the parking area. Table 16

Table 15. Trip Purpose for Commuters

Purpose	Survey Participants (n=363)	Park-and-Go (Transit) Users (n=111)	Park-and-Pool Users (n=229) (2)
Work	99.2%	100.0%	97.8%
School	.8	.0	1.7
Other	.0	.0	.5

presents the findings of this survey in comparison to the D/FW Park-and-Pool survey (2).

Table 16. Persons Arriving at Lot in Vehicle

Number Of Persons	Survey Participants (n=358)	Park-and-Pool Users (n=231) (2)
1	91.1%	85.3%
2	6.4	10.4
3	1.1	1.3
4	1.4	2.2
5	.0	.8

The 1981-82 study of Park-and-Go bus patrons indicated that some 65% either drove alone or rode with someone else to the parking lot. The remaining 35% of bus commuters were either dropped off, walked or arrived at the lot by some other means (1). A more detailed analysis of the travel patterns for Park-and-Go versus Park-and-Pool users is presented in a subsequent section of this report.

Prior Mode of Travel

The commuters were asked, "Before you started using this parking area, how did you normally travel from home to your current destination?" Table

17 summarizes the responses received to this survey question and similar questions asked in Research Reports 205-18 (2) and 205-19 (1).

Table 17. Prior Travel Mode to Destination

Response	Survey Participants (n=362)	Park-and-Go (Transit) Users (n=112) (1)	Park-and-Pool Users (n=224) (2)
Drove Alone	48.1%	62.5%	55.4%
Carpool/Vanpool	37.3%	15.2	26.8
Did not make trip	6.9%	8.9	11.6
Bus	3.3%	8.0	5.4
Other	4.4%	5.4	.8

Of the 37.3% indicating that they either carpooled or vanpooled before using the parking area, the vast majority (92%) were carpool participants. More detailed investigation of prior travel modes is presented in the "Benefits" section of this report.

Time of Arrival/Departure

The survey asked, "What time did you arrive at this parking area this morning?" and " What time did you leave this parking area this evening?" Times of arrival varied from 4:40 a.m. to 8:40 a.m.. Departure times extended from 12:30 p.m. to 8:45 p.m. Fifty percent of the commuters arrived at the lot prior to 6:55 a.m. while 50 % indicated leaving the lot before 5:20 p.m. Figures 7 and 8 present the cumulative frequency distribution of arrival times and departure times, respectively. In addition, the two figures show similar data presented in Research Report 205-18 (2) which closely parallel the arrival/departure times observed in this study.

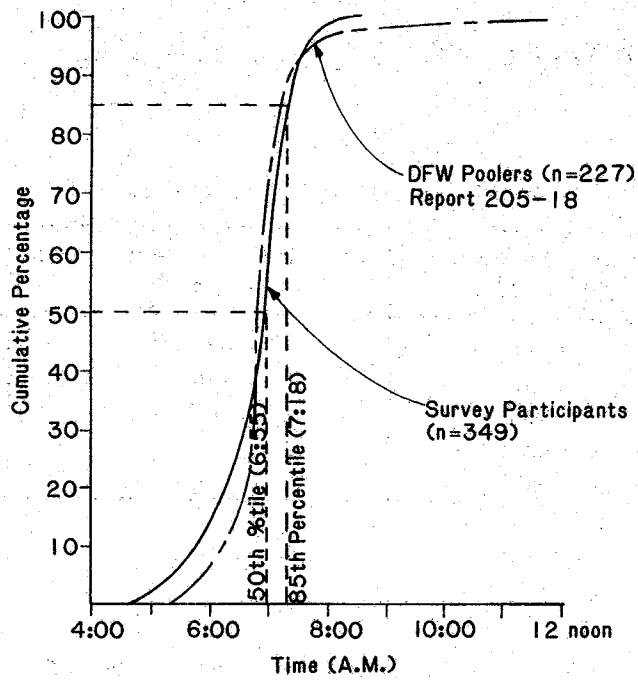


Figure 7: Cumulative Frequency Distribution, Arrival Times at Parking Lots

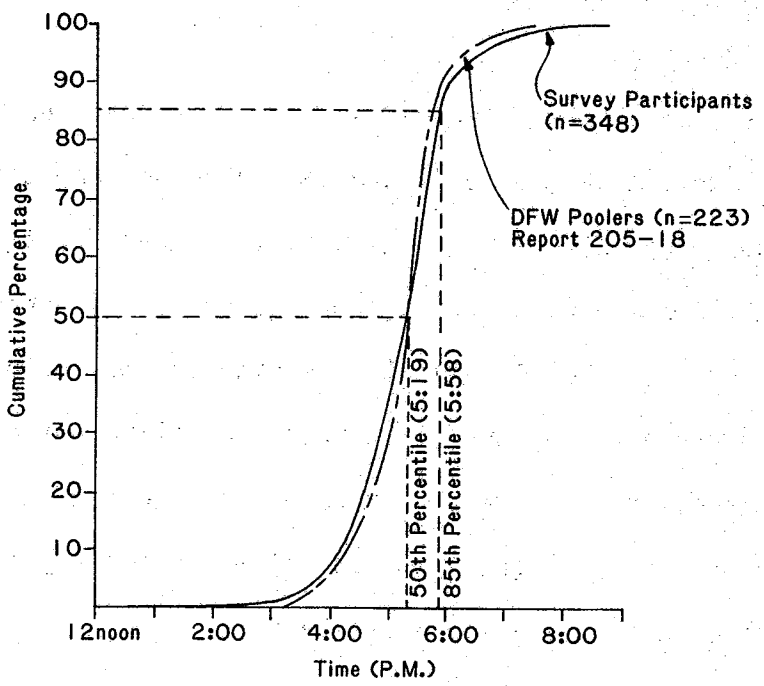


Figure 8: Cumulative Frequency Distribution, Departure Times from Parking Lots

Home to Lot Travel Distance/Time

Commuters were asked, "How far do you travel in the morning to reach this parking area?" Both the distance in miles and the time in minutes for the home to lot journey were requested.

Responses to the question ranged from 1 to 56 miles and 1 to 70 minutes for the home to lot trip. The average travel distance was 4.81 miles with the average travel time being 9.64 minutes. Tables 18 and 19 summarize the travel characteristics of the survey respondents for the home to lot journey and also present a comparison to similar characteristics observed in the 1981-82 Park-and-Pool study (2).

Table 18. Home to Lot Travel Distance (miles)

Measure	Survey Participants (n=357)	Park-and-Pool Users (n=219) (2)
Mean Travel Distance (Miles)	4.8	5.9
Median Travel Distance (Miles)	2.8	3.4
Range of Travel Distance:		
Low (Miles)	1.0	.5
High (Miles)	56.0	35.0

Table 19. Home to Lot Travel Time (minutes)

Measure	Survey Participants (n=352)	Park-and-Pool Users (n=218) (2)
Mean Travel Time (Min.)	9.6	10.7
Median Travel Time (Min.)	8.2	8.1
Range of Travel Time:		
Low (Min.)	1.0	3.0
High (Min.)	70.0	45.0

Figures 9 and 10 present the cumulative frequency distribution of travel distances and travel times, respectively. As seen in the figures, some 85% of the commuters live within 7.6 miles or 14.4 minutes of the lot.

Lot to Destination Travel Distance/Time

Each of the parked commuter vehicles at the identified lots received a copy of the questionnaire which asked, "How far is it from this location to you final destination?" Both the distance in miles and the time in minutes from the lot to the destination were requested.

Table 20 presents a summary of travel distances and Table 21 shows travel times indicated by the responding commuters for the lot to destination trip. In addition, the two tables also provide a comparison of this survey data with similar data collected in the DFW Park-and-Pool Study (2).

Table 20. Lot to Destination Travel Distance (miles)

Measure	Survey Participants (n=353)	Park-and-Pool Users (n=219) (2)
Mean Travel Distance (Miles)	25.6	23.2
Median Travel Distance (Miles)	24.1	21.6
Range of Travel Distance:		
Low (Miles)	2.0	4.0
High (Miles)	75.0	60.0

Table 21. Lot to Destination Travel Time (minutes)

Measure	Survey Participants (n=353)	Park-and-Pool Users (n=218) (2)
Mean Travel Time (Min.)	35.4	31.5
Median Travel Time (Min.)	33.4	29.0
Range of Travel Time:		
Low (Min.)	1.0	15.0
High (Min.)	90.0	60.0

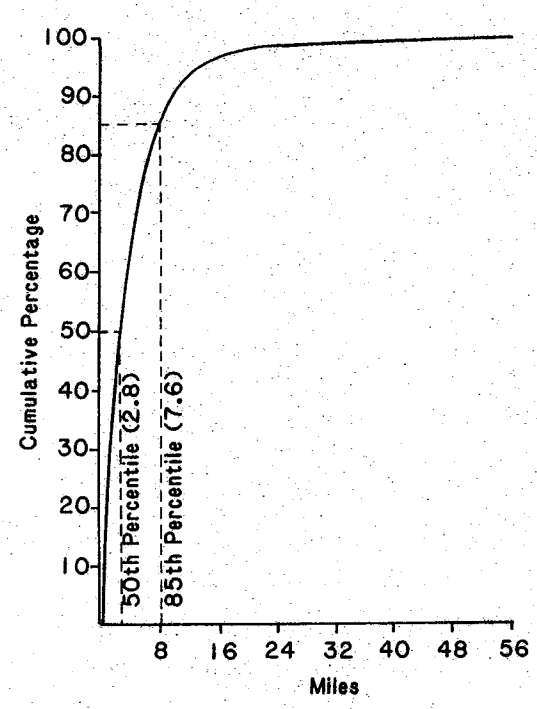


Figure 9: Cummulative Frequency Distribution, Travel Distance from Home to Lot (n=357)

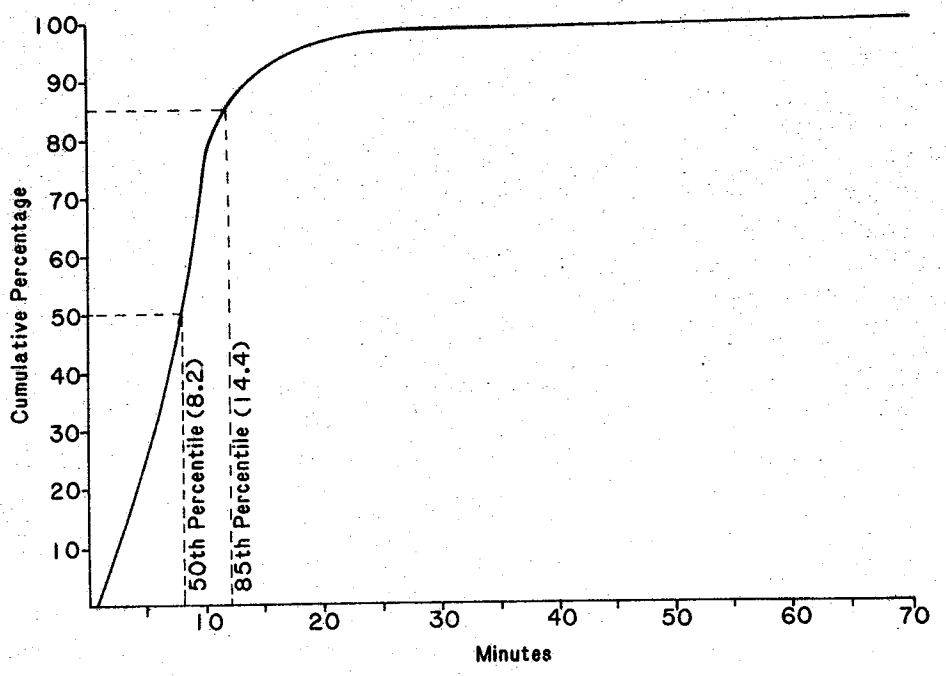


Figure 10: Cumulative Frequency Distribution, Travel Time from Home to Lot (n=352)

Figures 11 and 12 graphically portray the lot to destination travel distances and times, respectively. As seen in the figures, 15% of the commuters travel more than 35 miles or 44 minutes to reach their final trip end.

How Pool Was Formed

The survey participants were, asked "How was your carpool, vanpool or buspool first organized?" Table 22 presents the responses received from both this survey and the DFW Park-and-Pool Study (2).

Table 22. How Pool Was Formed

Response	Survey Participants (n=341)	Park-and-Pool Users (n=213) (2)
Co-Workers	65.4%	70.0%
Employer	15.2	22.1
Friends	8.8	3.8
DFW Rideshare Program	2.6	2.3
Classmates	.6	1.4
Other Means	7.4	.4

Clearly, in both studies, the most popular ways of organizing the commuters' pool was through co-workers or the employer; some 80% to 90% of the pools are organized in these ways.

How Long Pool Has Been Organized

Commuters were asked, "About how long has your present carpool or vanpool been organized?" Responses ranged from 1 to 99 months and averaged 28.2 months or about 2.4 years.

Figure 13 presents the cumulative frequency diagram for the length of time that the commuter's present pool has been in existence. Fifty percent of the pools have been organized for over 23.2 months while 15% of the current pools are older than 48.9 months.

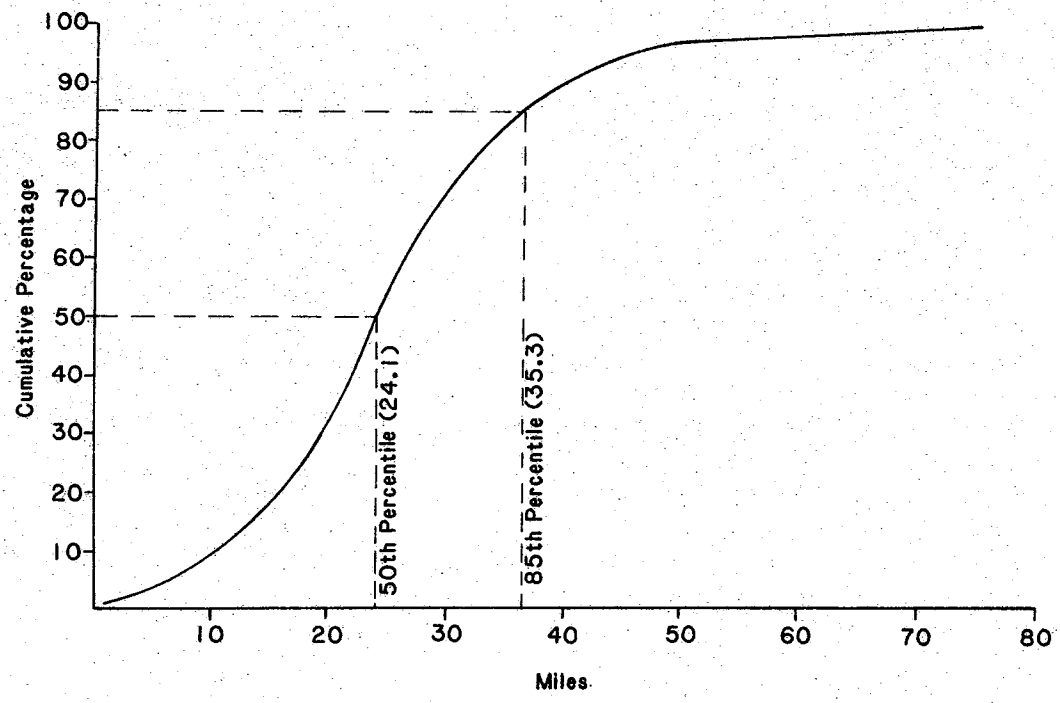


Figure 11: Cumulative Frequency Distribution, Travel Distance from Lot to Destination (n=353)

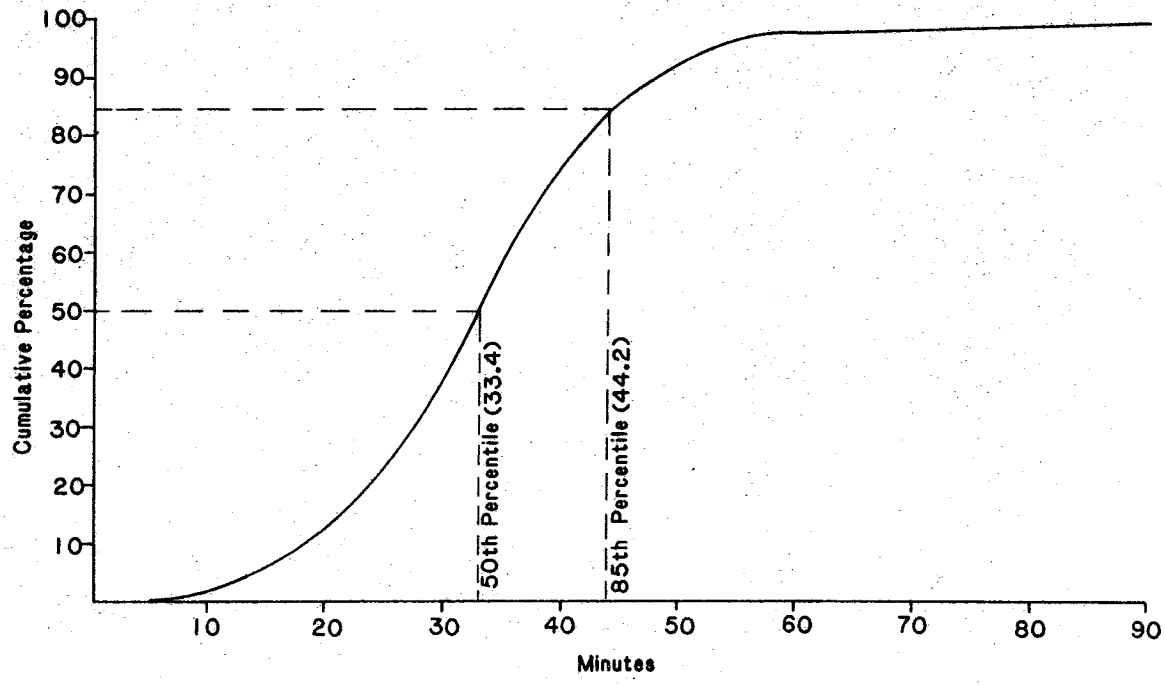


Figure 12: Cumulative Frequency Distribution, Travel Time from Lot to Destination (n=353)

How Long Lot Has Been Used

The survey form contained the following question, "How long have you been using this parking area?" Responses ranged from 1 to 99 months and averaged 20.5 months or about 1.7 years.

Figure 14 summarizes the responses received and shows the cumulative frequency distribution of the length of time that the commuters have been using the parking area. Some 50% of the commuters have been rendezvousing with their pool partners for some 11.7 months or about 1 year. As can be seen from the figure, about 15% of the commuters have been using the parking area longer than 36 months.

Effect of Lot on Pool Formation

The questionnaire asked, "How did the availability of this parking area effect the formation of your carpool/vanpool or using the bus?" A total of 344 responses were received and are summarized along with the responses from the DFW Park-and-Pool Study (2) in Table 23.

Table 23. Effect of Lot on Pool Formation

Effect of Lot Response	Survey Participants (n=344)	Park-and-Pool Users (n=225) (2)
This parking was one of several factors which encouraged me to carpool/vanpool/bus	53.8%	57.3%
This parking area had no effect on my use of carpool/vanpool/bus	37.8	31.1
I would not be using carpool/vanpool/bus if this parking area was not here	8.4	11.6

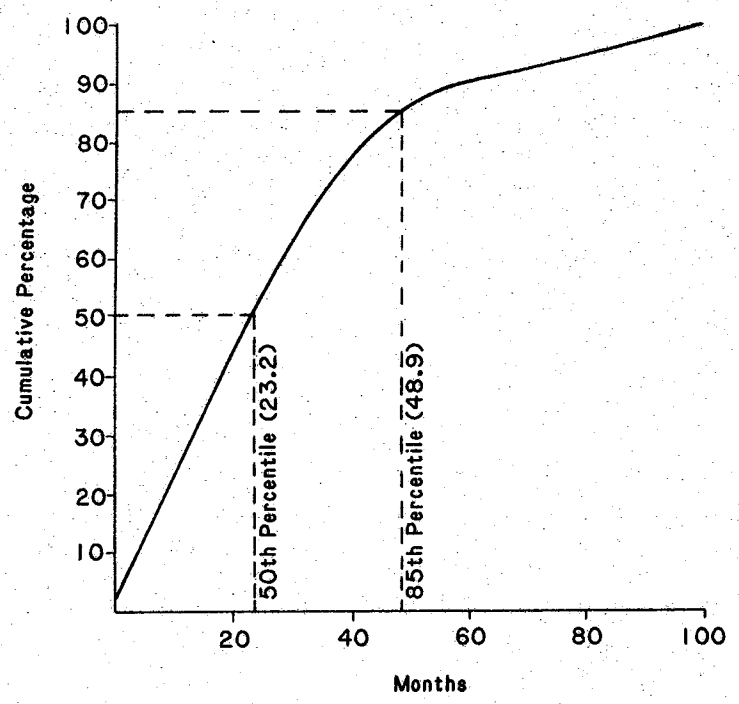


Figure 13: Cumulative Frequency Distribution, Length of Time Pool Has Been Organized (n=297)

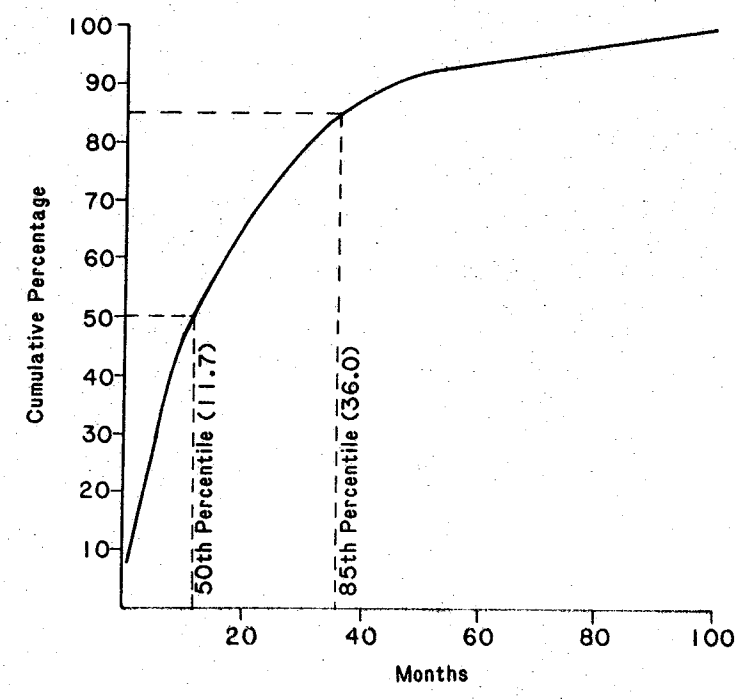


Figure 14: Cumulative Frequency Distribution, Length of Time that Commuters Have Used Parking Lots (n=360)

How Learned of Lot

Commuters were asked, "How did you first learn about this particular parking location?" A total of 349 responses were received to the question and are summarized with the results obtained from the 1981-82 Park-and-Pool Study (2) in Table 24.

Table 24. How Commuter First Learned of Lot

How Learned of Lot	Survey Participants (n=349)	Park-and-Pool Users (n=222) (2)
Co-Workers or Employer	43.8%	44.6%
Noticed Others Using Area	31.5	41.9
Friends or Relatives	13.5	9.0
Highway or Street Sign	1.7	NA
Newspaper	.9	.4*
DFW Rideshare Program	.3	NA
Radio or TV	.0	*
Other Means	8.3	4.1

*Note: The "Newspaper" response was combined with "Radio/TV" in Project 205-18.

Reason for Pooling

The motorists were asked, "In deciding to carpool, vanpool or buspool, which one of the following considerations was most important to you (please choose only one)?" The selections on the survey form were: "Cost of Driving; Cost of Parking; Stress of Driving; Energy Savings; and, Other (Specify)." Table 25 summarizes the responses received from 348 commuters along with the results from Project 205-18 (2).

Employer Incentives for Pooling

Each of the commuters were asked, "Does your employer or school provide any incentives for carpools or vanpools?" Table 26 presents the responses

Table 25. Most Important Reason for Pooling

Reason	Survey Participants (n=348)	Park-and-Pool Users (n=213) (2)
Cost of Driving	75.0%	76.1%
Stress of Driving	11.2	6.1
Cost of Parking	7.5	10.8
Energy Savings	3.4	5.2
Other Reason(s)	2.9	1.8

Table 26. Does Employer Provide Pooling Incentive

Response	Survey Participants (n=363)	Park-and-Go (Transit) Users (n=108) (1)	Park-and-Pool Users (n=225) (2)
Yes	43.5%	36.1%	39.6%
No	51.0	63.9	60.4
Not Sure	5.5	NA	NA

received in this and the other two rideshare studies conducted in the Fort Worth Area.

Those commuters which indicated that their employer did provide some type of pooling incentive were requested to indicate what incentive was offered. Table 27 summarizes the types of incentives indicated by the participants.

Table 27. Types of Employer Incentives Provided

Incentive	Survey Participants (n=149)	Park-and-Pool Users (n=82) (2)
Vanpool Program	37.6%	47.6%
Preferential Parking	26.2	.0
Subsidized Parking	7.4	31.7
Rideshare Promotion	5.4	7.3
Money	5.4	12.2
Two or More of Above	8.1	.0
Other Types	9.9	1.2

Preference for Express Bus Service

Those commuters which presently carpool or vanpool were asked for their perference regarding bus service in lieu of their current mode of travel from the lot to the final destination. The question posed on the survey was, "If you presently carpool or vanpool and if convenient express bus service was provided from the location to your destination, would you prefer to: continue carpooling/vanpooling; or, ride the bus?" The responses are summarized in Table 28.

Table 28. Preference for Express Bus Service

If convenient express bus service was provided, would prefer to:	Survey Participants (n=322)	Park-and-Pool Users (n=204) (2)
Continue carpooling/vanpooling	63.7%	60.3%
Ride the Bus	36.3	38.7
Other Response	.0	1.0

General Impressions and Perceptions

Feeling of Security at Lot

Commuters were asked, "Do you feel it is safe to leave your car parked at this location?" A total of 363 responses were received to the question on security and are summarized in Table 29 along with responses received from the 1981-82 Park-and-Pool Study (2).

Table 29. Commuters Responses on Security at Lot

Safe to Leave Car?	Survey Participants (n=363)	Park-and-Pool Users (n=224) (2)
Yes	74.9%	70.4%
No	6.3	9.7
Not Sure	18.8	19.9

Money Considerations

The commuters were asked, "Do you save money by using this parking area?" If the respondent answered "yes" to the question, they were asked how much they saved per month. Likewise, if respondent answered "no", they were asked how much they lost per month. Table 30 summarizes the responses received from the save money question while Tables 31 and 32 present the dollar amounts saved and lost, respectively, per month.

Table 30. Commuters' Perception of Money Savings

Is Money Saved?	Survey Participants (n=349)	Park-and-Go Users (n=110) (1)	Park-and-Pool Users (n=224) (2)
Yes	64.2%	86.4%	83.9%
No	4.0	6.4	1.3
Not Sure	11.5	.0	10.3
No Difference	20.3	7.2	4.5

Table 31. Dollars Saved Per Month

Measure	Survey Participants (n=186)	Park-and-Go (Transit) Users (n=85) (1)	Park-and-Pool Users (n=171) (2)
Mean Dollars Saved	51	35	61
Median Dollars Saved	38	28	49
Range of Dollars Saved			
Low	5	5	5
High	350	99	200

As shown in the tables, the vast majority (64.2%) of commuters feel that they save money by using the Park-and-Pool facility. The typical commuter estimates a savings of $38 per month. Using the average travel distance (from lot to destination) and frequency along with the average savings, the commuters

Table 32. Dollars Lost per Month

Measure	Survey Participants (n=3)	Park-and-Go (Transit) Users (n=61) (1)	Park-and-Pool Users (n=2) (2)
Mean Dollars Lost	7	16	42
Median Dollars Lost	NA	36	20
Range of Dollars Lost:			
Low	5	5	20
High	10	50	63

are estimating their cost reduction at approximately $2.35 per day or 4.8 cents per pooling mile.

Those commuters indicating a money savings have an average of 14.1 years of education, have been in their present pool for 27.9 months, live 4.5 miles from the lot, are in a pool with an average vehicle occupancy of 6.97 persons, travel 24.5 miles from the lot to their final destination, and are 38.5 years old. Approximately 38% of the commuters that save money feel that they do not save time by using the lot while 30% of them feel that they do save time.

Time Considerations

The question, "Do you save time by using this parking area?" was asked on the survey form. If the participant answered either yes or no to the time savings inquiry, they were requested to indicate the number of minutes saved or lost per day.

A total of 346 responses were received to the time question and are summarized in Table 33. Tables 34 and 35 present the amount of time indicated by the commuters are to what they perceive as being saved or lost, respectively, per typical day.

Table 33. Commuter's Perception of Time Savings

Is Time Saved?	Survey Participants (n=346)	Park-and-Go (Transit) Users (n=107) (1)	Park-and-Pool Users (n=221) (2)
Yes	30.3%	33.6%	27.6%
No	28.6	61.7	35.7
Not Sure	11.3	NA	10.9
No Difference	29.8	4.7	25.8

Table 34. Minutes Saved Per Day

Measure	Survey Participants (n=105)	Park-and-Go (Transit) Users (n=34) (1)	Park-and-Pool Users (n=53) (2)
Mean Time Saved	20	30	22
Median Time Saved	14	19	17
Range of Time Saved:			
Low	4	10	2
High	60	90	60

Table 35. Minutes Lost Per Day

Measure	Survey Participants (n=81)	Park-and-Go (Transit) Users (n=54) (1)	Park-and-Pool Users (n=71) (2)
Mean Time Lost	23	32	18
Median Time Lost	15	23	11
Range of Time Lost:			
Low	2	10	0
High	90	120	60

Unlike the money savings question, the commuters were somewhat split in their opinions as to saving or losing time by pooling from the parking lot. Table 36 provides a comparison of those personal and travel characteristics of both groups of commuters; those indicating a time savings and those indicating a loss of time.

Table 36. Comparison of Commuter Characteristics Regarding Time Savings Inquiry

Characteristic	Commuters Which Save Time (n=105)	Commuters Which Lose time (n=99)
Years of Education	14.0 years	14.3 years
Age of Commuter	39.7 years	38.0 years
Age of Present Pool	31.9 months	25.5 Months
Distance from Home to Lot	4.9 miles	5.1 miles
Distance from Lot to Destination	27.4 miles	24.2 miles
Commuters Which Save Money	64.4%	84.8%
Commuters Which Lose Money	3.8%	5.1%
VOR of Pool (All Modes)	7.57 persons	6.23 persons
Type of Pool:		
Carpool	48.6%	60.6%
Vanpool	38.1%	24.2%
Bus	13.3%	15.2%

Generally speaking, those commuters which "lose time" by using the parking area live farther from the lot, are closer to their destination, have been in their present pool for a shorter period of time, and feel more like they save money than do those commuters which feel that they save time. Also, a higher percentage of those losing time are in either a carpool or buspool than those commuters indicating a time savings.

Comments and Remarks

A total of 110 of the 363 respondents (30.3%) provided one or more comments on the returned survey. In all, 124 remarks, comments and suggestions were received and have been included in Appendix B. Table 37 provides a summary of the comments received.

The three most common comments or suggestions were the commuter's expression of appreciation for having the parking area to use, the desire to see more such Park-and-Pool facilities, and the desire for more or improved transit service.

Table 37. Comments by Survey Participants

General Nature of Comment	Survey Participants (n=124)	Park-and-Pool Users (n=88) (2)
Appreciate Parking Area	22.6%	9.1%
Need More Bus/Transit Service	15.3	26.1
Need More Park-and-Pool Lots	8.1	27.3
Lot Needs to be Paved	7.3	6.8
Lot Needs Better Security	4.8	13.6
Lot Needs to be Enlarged	2.4	.0
Lot Needs to be Lighted	1.6	6.8
Need Trash Receptacles at Lot	.8	1.2
Other Remark or Comment	37.1	9.1

PARK-AND-GO VERSUS PARK-AND-POOL

Three different data collection efforts of ridesharing activity provide the information base for assessing both Park-and-Go and Park-and-Pool facilities in the Fort Worth/Dallas area. The other two studies which complement this research effort, are:

Park-and-Pool Lots: Dallas/Fort Worth Area: An Analysis of Survey Data, Research Report 205-18, May 1982. (2)

Fort Worth Park-and-Go Facilities: An Evaluation of Survey Data, Research Report 205-19, August 1982. (1)

Table 38 presents a summary of the three studies and shows the number and type of lots surveyed, the number of questionnaires distributed and the number of responses received. In all, 711 surveys were returned by the ridesharing commuters with 229 of these being from Park-and-Go users and 482 from Park-and-Pool users.

Project 205-18 and this study surveyed all of the parked commuter vehicles located at the 58 sites. Project 205-19 surveyed only the bus patrons originating from the 8 Park-and-Go facilities. The overall response rate from the Park-and-Go users was 49.8% while the Park-and-Pool response rate was 37.6%.

Park-and-Go Users

The 1982 study of bus patrons originating from Park-and-Go facilities indicated that 65% either drove alone or rode with someone else to the parking area. The remaining 35% of bus patrons either walked, were dropped off, or arrived at the Park-and-Go lot by some other means. Therefore, the actual transit usage from a Park-and-Go facility determined by a survey of parked commuter vehicles will underestimate the number of bus patrons originating from the parking area by approximately 35%.

Table 38. Summary of Data Collection Efforts in Fort Worth/Dallas Area

Research Report No.	Date Surveys Distributed	Number of Sites Surveyed		Number of Surveys Distributed		Number of Surveys Returned	
		Park-and-Go	Park-and-Pool	Park-and-Go	Park-and-Pool	Park-and-Go	Park-and-Pool
205-18	December 1981	1	20	118	551	42	193
205-19	January 1982	8	0	146	0	113	0
205-21	December 1982	8*	29	196	732	74	289
TOTALS	NA	13*	49	460	1283	229	482

*Note: Four of the 8 Park-and-Go Lots surveyed in Project 205-21 were lots included in Project 205-19.

This section of the report highlights the personal and travel characteristics of Park-and-Go users determined from all 3 data collection efforts. Where appropriate, comparisons between buspoolers, carpoolers and vanpoolers are presented.

Personal Characteristics of Park-and-Go Users

Age

Table 39 presents the age of commuters using Park-and-Go facilities by mode of travel from the lot the final destination. In addition, the overall averages of all survey respondents from Park-and-Go lots are included in the table. Generally speaking, the bus patrons using Park-and-Go lots are 2 to 3 years younger than those which carpool or vanpool from the facilities.

Table 39. Age of Park-and-Go Lot Users

Age	Buspoolers (n=150)	Carpoolers (n=58)	Vanpoolers (n=7)	All Poolers (n=216)
50th Percentile	34.3 years	41.0 years	37.0 years	35.4 years
85th Percentile	54.1 years	59.1 years	55.2 years	55.9 years
Average (mean)	38.0 years	41.7 years	41.0 years	39.2 years

Sex

Table 40 shows the gender of survey participants from the Park-and-Go studies.

Table 40. Sex of Park-and-Go Lot Users

Sex	Buspoolers (n=156)	Carpoolers (n=59)	Vanpoolers (n=7)	All Poolers (n=223)
Male	39.7%	50.8%	71.4%	43.5%
Female	60.3	49.2	28.6	56.5

As previously reported in Report 205-19, bus patrons from Park-and-Go facilities are predominately female. However, those carpooling from Park-and-Go sites are fairly equally split in terms of male (50.8%) and female (49.2%) Due to the low number of vanpoolers from these types of rideshare facilities, no determination on the sex using the van mode can be drawn.

Occupation

The occupations of Park-and-Go users observed in the 3 data collection efforts are presented in Table 41.

Table 41. Occupation of Park-and-Go Lot Users

Occupation	Buspoolers (n=151)	Carpoolers (n=59)	Vanpoolers (n=6)	All Poolers (n=217)
Professional	33.8%	50.8%	16.7%	37.8%
Clerical	33.8	22.0	33.3	30.9
Managerial	12.6	10.2	--	11.5
Craftsman	9.3	5.1	33.3	8.8
Service Worker	4.0	3.4	--	3.7
Operative	3.3	1.7	--	2.8
Sales	2.0	5.1	--	2.8
Laborer	.6	--	16.7	.9
Student	--	1.7	--	.4
Retired	.6	--	--	.4

A higher percentage of carpoolers (61%) are engaged in professional or managerial work than are buspoolers (46%). Some 89% of all Park-and-Go users are employed in one of the following four categories:

- Professional
- Clerical
- Managerial
- Crafts

Education

Table 42 summarizes the educational level of Park-and-Go users responding to the surveys.

Table 42. Education of Park-and-Go Users

Education	Buspoolers (n=151)	Carpoolers (n=58)	Vanpoolers (n=7)	All Poolers (n=216)
50th Percentile	13.4 years	15.4 years	12.3 years	13.7 years
85th Percentile	16.4 years	17.5 years	14.0 years	16.8 years
Average (mean)	14.2 years	15.5 years	12.7 years	14.5 years

The educational level of carpoolers originating from Park-and-Go facilities is slightly higher than buspoolers (15.5 years average versus 14.2 years average). However, all poolers can be classified as a rather well-educated group with over 50% of the survey participants having almost 2 years of schooling (or college) beyond the 12th grade level.

Travel Characteristics of Park-and-Go Users

Present Mode of Travel

Considering the 8 lots surveyed in this study and the five other lots in the 1981-82 studies (1,2), the mode of travel from a Park-and-Go facility to the final destination is 51.0% by transit, 43.2% by carpool, and 5.8% by vanpool. These mode split values reflect the number of bus patrons arriving at the transit facility by some means (i.e., those who walked or were dropped off at the site) other than an auto that is left parked at the lot. In terms of mode split based upon observed parked commuter vehicles at the site, some 40.4% buspool, 52.6% carpool, and 7.0% vanpool to their final destination.

Table 43 presents the size of carpools and vanpools traveling between the lot and the final destination from Park-and-Go facilities. The average carpool has 3.70 persons per vehicle (ppv) while the average size of a vanpool is 12.50 persons per vehicle.

Table 43. Pool Size From Park-and-Go Facilities

Number in Pool	Carpools (n=59)	Vanpools (n=8)
2	15.3%	---
3	23.7	---
4	37.3	---
5	23.7	---
8	---	12.5
11	---	12.5
12	---	12.5
13	---	25.0
14	---	25.0
15	---	12.5
Average(mean)	3.70 ppv	12.50 ppv

Travel Frequency

Table 44 summarizes the days per week that the commuters travel from the Park-and-Go lot to their final destination by the various modes.

Table 44. Travel Frequency of Park-and-Go Users

Response	Buspoolers (n=157)	Carpoolers (n=60)	Vanpoolers (n=8)	All Poolers (n=226)
6	1.3%	1.7%	---	1.4%
5	87.3	91.7	100.0%	88.9
4	5.1	3.3	---	4.4
3	2.5	3.3	---	2.7
2	3.2	---	---	2.2
1	.6	---	---	.4
Average (mean)	4.79 da/wk	4.92 da/wk	5.00 da/wk	4.83 da/wk

The vast majority of all poolers travel from the lot to their destination 5 days per week. It is interesting to note the dispersion of buspoolers' travel frequency shown in Table 44. This dispersion reflects the general flexibility of buspooling in comparison to the other forms of commuter ridesharing.

Arrival at Lot

Park-and-Go users were asked how they arrived at the lot. Table 45 summarizes the responses received from the ridesharing commuters.

As shown in the table, the buspoolers arrive by various means while carpoolers and vanpoolers either drive alone or drive with one or more other commuters. The average arrival vehicle occupancy for those bus patrons which leave a vehicle at the Park-and-Go lot (n=118) is 1.12 persons. The average number of arrivals for carpoolers (n=59) is 1.20 persons/vehicle and 1.12 persons/vehicle for vanpoolers (n=8). The overall average number of commuters arriving per parked vehicle at a Park-and-Go lot is 1.14 (n=187).

Table 45. How Park-and-Go Users Arrived at Lot

How Arrived	Buspoolers (n=157)	Carpoolers (n=59)	Vanpoolers (n=8)	All Poolers (n=226)
Drove Alone	66.2%	89.8%	87.5%	73.5%
Dropped Off by Someone	18.5	---	---	12.8
Drove with One or More Others	3.2	10.2	12.5	5.3
Rode with Someone Else	5.7	---	---	4.0
Walked	5.7	---	---	4.0
Other Means	.6	---	---	.4

The arrival distribution for buspoolers (shown in Table 45) was derived by aggregating all data from the three commuter surveys. However, due to data collection techniques, the arrival method is biased toward those commuters who drive their vehicles to the Park-and-Go lot and leave it at the facility to catch the bus. Based upon the findings of the on-board survey conducted in Project 205-19, the mode of arrival for bus patrons (n=113) is as follows (1):

Drove Alone	57.5%
Dropped Off by Someone	25.7%
Rode with Someone Else	8.0%
Walked	8.0%
Other (Motorcycle, Bicycle, etc.)	.8%

As shown above, some 34.5% of the transit users arrive at the Park-and-Go lot by some other means than a parked commuter vehicle.

Prior Mode of Travel

The Park-and-Go users were asked how they traveled to their destination prior to their current method of travel. Table 46 summarizes the responses received to this inquiry.

Some 68.6% of all Park-and-Go poolers previously either drove alone or did not make their current trip. Approximately 14.5% of the buspoolers were diverted from carpools or vanpools while over 70% of those currently using transit drove alone or did not make the trip. Of those commuters car-pooling from the Park-and-Go lots, 30.5% indicated that their prior travel

Table 46. Prior Travel Mode of Park-and-Go Users

Response	Buspoolers (n=158)	Carpoolers (n-59)	Vanpoolers (n=7)	All Poolers (n=226)
Drove Alone	59.5%	57.6%	71.4%	59.3%
Carpool	13.9	15.2	--	13.7
Did Not Make Trip	10.8	6.8	--	9.3
Bus	9.5	1.7	--	7.1
Other Mode	5.7	3.4	14.3	5.3
Carpool or Vanpool	.6	13.6	14.3	4.9
Vanpool	--	1.7	--	.4

was by carpool or vanpool, 1.7% previously used transit while 64.4% either drove alone or did not make the trip. Insufficient data exist to draw conclusions on the vanpoolers' prior travel mode.

Home to Lot Travel Distance/Time

Table 47 summarizes the home-to-lot travel distances in miles, while Table 48 presents travel time in minutes for the ridesharing commuters using the Park-and-Go facilities.

Table 47. Home-to-Lot Travel Distance for Park-and-Go User

Measure	Buspoolers (n=45)	Carpoolers (n=58)	Vanpoolers (n=7)	All Poolers (n=111)
Mean Travel Distance (miles)	3.6	5.6	2.1	4.6
Median Travel Distance (miles)	1.2	3.1	1.5	2.4
Range of Travel Distance:				
Low (miles)	1.0	1.0	1.0	1.0
High (miles)	28.0	35.0	4.0	35.0

As shown in the two tables, the typical Park-and-Go user originates his/her trip within 2.4 miles or 6.7 minutes of the parking area. Bus patrons live consideraly closer (1.2 miles versus 3.1 miles) to the facilities than

Table 48. Home to Lot Travel Time for Park-and-Go Users

Measure	Buspoolers (n=46)	Carpoolers (n=60)	Vanpoolers (n=7)	All Poolers (n=114)
Mean travel time (min)	7.0	10.5	6.3	8.8
Median Travel Time (min)	4.6	8.4	4.8	6.7
Range of travel time:				
Low (min)	1.0	3.0	3.0	1.0
High (min)	30.0	45.0	10.0	45.0

do carpoolers. A more detailed examination of the home-to-lot travel characteristics is presented in a subsequent section of this report.

Lot to Destination Travel Distance/Time

Tables 49 and 50 present the lot-to-destination travel distances and times, respectively, for the Park-and-Go users.

Table 49. Lot-to-Destination Travel Distances for Park-and-Go Users

Measure	Buspoolers (n=45)	Carpoolers (n=58)	Vanpoolers (n=8)	All Poolers (n=112)
Mean travel distance (miles)	12.9	24.8	21.1	19.8
Median travel distance (miles)	9.9	24.3	18.5	19.4
Range of travel idstance:				
Low (miles)	2.0	5.0	5.0	2.0
High (miles)	32.0	50.0	35.0	50.0

Table 50. Lot-to-Destination Travel Time for Park-and-Go Users

Measure	Buspoolers (n=46)	Carpoolers (n=59)	Vanpoolers (n=8)	All poolers (n=113)
Mean travel time (min)	24.2	33.8	30.9	29.6
Median travel time (min)	24.5	29.4	28.5	28.8
Range of travel time:				
Low (min)	2.0	5.0	20.0	2.0
High (min)	45.0	60.0	45.0	6.0

As indicated in the two tables, the typical commuter travels 19.4 miles and approximately 28.8 minutes from the Park-and-Go facility to their final destination. Bus patrons, as one would expect, travel considerably fewer miles than do the carpoolers (12.9 miles average versus 24.8 miles average). Insufficient information is available to draw conclusions on the lot-to-destination travel characteristics of vanpoolers from Park-and-Go lots.

Park-and-Pool Users

Forty-nine Park-and-Pool sites throughout the Fort Worth/Dallas area were surveyed during 1981 and 1982. A total of 1283 questionnaires were distributed on the windshields of parked commuter vehicles with 482 being returned for analysis.

This section of the report summarizes the personal and travel characteristics of Park-and-Pool users in the Fort Worth area. Where appropriate comparisons are presented for the characteristics of poolers originating in rural areas, urban fringe areas and urban areas.

Personal Characteristics of Park-and-Pool Users

Age

The age of commuters using Park-and-Pool lots within the study area is presented in Table 51.

Table 51. Age of Park-and-Pool Lot Users

Age	Buspoolers (n=14)	Carpoolers (n=261)	Vanpoolers (n=169)	All Poolers (n=451)
50th Percentile	46.0 years	34.8 years	38.3 years	36.0 years
85th Percentile	57.7 years	50.0 years	53.2 years	51.9 years
Average (mean)	44.5 years	37.2 years	39.6 years	38.3 years

Vanpoolers are approximately 2 years older than carpoolers. The typical commuter engaged in Park-and-Pool activity is between 35 and 40 years old with an average age of 38.3 years.

Sex

Table 52 shows the sex of commuters surveyed at the Park-and-Pool lots.

Table 52. Sex of Park-and-Pool Lot Users

Sex	Buspoolers (n=14)	Carpoolers (n=271)	Vanpoolers (n=175)	All Poolers (n=467)
Male	64.3%	47.6%	52.0%	49.9%
Female	35.7	52.4	48.0.	50.1

More females are carpooling than males while more males are vanpooling than are females. The total sample of Park-and-Pool users is evenly split between males and females (49.9% versus 50.1%).

Occupation

The occupations reported by the Park-and-Pool participants are shown in Table 53.

Table 53. Occupation of Park-and-Pool Users

Occupation	Buspoolers (n=14)	Carpoolers (n=265)	Vanpoolers (n=171)	All Poolers (n=456)
Professional	28.6%	34.3%	31.6%	32.7%
Clerical	35.7	22.6	27.5	24.6
Managerial	---	17.0	13.4	15.1
Craftsman	14.3	14.7	15.2	14.7
Sales	---	4.5	6.4	5.5
Operative	21.4	2.3	3.5	3.3
Service Worker	---	1.9	1.2	1.7
Laborer	---	1.2	1.2	1.3
Student	---	1.5	---	.9
Homemaker	---	---	---	.2

Some 87% of all poolers from the Park-and-Pool lots studied are employed in either professional, clerical, managerial or crafts positions. A slightly higher percentage of carpoolers (51.3%) are engaged in professional or managerial positions than are vanpoolers (45.0%).

Education

The number of years of education reported by the Park-and-Pool users is presented in Table 54.

Table 54. Education of Park-and-Pool Users

Education	Buspoolers (n=14)	Carpoolers (n=267)	Vanpoolers (n=171)	All Poolers (n=459)
50th Percentile	12.0 years	13.5 years	12.8 years	13.2 years
85th Percentile	14.9 years	16.3 years	15.9 years	16.2 years
Average (mean)	13.7 years	14.3 years	14.0 years	14.2 years

Education reported by Park-and-Poolers ranged from 7 to 22 years with the mean educational level being 14.2 years.

Travel Characteristics of Park-and-Pool Users

Present Mode of Travel

Some 58.4% of the commuters carpool from the Park-and-Pool lots to their final destinations while 38.0% vanpool, and 3.2% buspool. Table 55 summarizes the mode of travel for the lot to destination trip.

Table 56 presents the size of carpools and vanpools traveling from the Park-and-Pool lots to the final destinations.

The typical carpool using the Park-and-Pool sites had an average vehicle occupancy of 3.43 persons while the average vanpool had 9.85 persons. The

Table 55. Travel Mode From Park-and-Pool Lot to Destination

Response	Urban Lots (n=278)	Urban Fringe Lots (n=75)	Rural Lots (n=123)	All Poolers (n=476)
Carpool	57.9%	60.0%	58.5%	58.4%
Vanpool	39.2	40.0	34.2	38.0
Buspool	2.5	---	6.5	3.2
Other Mode	.4	---	.8	.4

Table 56. Pool Size From Park-and-Pool Facilities

Number in Pool	Carpoolers (n=273)	Vanpoolers (n=175)
1	.4%	.6%
2	25.3	2.9
3	26.4	5.1
4	31.5	7.4
5	13.5	4.0
6	1.8	4.0
7	.4	5.7
8	.7	6.9
9	---	4.6
10	---	6.3
11	---	10.9
12	---	18.9
13	---	5.1
14	---	7.4
15	---	9.1
17	---	1.1
Average (mean)	3.43 ppv	9.85 ppv

most popular carpool size was 4 persons per vehicle (31.5% of all carpoolers). The most popular vanpool size was 12 persons per van which accounted for some 19% of all vanpoolers.

Travel Frequency

The trip frequency made from the Park-and-Pool lots to the final destination is presented in Table 57.

Table 57. Travel Frequency of Park-and-Pool Users

Response	Buspoolers (n=15)	Carpoolers (n=278)	Vanpoolers (n=180)	All Poolers (n=475)
7 days per week	---	---	---	.2%
6 " " "	---	2.5%	.5%	1.7
5 " " "	73.3%	92.4	96.7	93.2
4 " " "	26.7	2.9	2.2	3.4
3 " " "	---	1.8	.6	1.3
2 " " "	---	---	---	---
1 " " "	---	.4	---	.2
Average (mean)	4.73 da/wk	4.95 da/wk	4.98 da/wk	4.95 da/wk

Travel frequencies from Park-and-Pool lots by geographic location are shown in Table 57A.

Table 57A. Travel Frequency of Park-and-Pool Users, By Lot Location

Measure	Urban Lots (n=278)	Urban Fringe Lots (n=74)	Rural Lots (n=123)	All Lots (n=475)
Mean (days/week)	4.94	4.96	4.98	4.95
Range				
Low (days/week)	1	3	4	1
High (days/week)	6	6	7	7

Arrival to Lot

Park-and-Pool users were asked how they arrived at the lot in the morning. Responses to this inquiry are shown in Table 58.

The average vehicle occupancies (persons per vehicle) for the home-to-lot travel are:

1.27 for buspoolers;
1.20 for carpoolers; and,
1.12 for vanpoolers.

The overall average (mean) arrival occupancy indicated by all survey participants was 1.17 persons per vehicle.

Table 58. How Park-and-Pool Users Arrived At Lot

How Arrived	Buspoolers (n=15)	Carpoolers (n=237)	Vanpoolers (n=180)	All Poolers (n=476)
Drove Alone	86.7%	85.6%	93.9%	88.6%
Drove with one other	----	11.2	2.8	7.8
Drove with two others	13.3	1.4	.5	1.5
Drove with three others	----	1.8	2.8	2.1

Prior Mode of Travel

The Park-and-Pool users were asked, "Before you started using this parking area, how did you normally travel from home to your current destination?" Table 59 summarizes these responses.

Table 59. Prior Travel Mode of Park-and-Pool Users

Response	Buspoolers (n=15)	Carpoolers (n=275)	Vanpoolers (n=179)	All Poolers (n=472)
Drove Alone	53.3%	55.3%	40.2%	49.6%
Carpool	20.0	20.7	27.9	23.3
Carpool or Vanpool	----	10.2	11.7	10.4
Did Not Make Trip	6.7	7.3	10.1	8.5
Bus	20.0	1.8	5.0	3.6
Other Mode	----	3.3	1.7	2.5
Vanpool	----	1.4	3.4	2.1

Approximately 58% of all Park-and-Pool users either drove alone or did not make the trip prior to using the parking site. Some 32.3% of the carpoolers indicated that they were either carpooling or vanpooling prior to using the lot while over half (55.3%) said they drove alone to their destination. Slightly over half (50.3%) of the vanpoolers drove alone or did not make the trip prior to using the Park-and-Pool lot. Due to the limited data base for buspoolers, no significant conclusions can be drawn on their prior travel modes.

Home to Lot Travel Distance/Time

Tables 60 and 61 summarize the travel distances and travel times, respectively, for the commuters' home to Park-and-Pool lot journey.

Table 60. Home-to-Lot Travel Distances (Miles) for Park-and-Pool Users

Measure	Buspoolers (n=13)	Carpoolers (n=275)	Vanpoolers (n=176)	All Poolers (n=468)
Mean travel distance (miles)	6.5	5.7	4.8	5.4
Median travel distance (miles)	1.6	3.7	2.7	3.2
Range of travel distance:				
Low (miles)	1.0	1.0	1.0	1.0
High (miles)	40.0	56.0	35.0	56.0

Table 61. Home-to-Lot Travel Time (Minutes) for Park-and-Pool Users

Measure	Buspoolers (n=13)	Carpoolers (n=267)	Vanpoolers (n=172)	All Poolers (n=456)
Mean travel time (min)	10.5	10.5	10.0	10.4
Median travel time (min)	4.8	8.6	8.1	8.3
Range of travel time:				
Low (min)	3.0	1.0	2.0	1.0
High (min)	45.0	70.0	45.0	70.0

The typical Park-and-Pool user originates his or her trip 3.2 miles, or 8.3 minutes, from the parking area. On the average, carpoolers travel farther to the Park-and-Pool lot than do vanpoolers (5.7 miles versus 4.8 miles). More detailed examination of the home-to-lot travel characteristics is presented in the "Market Area Considerations" section of this report.

Lot to Destination Travel Distance/Time

Table 62 presents the travel distances for the lot-to-destination journeys of Park-and-Pool users while Table 62A shows the travel times.

Table 62. Lot-to-Destination Travel Distance (miles) for Park-and-Pool Users

Measure	Buspoolers (n=12)	Carpoolers (n=272)	Vanpoolers (n=173)	All Poolers (n=460)
Mean travel distance (miles)	22.1	25.0	27.5	25.9
Median travel distance (miles)	16.0	22.7	24.6	23.0
Range of travel distance:				
Low (miles)	10.0	4.0	6.0	4.0
High (miles)	54.0	75.0	61.0	75.0

Table 62A. Lot-to-Destination Travel Time (minutes) for Park-and-Pool Users

Measure	Buspoolers (n=13)	Carpoolers (n=268)	Vanpoolers (n=174)	All Poolers (n=458)
Mean travel time (min)	31.8	33.3	37.8	35.0
Median travel time (min)	26.5	29.6	34.9	33.1
Range of travel time:				
Low (min)	15.0	1.0	15.0	1.0
High (min)	85.0	75.0	90.0	90.0

The median (typical) Park-and-Pool user travels some 23.0 miles and 33.1 minutes from the parking area to reach his/her final destination. Vanpool participants tend to travel 2 to 3 miles further, on the average, to reach their destination than do carpoolers (27.5 miles versus 25.0 miles). Insufficient information is available on buspoolers to draw significant conclusions.

Tables 63 and 63A summarize lot-to-destination travel distances and time, respectively, for Park-and-Pool users in rural, urban fringe and urban settings. As shown in the tables, a commuter from a rural Park-and-Pool lot travels approximately 55% further than does the commuter from an urban location (34.6 miles versus 22.3 miles).

Table 63. Lot to Destination Travel Distances for Park-and-Pool Users, By Lot Location

Measure	Urban Lots (n=267)	Urban Fringe Lots (n=72)	Rural Lots (n=121)	All Lots (n=460)
Mean travel distance (miles)	22.3	24.5	34.6	25.9
Median travel distance (miles)	20.4	24.1	32.4	23.0
Range of travel distance:				
Low (miles)	4.0	11.0	10.0	4.0
High (miles)	60.0	50.0	75.0	75.0

Table 63A. Lot-to-Destination Travel Time for Park-and-Pool Users, By Lot Location

Measure	Urban Lots (n=267)	Urban Fringe Lots (n=74)	Rural Lots (n=117)	All Lots (n=458)
Mean travel time (min)	31.7	34.3	43.0	35.0
Median travel time (min)	29.1	30.4	39.4	33.1
Range of travel time:				
Low (min)	15.0	16.0	1.0	1.0
High (min)	60.0	60.0	90.0	90.0

Trip Purpose

A total of 476 Park-and-Pool users provided information on their trip purpose. Some 98.5% of all poolers were traveling to work, 1.3% to school and 0.2% for other reasons. Those commuters traveling to school or for other reasons commuted from the parking area to their destination by carpool.

Feeling of Security

The Park-and-Pool commuters were asked if they felt it was safe leaving their car parked at the lot. Table 64 summarizes the responses received to the inquiry.

Table 64. Park-and-Pool Users' Feeling of Security at Lot

Safe to Leave Car	Buspoolers (n=15)	Carpoolers (n=277)	Vanpoolers (n=179)	All Poolers (n=475)
Yes	80.0%	74.0%	67.0%	71.5%
No	---	5.8	12.9	8.4
Not sure	20.0	20.2	20.1	20.1

Table 64A also presents the responses received from the commuters on the security question but by geographic setting of the lot. Park-and-Pool users in rural areas appear to feel the most secure about leaving their vehicles parked at the lot while those users commuting from urban fringe settings appear uncertain or somewhat less secure.

Table 64A. Park-and-Pool Users' Feeling of Security at Lot, By Lot Location

Safe to Leave Car?	Urban Lots (n=198)	Urban Fringe Lots (n=75)	Rural Lots (n=123)	All Lots (n=475)
Yes	71.7%	65.3%	74.8%	71.5%
No	8.4	12.0	6.5	8.4
Not Sure	19.9	22.7	18.7	20.1

How Pooler Learned of Lot

The Park-and-Pool users were asked how they learned of the mode change parking area. Responses received to this inquiry are summarized in Table 65.

A majority of carpoolers (53.2%) learned of the lot by simply noticing others parking at the area. The most frequent way that a vanpooler learned of the Park-and-Pool lot was from co-workers or their employer (59.7% learned of the facility in this manner).

Table 65. How Park-and-Pool User Learned of Lot

How Learned of Lot	Buspoolers (n=14)	Carpoolers (n=269)	Vanpoolers (n=176)	All Poolers (n=461)
Co-Workers or Employer	85.7%	30.4%	59.7%	43.4%
Noticed Others Using Area	7.2	53.2	18.7	38.6
Friends or Relatives	---	10.8	10.2	10.2
Radio, TV or Newspaper	---	.4	.6	.5
Highway or Street Sign	---	.4	---	.2
Computer Matching Service	---	---	.6	.2
Other Means	7.1	4.8	10.2	6.9

Table 65A presents the responses received to the question by geographic setting of the Park-and-Pool lot.

Table 65A. How Park-and-Pool User Learned Of Lot, By Lot Location

How Learned of Lot	Urban Lots (n=271)	Urban Fringe Lots (n=71)	Rural Lots (n=119)	All Lots (n=461)
Co-Workers or Employer	43.9%	43.7%	42.0%	43.4%
Noticed Others Using Area	37.6	39.4	40.3	38.6
Friends or Relatives	10.0	9.9	10.9	10.2
Radio, TV or Newspaper	.4	----	.9	.5
Highway or Street Sign	.4	----	----	.2
Computer Matching Service	----	1.4	----	.2
Other Means	7.7	5.6	5.9	6.9

How Pool Was Organized

Park-and-Pool users were asked how their carpool/vanpool/buspool was first organized. Responses to the question are presented in Table 66.

Some 84% of the carpoolers organized through co-workers. It appears that the employer plays a large role in the formation of vanpools and buspools with some 45% of these pools being organized in this way.

Table 66. How Park-and-Pool Users Organized Their Pool

Response	Buspoolers (n=9)	Carpoolers (n=269)	Vanpoolers (n=178)	All Poolers (n=457)
Co-Workers	55.6%	83.6%	44.4%	67.6%
Employer	44.4	2.2	44.9	19.9
Friends	---	8.6	5.1	7.0
Computer Matching Service	---	1.4	---	.2
Classmates	---	1.5	---	.9
Other Means	---	1.9	3.9	2.6

Effect of Lot on Pool Formation

Park-and-Pool users were asked what effect the parking lot had on their pool formation. A total of 457 poolers responded to the question; these responses are summarized in Table 67.

Table 67. Effect of Park-and-Pool Lot on Pool Formation

Effect of Lot Response	Buspoolers (n=14)	Carpoolers (n=268)	Vanpoolers (n=172)	All Poolers (n=457)
This parking was one of several factors which encouraged me to carpool/vanpool/bus	28.6%	53.0%	55.8%	53.0%
This parking area had no effect on my use of carpool/vanpool/bus	57.1	36.9	39.5	38.7
I would not be using carpool/vanpool/bus if this parking area was not here	14.3	10.1	4.7	8.3

Table 67A presents the responses received to the question but shows the lot's effect based upon its geographic setting. It would appear, as shown in the table, that the Park-and-Pool facility has the most effect on pooling habits of commuters originating in urban fringe areas and the least effect on those from rural areas.

Table 67A. Effect of Park-and-Pool Lot on Pool Formation, By Lot Location

Effect of Response	Urban Lots (n=269)	Urban Fringe Lots (n=69)	Rural Lots (n=119)	All Lots (n=457)
This parking was one of several factors which encouraged me to carpool/vanpool/bus.	55.8%	58.0%	43.7%	53.0%
This parking area had no effect on my use of carpool/vanpool/bus	34.9	30.4	52.1	38.7
I would not be using carpool/vanpool/bus if this parkign area was not here.	9.3	11.6	4.2	8.3

Preference for Express Bus Service

The Park-and-Pool users were asked for their preference in either continuing to carpool/vanpool or switching to bus if bus service were provided. The responses to this inquiry are shown in Table 68.

Table 68. Park-and-Pool Users' Preference for Bus Service

If convenient express bus service was provided, I would prefer to:	Carpoolers (n=257)	Vanpoolers (n=173)	All Carpoolers/ Vanpoolers (n=430)
Continue pooling	58.4%	82.1%	68.0%
Ride the bus	41.6	17.9	32.0

Employer Incentives

Park-and-Pool users were asked if their employer or school provides any incentives for ridesharing. Responses to the question are presented in Table 69.

Table 69. Does Employer Provide Incentives to Park-and-Pool Users

Response	Buspoolers (n=14)	Carpoolers (n=276)	Vanpoolers (n=180)	All Poolers (n=475)
Yes	50.0%	37.3%	54.4%	44.0%
No	35.7	58.7	42.8	52.2
Not sure	14.3	4.0	2.8	3.8

As one might expect, a high percentage (54.4%) of vanpoolers indicated that their employer did provide ridesharing incentives. Some 72% of these commuters said that the employer sponsored their vanpool program. A relatively low number (37.3%) of carpools said that employer incentives were provided. The most frequently listed incentive provided by the carpoolers' employers was either subsidized or preferential parking.

Reasons For Pooling

Park-and-Pool participants were asked what was the most important reason for their pooling activity. The responses received to this inquiry are shown in Table 70.

Table 70. Park-and-Pool Users' Most Important Reason for Pooling

Reason	Buspoolers (n=9)	Carpoolers (n=270)	Vanpoolers (n=178)	All Poolers (n=457)
Cost of driving	55.6%	81.9%	70.2%	76.9%
Cost of parking	11.1	7.8	8.4	8.1
Stress of driving	22.2	4.4	14.1	8.5
Energy savings	----	4.4	2.8	3.7
Other reason(s)	11.1	1.5	4.5	2.8

As shown in the table, vanpoolers and buspoolers appear to be more conscious of the "stress of driving" than do carpoolers. However, the cost of parking and/or driving continues to be the most important reasons for pooling from the lot to the final destination.

Table 70A summarizes the most important reasons for pooling based upon the geographic settings of the Park-and-Pool facilities. As one would expect, the "cost of parking" and "stress of driving" factors appear to be bigger considerations to poolers from urban settings than those from rural areas.

Table 70A. Park-and-Pool Users' Most Important Reason for Pooling, By Lot Location

Reason	Urban Lots (n=267)	Urban Fringe Lots (n=71)	Rural Lots (n=120)	All Lots (n=457)
Cost of driving	73.4%	83.1%	80.8%	76.9%
cost of parking	10.5	4.2	5.0	8.1
Stress of driving	9.0	11.3	5.8	8.5
Energy savings	3.4	1.4	5.8	3.7
Other reason(s)	3.7	----	2.6	2.8

MARKET AREA CONSIDERATIONS

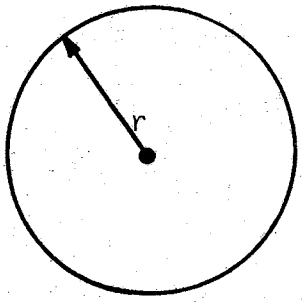
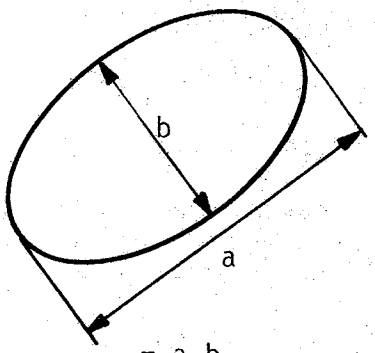
One objective of this research effort was to identify representative market areas or catchment zones for commuters using Park-and-Go and Park-and-Pool facilities in the Fort Worth/Dallas region. Findings in Project 205-18 (2) suggested a circular or elliptical market area for Park-and-Pool activity ranging in size from about 25 to 225 square miles, depending upon access and geographic surroundings, as shown in Figure 15 (2). The radius of the circular market area, defined in Project 205-18, varied from 2.8 miles to 8.5 miles and was derived from the home to lot travel distances in combination with population densities surrounding the study sites.

The 1981-82 study of bus patrons using Park-and-Go facilities in Fort Worth (1) suggested a circular configuration with a radius of 1.5 miles represented 75% of the users of the transit service (1). No attempt was made to correlate population densities to the home to lot travel characteristics in the Fort Worth study due to the relatively low numbers of survey participants from any given site.

This section of the report examines the travel characteristics of commuters using both types of ridesharing facilities (Park-and-Go and Park-and-Pool). Data used in the investigation include the previous two research efforts (1,2) and the information obtained in this project. In addition to examining travel patterns associated with the type of facility, data on the commuters characteristics by pooling mode and geographic setting are presented.

Park-and-Go Market Areas

Table 71 presents the home-to-lot travel characteristics for the Park-and-Go users which are pertinent to market area definition.

Computed Area (sq.mi.)	Dimensions in Miles for		
	Circular Market Areas	Ellipitical Market Areas	
	 Area = πr^2	 Area = $\frac{\pi a b}{4}$	
	r =	a =	b =
25.2	2.8	6.9	4.6
56.6	4.2	10.4	6.9
56.9	4.3	10.4	6.9
60.4	4.4	10.7	7.2
77.5	5.0	12.2	8.1
100.5	5.7	13.9	9.2
100.6	5.7	13.9	9.2
144.8	6.8	16.6	11.1
224.9	8.5	20.7	13.8

Source: Research Report 205-18 (2)

Figure 15: Dimensions of Computed Market Areas for 9 Geographic Study Groups Along the I-380 Freeway Corridor

Table 71. Home-to-Lot Travel Characteristics for Park-and-Go Users

Measures of Distance	Buspoolers (n=45)	Carpoolers (n=58)	Vanpoolers (n=7)	All Poolers (n=111)
Average (mean) Miles	3.6	5.6	2.1	4.6
Modal (most frequent) Miles	1.0	3.0	2.0	1.0
Median (50th percentile) Miles	1.2	3.1	1.5	2.4
75th Percentile Miles	3.7	5.5	2.2	4.7
85th Percentile Miles	6.1	9.1	2.9	8.1
90th percentile Miles	8.0	11.1	3.3	9.6

Figure 16 presents the cumulative frequency distribution for carpoolers and buspoolers with regard to the home-to-lot travel distances. Based upon the summary information presented in Table 71 above, and the distribution of travel presented in Figure 16, it appears that the market area for Park-and-Go users was underestimated in the previous study of these facilities (1). Although 50% of the bus patrons originate within 1.2 miles of the Park-and-Go lot, a significant number of transit riders travel up to 6 miles by automobile to reach the mode change area. Unfortunately, the summary information presented does not account for the 35% of transit patronage that walks to the lot, gets dropped off by someone else, or in some other way reaches the facility.

From the above, the most intensive marketing efforts by transit officials to promote Park-and-Go should concentrate within 2 miles of the facility. However, supplemental marketing of transit up to 4 miles from the lot may be beneficial.

As shown in both the table and figure for home-to-lot travel of Park-and-Go Users, the catchment zone for carpoolers extends considerably farther than for buspoolers. Fifty percent of the carpoolers live with 3.1 miles of the lot while 75% reside within 5.5 miles. Marketing of Park-and-Go facilities for carpoolers should, therefore, extend some 6 miles from the

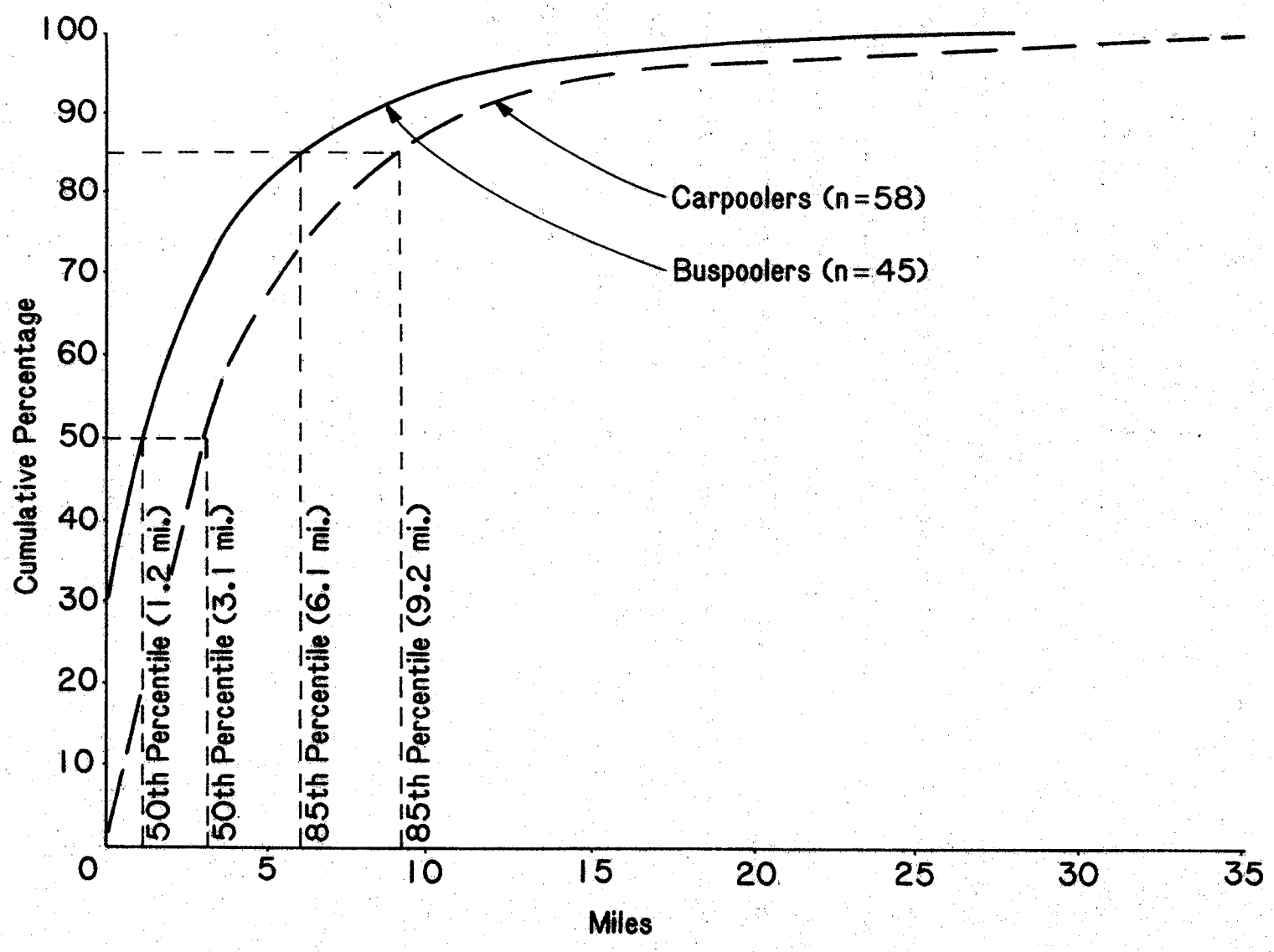
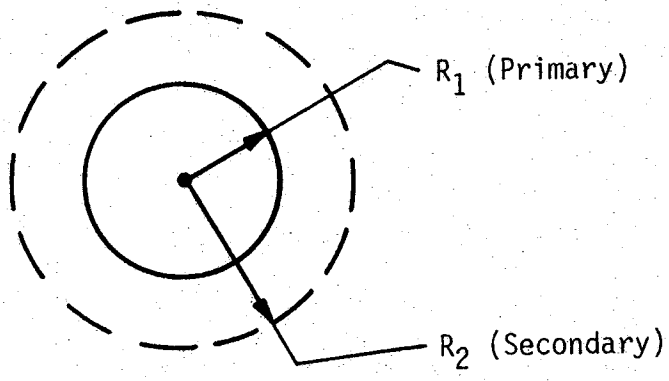


Figure 16: Cumulative Frequency Distribution, Park-and-Go Travel Distance from Home to Lot

parking area. The most effective return on marketing efforts directed at carpoolers will occur within 3 to 4 miles of the Park-and-Go lot.

Unfortunately, insufficient data exist on vanpool travel patterns to estimate a representative market area for this form of ridesharing at Park-and-Go facilities. It is natural to believe that any promotion of carpooling will also have a residual positive effect on all forms of pooling (including vanpooling) from the Park-and-Go lots.

Figure 17 summarizes the recommended market area configurations for Park-and-Go facilities. As shown in the figure, the primary market for transit patrons encompasses an area of approximately 12 square miles while the primary area for carpoolers contains about 38 square miles.



Market Type	Primary Market		Secondary Market	
	R_1 = (miles)	$Area_1$ = (sq.mi.)	R_2 = (miles)	$Area_2$ = (sq.mi.)
Buspooling	2.0	12.6	4.0	50.3
Carpooling	3.5	38.5	6.0	113.0

Figure 17: Recommended Market Area Configuration for Park-and-Go Facilities

Park-and-Pool Market Areas

The home-to-lot travel characteristics of Park-and-Pool users is presented in Table 72 and summarizes, by pooling mode, the travel distances which are relevant to market area definition.

Table 72. Home-to-Lot Travel Characteristics for Park-and-Pool Users, By Pooling Mode,

Measure of Distance	Buspoolers (n=13)	Carpoolers (n=275)	Vanpoolers (n=176)	All Poolers (n=468)
Average (mean) Miles	6.5	5.7	4.8	5.4
Modal (most frequent) Miles	2.0	2.0	2.0	2.0
Median (50th Percentile) Miles	1.6	3.7	2.7	3.2
75th Percentile Miles	2.0	6.5	5.3	6.1
85th percentile Miles	12.2	9.3	7.6	9.1
90th Percentile Miles	14.1	9.9	9.5	9.9

Fifty percent of all Park-and-Pool users originate within 3.2 miles of the parking lot. The cumulative frequency distributions for carpoolers and vanpoolers of the home to lot travel are shown in Figure 18. As shown in the figure and as summarized in the previous table, the travel characteristics of carpoolers and vanpoolers are quite similar. Eighty percent of all Park-and-Pool users live within 7.6 miles of the facility.

As determined in the 1981-82 study of pooling activity along the I-30 freeway corridor in Dallas/Fort Worth (2), the catchment zone size varies by lot location, geographic features, access to and from the facility, plus other factors specific to the location. Table 73 presents the home to lot travel characteristics of Park-and-Pool users based upon the geographic setting of the facility. Figure 19 shows the cumulative travel distances for both rural lot users and urban lot users.

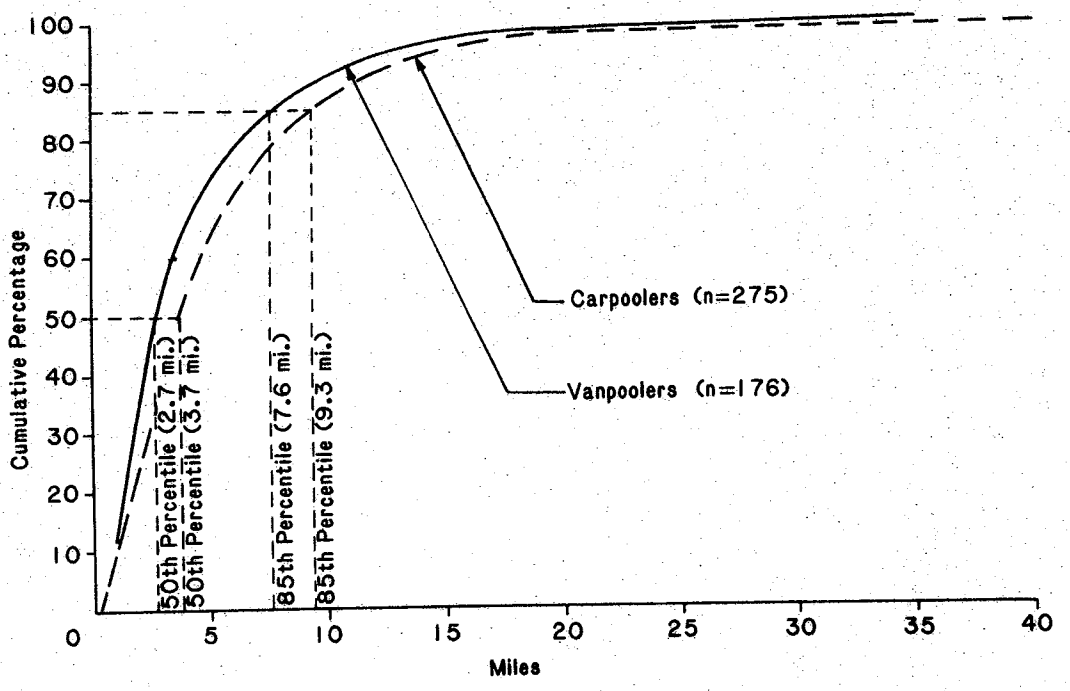


Figure 18: Cumulative Frequency Distribution, Park-and-Pool Travel Distance from Home to Lot, By Mode of Travel

Table 73. Home-to-Lot Travel Characteristics for Park-and-Pool Users, By Geographic Setting of Lot

Measure of Distance	Urban Lots (n=274)	Urban Fringe Lots (n=75)	Rural Lots (n=119)	All Lots (n=468)
Average (Mean) Miles	5.3	4.8	6.1	5.4
Modal (Most Frequent) Miles	2.0	2.0	2.0	2.0
Median (50th Percentile) Miles	2.9	2.7	4.0	3.2
75th Percentile Miles	5.9	5.8	6.7	6.1
85th Percentile Miles	9.0	8.8	9.3	9.1
90th Percentile Miles	9.9	9.6	10.7	9.9

Based upon the available data, a slight difference in terms of home to lot travel characteristics can be determined for rural lots versus urban and/or urban fringe lots. Fifty percent of Park-and-Pool users in urban or urban fringe areas travel 2.9 miles or less, while 50% of the users in rural areas travel 4.0 miles or more to reach the parking area. On the

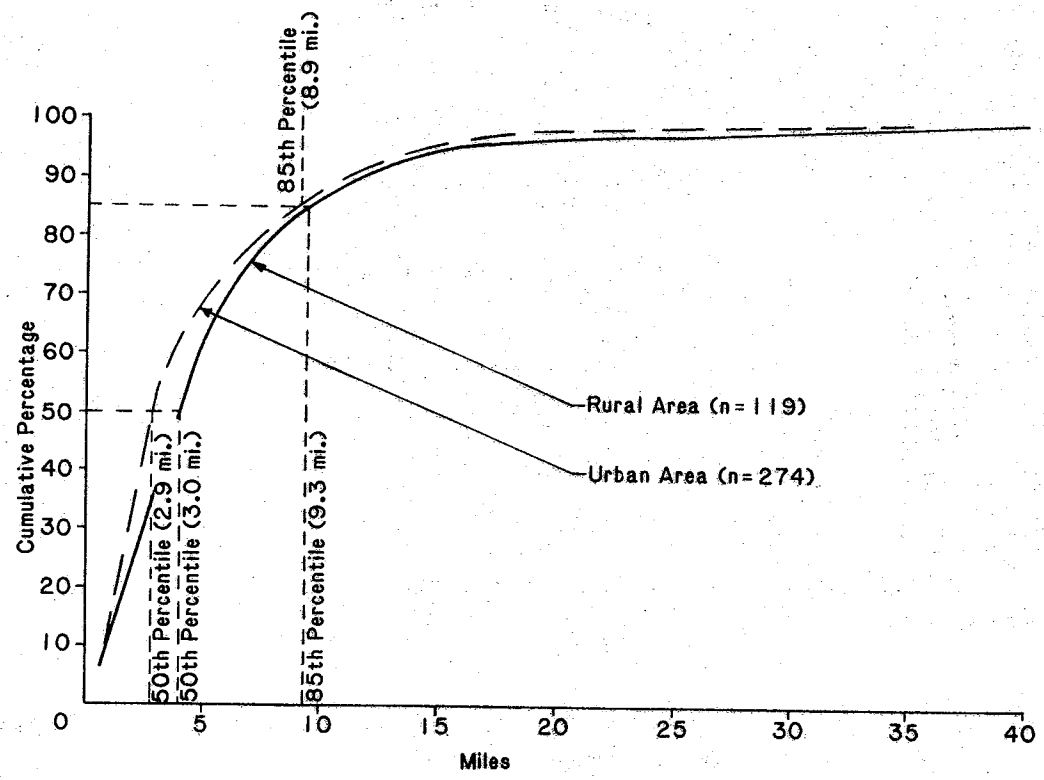
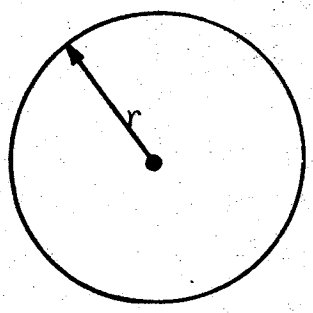
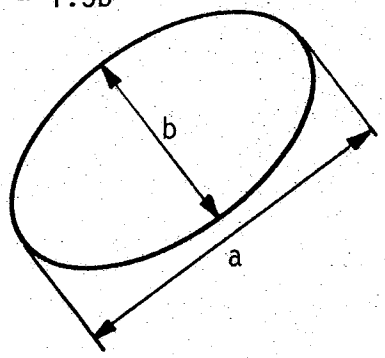


Figure 19: Cumulative Frequency Distribution, Park-and-Pool Travel Distance from Home to Lot, By Geographic Setting of Lot

average, a commuter using a rural Park-and-Pool lot travels some 15% further to reach the lot than does a commuter in an urban area (6.1 miles versus 5.3 miles).

Urban/Urban Fringe Lots

Eighty percent of all urban or urban fringe lot users originate from within 7.0 miles of the Park-and-Pool facility. Figure 20 shows the suggested primary and secondary market zones for Park-and-Pool users in an urban or urban fringe setting. The primary catchment area accounts for over 50% of the actual Park-and-Pool users while the secondary zone encompasses some 80% of the commuters presently using the facility. The computed area of the

*Market Zone	Computed Area (sq.mi.)	Circular Market Area  Area = πr^2	Ellipitical Market Area a = 1.5b  Area = $\frac{\pi\ a\ b}{4}$	
		r =	a =	b=
Primary	28	3.0 miles	7.3 miles	4.9 miles
Secondary	154	7.0 miles	17.1 miles	11.4 miles

*Note: Primary Market Zone represents approximately 50% of Users; Secondary Market Zone represents approximately 80% of Users.

Figure 20: Generalized Market Areas for Urban/Urban Fringe Park-and-Pool Lots

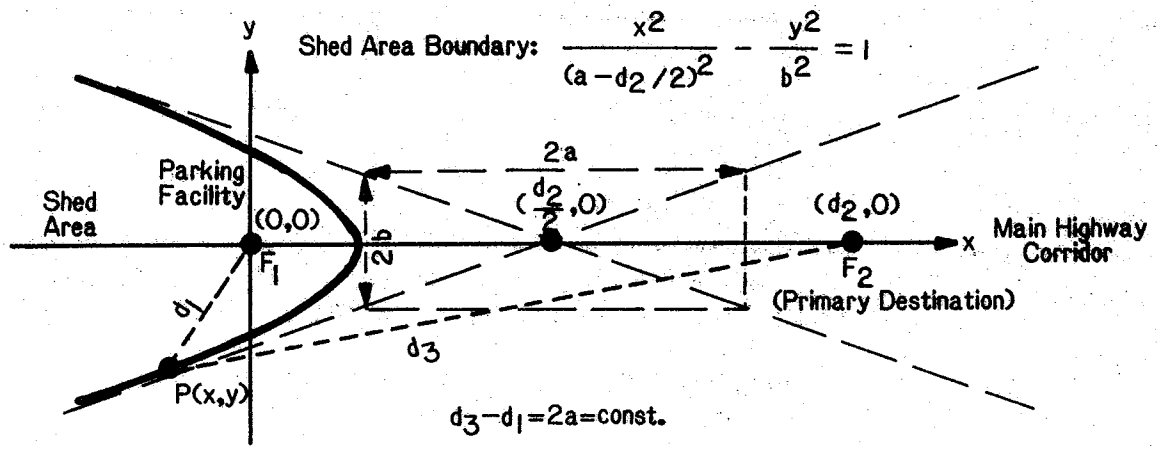
primary and the secondary zones range from 28 square miles to 154 square miles, respectively. Obviously, with limited marketing resources, the most effective program for promoting Park-and-Pool usage would concentrate on the primary catchment area, or within 3 miles of the facility.

Rural Lots

Previous work to define market areas for Park-and-Pool users was performed by Voorhees in 1981 (6). The results of their investigation revealed

a hyperbolic commutershed which is shown in Figure 21. This commutershed ranged in size from 20 to 170 square miles and was found to vary as a function of facility size, distance from destination, regional setting and home to lot distance (6).

Christiansen investigated catchment zones for Park-and-Ride (transit) users in 1981 and suggested a parabolic market area shown in Figure 22 (4). Both the parabolic and hyperbolic configurations are oriented in a common manner to the major travel corridor or highway leading to the final destination.

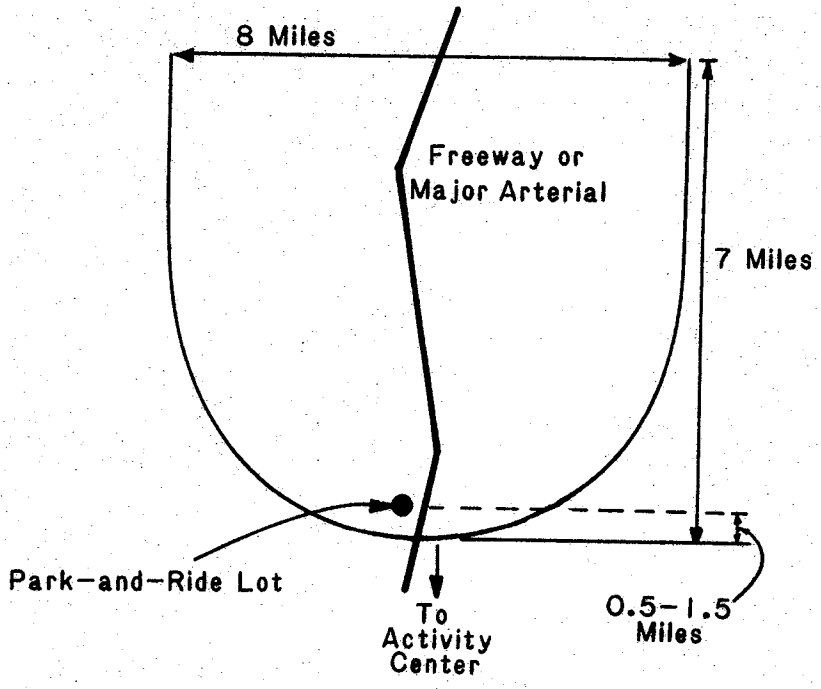


d_1 = Home to Lot Distance
d_2 = Lot to Destination Distance

Source: Voorhees, 1981; Reference (6)

Figure 21: Commuter Shed Area Boundary for Park-and-Pool Defined as a Hyperbola

Table 74 provides a summary of destination counties of Park-and-Pool users surveyed in this and the 1981-82 study (2). Similarly, Table 75 shows the destination cities of Park-and-Pool user.



Source: Christiansen, 1981; Reference (4).

Figure 22: General Parabolic Shape of Typical Park-and-Ride Market Area

Table 74. Destination Counties of Park-and-Pool Users

County	Urban Lots (n=266)	Urban Fringe Lots (n=74)	Rural Lots (n=121)	All Lots (n=461)
Dallas	79.7%	48.6%	50.4%	67.0%
Tarrant	19.9	51.4	39.7	30.2
Somervell	----	----	9.1	2.4
Johnson	----	----	.8	.2
Parker	.4	----	----	.2

Table 75. Destination Cities of Park-and-Pool Users

City	Urban Lots (n=240)	Urban Fringe Lots (n=74)	Rural Lots (n=120)	All Lots (n=434)
Dallas	76.2%	33.8%	44.2%	60.1%
Fort Worth	17.9	33.8	25.8	22.8
Hurst	1.2	10.8	5.8	4.1
Grand Prairie	----	10.8	4.2	3.0
Glen Rose	----	----	10.0	2.8
Arlington	.4	4.1	5.0	2.3
Irving	----	1.4	----	.9
Grapevine	.4	----	.8	.5
Addison	.4	----	.8	.5
Other Cities	3.5	5.3	3.4	3.0

Over 90% of those users surveyed from Park-and-Pool lots in rural areas were destined to either Dallas or Tarrant County. More specifically 70% of the rural lot users had destinations in Fort Worth or in Dallas. Therefore, given a particular rural location within the study area, one could expect the vast majority of commuters to be traveling from the Park-and-Pool site toward the principal activity centers in either Tarrant or Dallas Counties. This observation is relevant to the application of the market area configurations shown in Figures 21 or 22; orientation of the primary travel corridor would be toward the principal activity centers for 70% to 90% of the commuters.

From a marketing point of view, a more simplified concept of primary and secondary market zones is presented in Figure 23 for rural Park-and-Pool facilities. Both the primary and secondary zones are approximated by semi-circles oriented about the parking site. Figure 24 presents the suggested dimensions for the two simplified market areas. The proposed market zones are conceptual only. The orientation and dimensions shown in Figures 23 and 24 are based upon the available survey data. Actual marketing efforts for promoting a rural Park-and-Pool site should be tailored to the specific

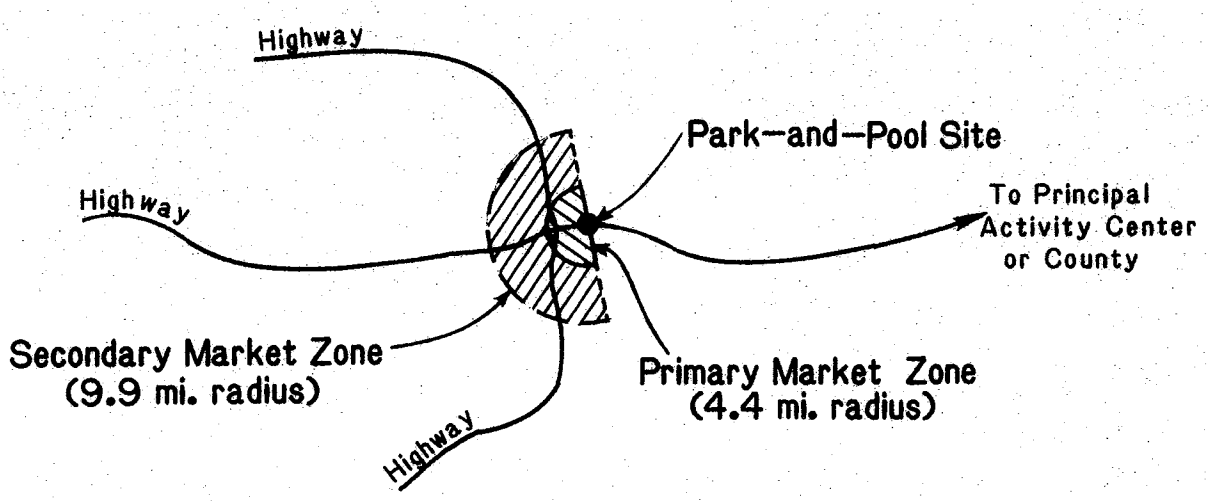
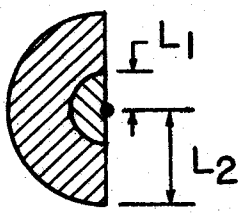


Figure 23: Conceptual Market Zones for Rural Park-and-Pool Sites

SEMI-CIRCULAR MARKET ZONES



L_1 = Primary
L_2 = Secondary

Area = $\frac{\pi L^2}{2}$

Market Zone	L =	Area =	Approximate Percentage of Users
Primary	4.4 miles	30 sq.mi.	50%
Secondary	9.9 miles	154 sq.mi.	80%

Figure 24: Generalized Market Areas for Rural Park-and-Pool Lots

characteristics of the location and knowledge of the local area and/or commuter travel patterns.

POOLING BENEFITS

The annual benefits to accrue as a result of Park-and-Go or Park-and-Pool activity are usually expressed as a reduction in cost to the traveling commuter and to the public in general. The following are some of the potential benefits of ridesharing (2).

1. The reduction in commuters' cost of owning and operating a vehicle (e.g., fuel, oil, tires, maintenance, insurance, depreciation, interest, taxes, fees, etc.)
2. The reduction in commuters' cost of parking at the final destination.
3. Non-quantifiable commuter considerations (e.g., increased safety, reduced stress, companionship, etc.).
4. Reduced vehicle-miles of travel (VMT) on public roads.
5. Reduced energy consumption for transportation purposes.
6. Reduced parking demand at final destination.
7. Possible reduction in vehicular emmissions.
8. Possible reduction in traffic congestion with resulting improved mobility.

Project 205-18 investigated benefits and costs of Park-and-Pool facilities along the I-30 freeway corridor in Dallas/Fort Worth. Only out-of-the-pocket vehicle operating cost considerations were used in calculating the potential net benefits resulting from the ridesharing facilities. These operating considerations are summarized in Table 76 (2).

Table 76. Out-of-the-Pocket Vehicle Operating Considerations

Considerations	Vehicle Type	
	Subcompact	Standard
Operating Cost	$ .093 per mile	$ .141 per mile
Fuel Consumption	.04 gal per VMT	$ .07 gal per VMT

Based upon the travel characteristics of the surveyed commuters at 8 urban Park-and-Pool locations along I-30, the annual VMT reduction per commuter ranged from 2828 miles to 8233 miles and averaged 6117 fewer miles per pooling commuter. The fuel saving ranged from 176 gallons to 512 gallons per commuter per year with an overall average annual reduction of 380 gallons per commuter. These reductions in VMT and fuel consumption were calculated from the following base condition (2).

- Typical peak period vehicle occupancy of 1.38 person per vehicle
- Average of 50 work weeks per year
- Vehicle mix of 26% subcompact and 74% standard sizes

This section of the report examines the travel characteristics of commuters using Park-and-Go and Park-and-Pool facilities and attempts to estimate the net benefits accrued by the pooling participants.

Several factors must be taken into account when investigating ridesharing benefits, including:

1. Type of pool (i.e., buspool, carpool, vanpool)
2. Travel frequency (days per week)
3. Home to lot vehicle occupancy,
4. Home to lot distance (miles)
5. Lot to destination vehicle occupancy,
6. Lot to destination distance (miles),
7. Vehicle mix (fuel efficient versus others), and
8. Basis for benefit calculations.

All of the above factors are fairly self-explanatory except, perhaps, the "Basis for Benefit Calculations." Two questions, relevant to the base condition of travel, were posed to the commuters: 1) the commuter's prior mode of travel; and, 2) the effect of the parking area on the commuter's

present pooling activity. Another consideration in determining the benefits of ridesharing facilities is the average peak hour vehicle occupancies in the study area. By comparing the travel demand of pooling participants to the typical demand required with the vehicle occupancy of the typical peak period one can arrive at a relative effectiveness of Park-and-Go and/or Park-and-Pool facilities. Table 77 shows the average vehicle occupancies for Dallas and Tarrant Counties plus the Fort Worth and Dallas central business districts (CBD's) (5).

Table 77. Average VOR's for Fort Worth/Dallas Area

Year	Fort Worth CBD	Tarrant County	Dallas CBD	Dallas County
1981	1.26 ppv	1.24 ppv	1.38 ppv	1.25 ppv
1982	1.25 ppv	1.23 ppv	1.33 ppv	1.20 ppv

Source: Reference No. 5

The 1982 areawide average vehicle occupancy was 1.21 vehicle occupancy compared to 1.25 in the previous year (1981). The total estimated travel for the D/FW Intensive Study Area in 1981 was slightly more than 60 million VMT per typical weekday (5).

Park-and-Go Benefits

Table 78 summarizes travel characteristics necessary to compute the total passenger miles of travel (PMT) generated from the Park-and-Go facilities. The travel characteristics, shown in the table, are average (mean) values obtained or calculated from the survey data.

The PMT measure provides an indication of where the largest benefits, in terms of the pooling mode, from a Park-and-Go lot can be realized. The

Table 78. Travel Demand Associated with Park-and-Go Facilities

Travel Characteristics	Buspoolers (51.00%)	Carpoolers (43.24%)	Vanpoolers (5.76%)	All Poolers (100.00%)
Vehicle Occupancy Rate (VOR):				
Home-to-Lot	1.12	1.20	1.12	1.14
Lot-to-Destination	15.26	3.70	12.50	7.73
Travel Distance (Miles):				
Home-to-Lot	3.60	5.55	2.14	4.58
Lot-to-Destination	12.89	24.76	21.12	19.78
Total Home-to-Destination	16.49	30.31	23.26	24.36
Travel Frequency (Days per week):	4.79	4.92	5.00	4.83
Passenger Miles of Travel (PMT) per Week:				
Home-to-Lot-to-Home	38.62	65.54	23.96	50.44
Lot-to-Destination-to-Lot	1884.40	901.46	2640.00	1477.00
Total Home-to-Destination-to-Home	1923.02	967.00	2663.96	1527.44

calculated PMT for a buspooler (1,923) is believed to be somewhat low due to the reported lot to destination bus occupancies by the survey respondents. Using a 50% load factor for the bus mode (a lot to destination VOR of 20), the computed PMT associated with a buspooler would be some 2,508 passenger-miles per week.

Table 79 summarizes the estimated net reduction in vehicle miles of travel (VMT) resulting from a Park-and-Go facility based upon the survey findings. In addition, the table presents the estimated fuel savings attributable to the facility. The example of net benefits shown in Table 79 assumes a facility with approximately 86 parked vehicles and 100 commuters. The mode split for determining the type of pool used by the commuters ignores those bus patrons arriving at the location by some other means (i.e., walked, dropped off) than a vehicle parked at the lot. This will, no doubt, result in an underestimation of buspooling benefits in the range of 25% to 35%. The estimated reductions

Table 79. Estimated Reduction in VMT and Fuel Consumption for a Park-and-Go Facility

Travel Mode	Number of Commuters	Number of of Parked Vehicles (Approx.)	Annual VMT Contributions Home-to-Lot	Lot-to-Destination	Total	Annual VMT Required @ 1.25 ppv	Annual VMT Reduction	*Annual Fuel Savings (gallons)
Buspool	40	35.71	61,586	16,184	77,770	252,759	174,989	10,533
Carpool	53	44.17	120,602	174,498	295,100	632,291	337,191	20,295
Vanpool	7	5.83	6,688	5,914	12,602	65,128	52,526	3,162
All Pools (Totals)	100	85.71	188,876	196,596	385,472	950,178	564,706	33,990

*Note: Annual Fuel Savings Computations Assume 32.7% of the Park-and-Go Users Would Drive a Subcompact, Fuel Efficient Vehicle.

in VMT and fuel consumption are computed by comparing the currently required vehicle travel to the 1982 average VOR for the Fort Worth CBD (1.25 ppv).

As shown in the table, the average annual VMT reduction per Park-and-Go user ranges from 4,375 for bus patrons to 7,504 for vanpoolers, with an overall average reduction of 5,647 vehicle miles per commuter per year. This VMT reduction represents a net fuel savings of some 440 gallons per year per commuter.

Park-and-Pool Benefits

Tables 80 and 81 show the travel characteristics for Park-and-Pool users plus the mean travel demand by type of pool and geographic setting for the lot, respectively. The most passenger miles of travel (PMT) for Park-and-Pool users is associated with buspoolers and/or those parking areas located in rural settings.

Table 80. Travel Demand Associated with Park-and-Pool Facilities

Travel Characteristics	Buspoolers (3.15%)	Carpoolers (58.40%)	Vanpoolers (38.02)	All Poolers (100.00%)
Vehicle Occupancy Rate (VOR):				
Home-to-Lot	1.27	1.20	1.12	1.17
Lot-to-Destination	21.00	3.43	9.85	6.18
Travel Distance (Miles):				
Home-to-Lot	6.54	5.72	4.80	5.41
Lot-to-Destination	22.08	25.02	27.47	25.89
Total Home-to-Destination	28.62	30.74	32.27	31.30
Travel Frequency (Days per week):	4.73	4.95	4.98	4.95
Passenger Miles of Travel (PMT) per week:				
Home-to-Lot-to-Home	78.58	67.96	53.54	62.66
Lot-to-Destination-to-Lot	4386.42	849.60	2694.98	1584.00
Total Home-to-destination-to-Home	4465.00	917.56	2748.52	1646.66

Table 81. Travel Demand Associated with Park-and-Pool Facilities, by Geographic Setting

Travel Characteristics	Poolers from Urban Lots (58.51%)	Poolers from Urban Fringe Lots (15.56%)	Poolers from Rural Lots (25.93%)	All Poolers (100.00%)
Vehicle Occupancy Rate (VOR):				
Home-to-Lot	1.20	1.08	1.15	1.17
Lot-to-Destination	5.96	6.41	6.52	6.18
Travel Distance (miles):				
Home-to-Lot	5.29	4.77	6.08	5.41
Lot-to-Destination	22.30	24.51	34.64	25.89
Total Home-to-Destination	27.59	29.28	40.72	31.30
Travel Frequency (Days per week):	4.94	4.96	4.98	4.95
Passenger Miles of Travel (PMT) per week:	62.72	51.10	69.64	62.66
Lot-to-Destination-to-Lot	1313.13	1558.52	2249.49	1584.00
Total Home-to-Destination-to-Home	1375.85	1609.62	2319.13	1646.66

Table 82 summarizes, by type of ridesharing pool, the annual vehicle miles of travel (VMT) generated from a Park-and-Pool facility serving 100 commuters, based upon the survey findings. The computed VMT reductions shown in Table 82 are derived from an average vehicle occupancy rate (VOR) of 1.25 persons per vehicle for comparative purposes. If the areawide average occupancy of 1.21 was used, the VMT reduction shown in the table would be increased by approximately 5.5%.

Based upon the survey data, annual VMT reduction per commuter ranged from 6,203 for a carpooler to 9,333 for a vanpooler with an overall average of 7,443 VMT per Park-and-Pool user. The mean reduction in fuel consumption was some 476 gallons per year per commuter.

Table 83 presents the annual VMT and fuel reduction estimates for Park-and-Pool users based upon the geographic location of the parking facility (i.e., urban, urban fringe, or rural setting). Although a total of 482 Park-and-Poolers were included in the data base, the calculated benefits shown in Table

Table 82. Estimated Reduction in VMT and Fuel Consumption for a Park-and-Pool Facility

Travel Mode	Number of Commuters	Number of Parked Vehicles (Approx.)	Annual VMT Contributions			Annual VMT Required @ 1.25 ppv	Annual VMT Reduction	*Annual Fuel Savings (gallons)
			Home-to-Lot	Lot-to-Destination	Total			
Buspool	3	2.36	7,307	1,492	8,799	32,489	23,690	1,515
Carpool	59	49.17	139,210	213,035	352,245	718,209	365,964	23,400
Vanpool	38	33.93	81,103	52,776	133,879	488,542	354,663	22,677
All Pools Total	100	85.46	227,620	267,303	494,923	1,239,240	744,317	47,592

*Note: Annual Fuel Savings Computation Assume 20.2% of the Park-and-Pool Users Would Drive a Subcompact, Fuel Efficient Vehicle

Table 83. Estimated Reduction in VMT and Fuel Consumption for a Park-and-Pool Facility, By Geographic Setting of Lot

Poolers Traveling	Number of Commuters	Number of Parked Vehicles (Approx.)	Annual VMT Contributions			Annual VMT Required @ 1.25 ppv	Annual VMT Reduction	*Annual Fuel Savings (gallons)
			Home-to-Lot	Lot-to-Destination	Total			
Urban Lots	58	48.33	126,308	107,205	233,513	632,407	398,894	25,505
Urban Fringe Lots	16	14.81	35,051	30,345	65,396	185,893	120,497	7,705
Rural Lots	26	22.61	68,456	68,791	137,247	421,794	284,547	18,194
All Lots (total)	100	85.75	229,815	206,341	436,156	1,240,094	803,938	51,404

*Note: Annual Fuel Savings Computation Assume 20.2% of the Park-and-Pool Users Would Drive a Subcompact, Fuel Efficient Vehicle

83 are presented for only 100 commuters to facilitate comparisons with previous summaries of ridesharing benefits. The slight differences in total values between Tables 82 and 83 are due to rounding of calculations.

Table 84 summarizes the annual VMT reduction and fuel reduction estimates per pooling commuter from each of the geographic settings. Based upon the information supplied by the survey participants, the most dramatic VMT and fuel savings potential exists in rural areas where the average benefits per commuter total almost 11,000 VMT per year or some 59% more than poolers originating in urban areas.

Table 84. Annual VMT and Fuel Reduction Estimates per Commuter

Geographic Setting of Lot	Average Annual VMT Reduction	Average Annual Fuel Reduction
Urban	6,877 per commuter	440 per commuter
Urban Fringe	7,531 per commuter	482 per commuter
Rural	10,944 per commuter	700 per commuter

MAJOR FINDINGS

Considerable information is presented on the personal and travel characteristics of Park-and-Go and Park-and-Pool users in the Fort Worth area. Over 700 commuters responded to questionnaires in this and previous ridesharing studies (1, 2) conducted within the Dallas/Fort Worth region. Some highlights of the data analyses are contained in this section of the report.

Personal Characteristics

Table 85 summarizes the personal characteristics of Park-and-Go (transit) users and of Park-and-Pool users. As shown in the table, the personal characteristics are quite similar. Generally, the Park-and-Go users are predominately female and slightly better educated than the Park-and-Pool participants. Seventy to 80 percent of both user groups are engaged in either professional, clerical or managerial work.

Table 85. Summary of Personal Characteristics of Park-and-Go and Park-and-Pool Participants

Characteristic	Park-and-Go Users	Park-and-Pool Users
Age (years)		
50th Percentile	35.4	36.0
85th Percentile	55.9	51.9
Average (mean)	39.2	38.3
Sex		
Male	43.5%	49.9%
Female	56.5%	50.1%
Years of Education		
50th Percentile	13.7	13.2
85th Percentile	16.8	16.2
Average (mean)	14.5	14.2
Occupation		
Professional	37.8%	32.7%
Clerical	30.9%	24.6%
Managerial	11.5%	15.1%

Travel Characteristics

Table 86 summarizes the principal travel characteristics observed for Park-and-Go users and for Park-and-Pool users. A breakdown of travel parameters by type of pooling activity is presented for the two types of ridesharing facilities in Table 87.

Table 86. Summary of Travel Characteristics of Park-and-Go and Park-and-Pool Participants

Travel Characteristics	Users of Park-and-Go Lots	Users of Park-and-Pool Lots
Prior Mode of Travel:		
Drove Alone	59.3%	49.6%
Carpool/Vanpool	19.0%	35.8%
Did not make trip	9.3%	8.5%
Bus	7.1%	3.6%
Number of Persons in Pool:		
50th percentile	3.77	3.71
85th percentile	14.58	11.29
Average (mean)	7.73	6.18
Distance Traveled: Home-to-Lot (Miles):		
50th percentile	2.4	3.2
85th percentile	8.1	9.1
Average (mean)	4.6	5.4
Distance Traveled: Lot-to-Destination (Miles):		
50th percentile	19.4	23.0
85th percentile	29.6	34.9
Average (mean)	19.8	25.9

As was expected, a higher percentage of Park-and-Go users (7.1% versus 3.6%) traveled by bus prior to their current ridesharing method. However, some 68.6% of Park-and-Go users either drove alone or did not make their trip compared to 58.1% of the Park-and-Poolers. On the average, Park-and-Pool

Table 87. Summary of Travel Characteristics by Type of Pooling Activity for Park-and-Go/Park-and-Pool Facilities

Travel Characteristics	Users of Park-and-Go Lots			User of Park-and-Pool Lots		
	Buspool	Carpool	Vanpool	Buspool	Carpool	Vanpool
Vehicle Occupancy Rates (VOR's)						
Home-to-Lot	1.12	1.20	1.12	1.27	1.20	1.12
Lot-to-Destination	15.26	3.70	12.50	21.00	3.43	9.85
Travel Distances (miles):						
Home-to-Lot Average	3.60	5.55	2.14	6.54	5.72	4.80
Lot-to-Destination Average	12.89	24.79	21.12	22.08	25.02	27.47
Travel Frequency (days per week):	4.79	4.92	5.00	4.73	4.95	4.98
Annual VMT Per Commuter:						
Home-to-Lot	1540	2276	955	2436	2359	2134
Lot-to-Destination	405	3292	845	497	3611	1389
Total Home-to-Destination	1945	5568	1800	2933	5970	3523
Net Reduction (calculated)	4375	6362	7504	7897	6203	9333
Annual Fuel Savings Per Commuter (gallons)	263	383	452	505	397	597

users traveled farther to reach the parking site and farther from the site to their final destination than did Park-and-Go patrons.

Considering only the Park-and-Go users arriving by automobile and parking at the facility, approximately 53% carpool, 40% ride the bus, and 7% vanpool to their final destination. The mode split based upon parked vehicles, however, underestimates the transit patronage by some 35% due to those commuters that walk, get dropped off, or in some other way arrive at the Park-and-Go lot. The travel modes from Park-and-Pool facilities are about 58% carpool, 38% vanpool, 3% buspool, and 1% other. The average (mean) size of all carpools responding to the questionnaires distributed to both Park-and-Go users and Park-and-Pool users was 3.48 persons per vehicle while the average vanpool size was 9.97 persons per vehicle.

As shown in Table 87, significant reductions in annual VMT and fuel consumption may be realized from promoting vanpooling and carpooling activity at Park-and-Go facilities. The two most significant modes for achieving VMT and fuel savings from Park-and-Pool lots appear to be buspools and vanpools. The average commuter using Park-and-Go provides a net annual VMT reduction of approximately 5,650 vehicle miles compared to some 7,440 VMT saved by the average Park-and-Pool user. The difference in the annual VMT reduction per commuter at the two types of ridesharing facilities is due to the longer travel distances associated with Park-and-Pool users.

Considering the geographic location of Park-and-Pool facilities also reveals some interesting findings. The estimated annual savings for a commuter pooling from a rural area amounts to almost 11,000 VMT and 700 gallons of fuel. A commuter traveling from an urban lot is estimated to save some 6,900 VMT and 440 gallons of fuel per year.

Marketing Factors

The most effective ridesharing facilities for reducing the annual vehicle miles of travel (VMT) and energy consumption are Park-and-Pool lots located in rural areas. The most effective modes in achieving VMT reductions from Park-and-Pool lots are buspools and vanpools. As was shown in Figure 23, the primary marketing zone for promoting these types of facilities encompasses some 30 square miles and extends approximately 4.4 miles upstream of the parking lot.

Significant reductions in travel demand may be realized by promoting the use of Park-and-Go facilities by vanpoolers and carpoolers. The primary marketing efforts should concentrate within a 38.5 square mile area, represented by a circle having a radius of 3.5 miles about the parking lot.

Marketing programs for Park-and-Pool facilities should consider the demographics and personal characteristics of the "typical" users such as:

Age (35 to 40 years old);
Sex (evenly split);
Occupation (87% engaged in professional, clerical, managerial, or crafts);
Education (2 to 3 years college).

In addition, such things as how the pools were first organized and how the commuters learned of the parking lot should be included in determining the marketing strategies. Some 88% of the current Park-and-Pool users organized their pool through, or with assistance from, their employer or co-workers. Likewise, a high percentage of users (43.4%) learned of the parking lot from either their employer or co-workers. A marketing program designed to incorporate the employer's participation in promoting Park-and-Pool activity appears to be the most productive approach.

Similarly, marketing efforts to promote carpooling and vanpooling from Park-and-Go facilities should be tailored to the typical user profile:

Age (35 to 45 years old);
Sex (evenly split);
Occupation (83% engaged in professional, clerical or managerial); and,
Education (3 to 4 years college)

Some 58% of the carpoolers from Park-and-Go lots drove alone prior to becoming a ridesharing participant. Fifty-one percent learned of the lot from co-workers or their employer while another 32% noticed others using the parking area. A total of 91.4% of the current carpoolers said their pool was first organized by either their employer or co-workers. The marketing strategies developed for Park-and-Go facilities given the user characteristics, would be similar to those used for Park-and-Pool lots with the exception of the primary and secondary target zones or market areas.

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APPENDIX A

Survey Instruments

- Rideshare Site Investigation Form
- Cover Letter
- Ridesharing Survey Form
- Park-and-Pool Survey Form (Project 205-13)
- Park-and-Pool Survey Form (Project 205-18)
- Park-and-Go User Survey Form (Project 205-19)

RIDESHARE SITE INVESTIGATION

* Parking Area No. _____ County: _____ Setting: _____ Page: _____ of _____

Observer: _____ Park-and-_____ Property: _____ Date: _____

Total Number of Vehicles: _____ Time-of-Day: _____

Survey Form (*-Number-Type)	Vehicle Type				
	SUBC (C)	STD (S)	P.UP (P)	VAN (V)	OTHER (O)
TOTAL BY TYPE					
% TYPE OF ALL					

Location of Parking Area: _____

_____

Signing/Remarks: _____

_____

Lot Surface:

- ☐ Dirt/Grass
- ☐ Gravel
- ☐ Paved-Asphalt
- ☐ Paved-Concrete

Adjacent Land Use:

- ☐ Agriculture
- ☐ Residential
- ☐ Commercial

Improvements:

- ☐ Marked Stalls
- ☐ Wheel Stops
- ☐ Lighting
- ☐ Fenced
- ☐ Trash Containers
- ☐ Telephone
- ☐ Egress/Ingress
- ☐ Signing

Name of Nearest Town: _____

Sketch of Area:

North

Approx. Lot Capacity: Vehicles

STATE DEPARTMENT OF HIGHWAYS
AND PUBLIC TRANSPORTATION
AUSTIN, TEXAS 78763

December 7, 1982

IN REPLY REFER TO
FILE NO.

RIDESHARING SURVEY

The Texas Transportation Institute, Texas A&M University System, is conducting a study of parking areas used by commuters to form carpools, vanpools or buspools. The purpose of this study is to obtain information about your use of, and opinions concerning, these parking facilities. The information obtained from this survey will assist in planning possible improvements to parking areas adjacent to streets or highways for use by ridesharing commuters.

Since only a very small number of these parking areas are being surveyed, your participation is essential to ensure the success of this project.

Please complete the enclosed survey form and return it to us in the postage-paid envelope at your earliest possible convenience. We are grateful for your participation in this transportation study.

Sincerely,

Phillip L. Wilson
State Transportation
Planning Engineer

PLW/prm

Enclosures

Parking Area No.—

RIDESHARING SURVEY

Undertaken by the Texas Transportation Institute, Texas A&M University in cooperation with the Texas State Department of Highways and Public Transportation and the U.S. Department of Transportation, Federal Highway Administration

Dear Driver: We need your help and advice. Please complete this survey and return it in the postage-paid envelope at your earliest possible convenience. We have tried to identify only individuals parked for the purpose of sharing a ride from this location to another destination. If perchance you do not travel from this area to another location, please indicate your purpose for parking here in the comments section on the reverse side. The survey information that you and others provide will assist in planning commuter parking facilities throughout Texas. All information provided will remain confidential.

1. **How many persons (including yourself) arrive at this location in this vehicle?** _____

2. **After leaving your car parked at this location, what was your final destination and trip purpose?**

   City or Place: _____ Destination Zip Code: _____

   Trip Purpose: ☐ Work ☐ School ☐ Other (Specify) _____

   2.a. **How far is it from this location to your final destination?**

   Miles: _____ and, Minutes: _____

3. **How many days per week do you travel from this parking area to your destination by:**

   ☐ Carpool ____days/wk ☐ Vanpool ____days/wk ☐ Bus ____days/wk

   ☐ Other (Specify) _____ ; ____days/wk

4. **How many persons (including yourself) leave in the same vehicle from this location to your final destination?** _____

5. **How long have you been using this parking area?** _____ months

6. **How far do you travel in the morning to reach this parking area?**

   Miles: _____ and, Minutes: _____

   6.a. **Where does your trip normally originate in the morning?**

   Home County: _____ Home City: _____ Home Zip Code: _____

7. **Before you started using this parking area, how did you normally travel from home to your current destination?**

   ☐ Drove Alone ☐ Carpool ☐ Vanpool ☐ Did Not Make Trip

   ☐ Bus ☐ Other (Specify): _____

8. **Do you feel it is safe to leave your car parked at this location?**

   ☐ Yes ☐ No ☐ Not Sure

9. **Does your employer or school provide any incentives for carpools or vanpools?**

   ☐ Yes ☐ No ☐ Not Sure

   9.a. **If Yes, what incentives?** _____

10. **How did you first learn about this particular parking location?**

☐ Friends or Relatives ☐ DFW RIDESHARE Program ☐ Noticed Others Using Area
☐ Co-Workers or Employer ☐ Newspaper ☐ Radio or TV
☐ Highway or Street Sign ☐ Other (Specify): _____

11.a. **What time did you arrive at this parking area this morning?** _____ a.m.

11.b. **What time did you leave this parking area this evening?** _____ p.m.

12. **How did the availability of this parking area effect the formation of your carpool/vanpool or using the bus?**

☐ This parking area had no effect on my use of carpool/vanpool/bus.
☐ I would not be using carpool/vanpool/bus if this parking area was not here.
☐ This parking was one of several factors which encouraged me to carpool/vanpool/bus.

13. **Do you save money by using this parking area?**

☐ Yes If Yes, how much do you save? $_____ per month
☐ No If No, how much do you lose? $_____ per month
☐ Not Sure ☐ No Difference

14. **Do you save time by using this parking area?**

☐ Yes If Yes, how much do you save per day? _____ minutes
☐ No If No, how much do you lose per day? _____ minutes
☐ Not Sure ☐ No Difference

15. **How was your carpool, vanpool or buspool first organized?**

☐ Co-Workers ☐ Classmates ☐ Friends ☐ Employer
☐ DFW RIDESHARE Program ☐ Other (Specify) _____

16. **In deciding to carpool, vanpool or buspool, which one of the following considerations was "most" important to you (please choose only one)?**

☐ Cost of Driving ☐ Cost of Parking ☐ Stress of Driving
☐ Energy Savings ☐ Other (Specify) _____

17. **If you presently carpool or vanpool and if convenient express bus service was provided from this location to your destination, would you prefer to:**

☐ Continue Carpooling/Vanpooling ☐ Ride the Bus

17.a. **About how long has your present carpool or vanpool been organized?** _____ months

18. **How long have you lived at your present address?** _____ Years

19. **What is your current occupation (Please Be Specific)?** _____

20. **How many total years of school have you completed?** _____ 21. **Age:** _____

22. Sex: ☐ Male ☐ Female 23. **We welcome your comments or suggestions:** _____

_____

_____

_____

THANK YOU FOR YOUR TIME AND ASSISTANCE

Park-and-Pool Survey

Undertaken by the Texas Transportation Institute, Texas A&M University
in cooperation with the Texas State Department of Highways and Public Transportation
and the U.S. Department of Transportation, Federal Highway Administration

This questionnaire is designed to be easy to complete and should take no more than 5 minutes of your time. All answers to the questions will remain confidential. Please return this form in the stamped envelope within one week.

1. Before you became involved in Park-and-Pool, how did you normally make this trip?

   _____Drove alone _____Bus
   _____Carpool/Vanpool _____Other

2. How did you learn about the Park-and-Pool lot?

   _____Friend, relative or co-worker _____Radio/TV
   _____Noticed the lot being built _____Noticed the highway sign
   _____Newspaper _____Other, Please specify_____

3. How did this Park-and-Pool lot affect the formation of your carpool?

   _____I would not be carpooling if it were not for this lot.
   _____This lot was one of several factors which encouraged me to carpool.
   _____This lot had no effect on my decision to carpool.

4. In making your decision to carpool, which of the following concerns was most important to you? (Please choose one answer)

   _____Saving money _____Saving energy _____Other, Please specify_____

5. How long have you been participating in the Park-and-Pool program?_____months

6. How many people, including yourself, are normally in your carpool?_____

7. How many days per week do you carpool?_____

8. How did you arrive at the Park-and-Pool lot this morning?

   _____Drove alone _____Dropped off by someone
   _____Rode with someone else who uses Park-and-Pool _____Other

9. What time did you arrive at the Park-and-Pool lot this morning?_____a.m.
   What time did you leave the Park-and-Pool lot this evening?_____p.m.

10. Is there always a parking space available at the Park-and-Pool lot?

    _____Yes _____No

11. Do you feel it is safe to leave your car parked at the Park-and-Pool lot?

    _____Yes _____No

12. How far do you travel to arrive at the Park-and-Pool lot?_____miles. Where does your trip originate? Street address or nearest intersection and City_____

    _____

OVER

13. What is your destination after leaving your car parked at the Park-and-Pool lot?
Street address or building, and City _____.
How many miles do you travel to reach your destination?_____miles.

14. Does your employer provide any incentives for carpools?

_____Yes _____No

If "yes", what incentives are provided?_____

15. Do you save money by using Park-and-Pool?

_____Yes/If "yes", how much do you save? $_____per month

_____No/If "no", how much do you lose? $_____per month

_____Not sure

16. Do you save time using Park-and-Pool?

_____Yes/If "yes", how much time do you save each way?_____minutes

_____No/If "no", how much time do you lose each way? _____minutes

_____Not sure

17. Does not having a car available during the day create a serious inconvenience?

_____Frequently _____Seldom _____Never

18. If Park-and-Ride bus service were provided from this lot to your destination, would you prefer to:

_____Continue to carpool _____Ride the bus

19. How was your carpool formed?_____

_____

_____

20. The State of Texas should spend more tax dollars in developing Park-and-Pool lots.

_____Strongly agree _____Neutral _____Disagree

_____Agree _____Strongly disagree

21. What is your age?_____ 22. What is your sex? _____Male _____Female

23. What is your current occupation, in as specific terms as possible. (Also, please specify if retired, unemployed, student or housewife).

_____

24. What is the highest level of school you have completed?_____

COMMENTS

THANK YOU FOR YOUR COOPERATION.

Parking Area No:_____

PARK-AND-POOL SURVEY

Undertaken by the Texas Transportation Institute, Texas A&M University in cooperation with the Texas State Department of Highways and Public Transportation and the U.S. Department of Transportation, Federal Highway Administration

Dear Driver: We need your advice! Please complete this survey and return it in the postage-paid envelope at your earliest possible convenience. We have tried to identify only individuals parked for the purpose of sharing a ride to another destination. If you do not travel from this parking area to another location, please help us by returning the questionnaire with any comments on the reverse side.

1. **How many persons (including yourself) arrived at this location in this vehicle?**____

2. **After leaving your car parked at this location, what was your final destination and trip purpose?**

   Address, Building or Company:_____ City:_____ Zip:_____

   TRIP Purpose: ☐ Work ☐ School ☐ Other (Specify)_____

2.a. **How far is it from this location to your destination?** Miles:___; and, Minutes:___

3. **How many days per week do you travel from this parking area to your destination by:**

   ☐ Carpool____day/wk ☐ Vanpool____day/wk ☐ Bus____day/wk

   ☐ Other (Specify)_____; _____day/wk

****If you travel by "Bus" or "Other", please skip to Question #8 below****

4. **If you carpool or vanpool to your final destination in the morning, how many persons (including yourself) leave together from this location?** _____

5. **How was your carpool or vanpool formed?**

   ☐ Co-Workers ☐ Classmates ☐ Friends ☐ Employer

   ☐ DFW Rideshare Program ☐ Other (Specify)_____

6. **In deciding to carpool or vanpool, which one of the following considerations was "most" important to you (choose only one)?**

   ☐ Cost of Driving ☐ Cost of Parking ☐ Stress of Driving

   ☐ Energy Savings ☐ Other (Specify): _____

7. **If convenient express bus service was provided from this location to your destination, would you prefer to:**

   ☐ Continue Carpooling/Vanpooling ☐ Ride the Bus

8. **Does your employer or school provide any incentives for carpools or vanpools?**

   ☐ Yes ☐ No

   If YES, what incentives?:_____

(OVER)

9. How far do you travel in the morning to reach this parking area?

Miles:_____; and, Minutes:_____

9.a. Where does your trip originate? Home City:_____ Zip:_____

10. Before you started using this parking area, how did you normally travel from home to your current destination?

☐ Drove Alone ☐ Carpool/Vanpool ☐ Did Not Make Trip

☐ Bus ☐ Other (Specify):_____

11. How did the availability of this parking area effect the formation of your carpool/vanpool or using the bus?

☐ This parking area had no effect on my use of carpool/vanpool/bus.

☐ I would not be using carpool/vanpool/bus if this parking area was not here.

☐ This parking was one of several factors which encouraged me to carpool/vanpool/bus.

12. Do you save money by using this Park-and-Pool location?

☐ Yes If Yes, how much do you save? $ _____ per month

☐ No If No, how much do you lose? $ _____ per month

☐ Not Sure ☐ No Difference

13. Do you save time by using this Park-and-Pool Location?

☐ Yes If Yes, how much do you save per day? _____minutes

☐ No If No, how much do you lose per day? _____minutes

☐ Not Sure ☐ No Difference

14. Do you feel it is safe to leave your car parked at this location?

☐ Yes ☐ No ☐ Not Sure

15. How did you first learn about this Park-and-Pool Location?

☐ Friends or Relatives ☐ Noticed Others Using Area

☐ Co-Workers or Employer ☐ Radio/TV/Newspaper

☐ Other (Specify):_____

16. What time did you arrive at this parking area this morning? _____a.m.

What time did you leave this parking area this evening? _____p.m.

17. What is your current occupation (Please Be Specific)? _____

18. How many years of school have you completed? _____ 19. Age: _____

20. Sex: ☐ Male ☐ Female 21. Please provide comments or suggestions below:

_____

_____

_____

_____

THANK YOU FOR YOUR COOPERATION

Park & Go User Survey

Undertaken by the Texas Transportation Institute, The Texas A&M University System in cooperation with the Texas State Department of Highways and Public Transportation and the U.S. Department of Transportation, Federal Highway Administration

Dear Park & Go User: We need your Help! The purpose of this study is to obtain information about your use of, and opinions concerning, Park & Go Lots to assist in planning future lots. Please answer the questions and give your completed survey form to the bus driver at the end of your trip.

1. **Before you began using the Park & Go service, how did you normally make this trip?**

   ____Drove alone ____CITRAN local bus ____Other
   ____Carpool ____Vanpool ____Did not make trip

2. **How long have you been using the Park & Go service?** _____Months

3. **How did you arrive at the Park & Go lot this morning?**

   ____Drove alone ____Dropped off by someone ____Walked
   ____Rode with someone who also uses Park & Go ____Motorcycle/Bicycle ____Other

4. **What is your final destination and trip purpose?**

   Address, building or company:_____ Zip:_____

   Trip purpose: ____Work ____School ____Other(Specify)_____

5. **How many days per week do you travel from this Park & Go lot to your final destination?** ____Days

6. **If you drove to work instead of using Park & Go, would your employer pay all or part of your parking cost?**

   ____Yes (All) ____Yes (Part) ____No

7. **Does your employer or school provide any incentives for carpools or vanpools?**

   ____Yes ____No

   7a. **If yes, what incentives?** _____

8. **Do you save time using the Park & Go service rather than driving?**

   ____Yes / If "yes," how many minutes do you save one-way? _____Minutes
   ____No / If "no," how many minutes do you lose one-way? _____Minutes

9. **Do you save money using the Park & Go service rather than driving?**

   ____Yes / If "yes," about how much do you save? $_____Per Month
   ____No / If "no," about how much do you lose? $_____Per Month

(OVER)

10. A number of different factors can be important in causing people to use the Park & Go service. Please answer by circling the number which best explains how important the following features are to you in your decision to use Park & Go.

IN YOUR DECISION TO USE PARK & GO, HOW IMPORTANT IS . . .	Not Important		Neutral		Very Important
Not having to drive in traffic congestion	1	2	3	4	5
The rising cost of gasoline and automobile maintenance	1	2	3	4	5
The rising cost of parking at your destination	1	2	3	4	5
Avoiding the stress of driving to and from work or school	1	2	3	4	5
The bus travel time relative to auto travel time	1	2	3	4	5
A reliable bus schedule	1	2	3	4	5
Having direct bus service to your destination	1	2	3	4	5
Frequent bus service during peak periods	1	2	3	4	5
Bus service being available throughout the day	1	2	3	4	5
A bus stop close to your place of work or school	1	2	3	4	5
A bench or shelter close to the bus stop where you wait	1	2	3	4	5
Riding in a new, modern bus	1	2	3	4	5
Riding in a safe, reliable bus	1	2	3	4	5
Always having a seat on the bus	1	2	3	4	5
Having a Park & Go lot close to your home	1	2	3	4	5
Convenient auto access to the Park & Go lot	1	2	3	4	5
Being able to park your car close to the bus loading point	1	2	3	4	5

11. How would you rate your overall satisfaction with the Park & Go service?

____Very satisfactory ____Neutral ____Unsatisfactory

____Satisfactory ____Very unsatisfactory

12. How could the Park & Go service be best improved for you? _____

_____

_____

13. Age? _____ 14. Sex? ____Male ____Female

15. What is your current occupation, in as specific terms as possible. (Also, please specify if retired, unemployed, student, or homemaker.)

_____

16. How many years of school have you completed? _____Years

17. What is your home zip code number? _____

18. What street intersection is nearest to your home?

Intersection of:_____and_____

19. How long have you lived at your present address? _____Years

20. Please provide any comments or suggestions: _____

APPENDIX B

Comments and Remarks by Ridesharing Commuters

Note: Comments/Remarks are taken directly from returned surveys. The parking lot identification code is included for cross-referencing the remark to the specific site at the beginning of each comment. The remarks are organized and presented in the general topic areas of:

- Appreciation of Facility
- Bus/Transit Service
- Suggested Improvements
- Other Type of Remark or Comment

Appreciation of Facility

(Tar-6) It's great that commuter parking facilities are being considered throughout Texas. In question #16, all the considerations were important to me; it was difficult to only choose one. (Q #16: Most Important Reason for Pooling)

(E11-2) I greatly appreciate the availability, convenience and cost (free) of parking. Thank you.

(Tar-16) Keep up the good work.

(E11-2) Really do rely on this car pool. If it didn't exist I would be in bad shape. I feel others would say the same thing. I hope we could get more like it.

(Tar-16) The time I lost per day is negligible, due mainly to waiting for other members to arrive. It is a useful and very worthy program.

(Joh-3) Pooling saves wear and tear on my truck and getting out of the parking lot at work results in many accidents. I rode in the back of a pickup for 2 months just to avoid this.

(Tar-7) Appreciate that the church allows me to park on their parking lot.

(Par-2) Would like to continue to use parking lot or space.

(E11-1) This parking areas provides a great convenience to this car pool, but it also enhances the probability of shopping at Wal-Mart which allows this parking. It would appear to be an advantage to both parties.

(Tar-17) Keep the K-Mart place available for us. It is good.

(Wis-1) I appreciate this parking area, it's convenient, also I feel safe for myself and several others. Otherwise we would have to park on streets or where ever possible.

(Tar-16) Convenient to highway. I like not having to pay to park.

(E11-1) I appreciate Wal-Mart allowing us to use the lot because we do take up shopping spaces but we also shop Wal Mart. Vanpools are part of the answer to the energy crunch.

(E11-1) If this particular parking lot was not there for us, it would be very nice to know that there was a place especially for us commuters instead of a business parking lot. I think this is a good idea.

(HOO-3) Without carpooling, it would be impractical to work in Ft. Worth.

(Tar-16) I appreciate Methodist Church for making the parking lot available to us.

(Tar-3) I'm glad you are taking this effort.

(E11-1) Thank you. I hope everybody is going to complete this questionnaire thoroughly.

(HOO-3) Would appreciate State supported, authorized parking areas.

(Tar-7) It is fortunate that the church allows us to utilize their lot. If the time comes that it is not available--locating another lot would be hard.

(Tar-7) We greatly appreciate Bedford Methodist Church for allowing us free parking privileges and this convenience. However, if my area had a bus schedule (coordinating times needed to and from work) I would be interested in express bus service.

(Tar-7) Hope this will help you.

(Tar-7) I greatly appreciate the courtesy of First Baptist of Bedford, in allowing us to park on their lot.

(Tar-5) Besides saving money and energy, carpooling is so much more convenient. More good parking areas are needed.

(Par-3) Pleased to see a continuing interest in energy saving and cost sharing.

(Joh-1) Its nice to know that somebody is making an effort to please somebody. I wish ya'll much luck. If I can help in anyway get in touch, I'd be more than glad to help.

(Tar-10) We appreciate the free parking area.

Bus Transit/Service

(Tar-12) Overhead monorails from Ft. Worth to Dallas to major airports, downtown areas, adjoining towns, shopping centers etc., is the only logical answer in the DFW area.

(Tar-11) Arlington needs city bus service. Largest city in US without Mass Transit.

(Tar-7) I suggest west bound morning bus 7:10 a.m. departure from the intersection of 157 and Airport Freeway (destination General Dynamics). Possibly one stop in downtown Ft. Worth. I would ride the bus to General Dynamics, if available.

(Tar-8) Bus service, if reasonable, might be perferable, to vanpool.

(Tar-16) I would prefer public transportation if (a) it was punctual (b) it was convenient (c) it saved time, money or my energy.

(Tar-9) Would love to use public transportation or pay a vanpool if there were any available.

(Tar-13) There should be buses from Benbrook.

(Tar-17) I enjoy the convenience and the savings of riding the bus to work.

(Tar-10) Would very much like a bus or van. We three ladies are afraid to drive on slick icy roads in wintertime.

(Tar-7) Would use rapid rail transit, but not a bus on the same crowded highway we now use.

(Tar-7) Bus transportation which includes arrival in Downtown Dallas at 7:45 and departure at 4:00 is excellent.

(Tar-13) Buses, although not perfect, are a step towards solving our traffic problems both now and in the future.

(Tar-13) Buspools should receive support from gas tax. The Park-and-Go lots should be expanded to east and northeast Tarrant County.

(Tar-7) Will continue to use a vanpool with increasing parking lots in Dallas. Would like some type of Mass Transit that travels the route with more frequency. Vanpool limits options and time to/from work.

(Tar-6) I would love to have a bus out that way. Las Colinas would be good if it had different times.

(Tar-7) I would most definitely be interested in riding a bus if my current carpool situation changed. However, I ride with a handicapped person and will continue as long as I am accepted as a rider.

(Tar-15) In answer to question #17, riding the bus would be nice, depending on costs and schedules. (Q #17: Preference for bus service).

(Tar-17) I'm really glad the Southwest Commuter is available (I'd be in trouble without it). Timing is great. I hope it stays in effect.

(Tar-19) Mass Transit is among the most critical needs facing Texas today.

(Tar-16) I certainly hope the buses continue to run, as I do not like to drive to work. I believe the routes could be better scheduled with fewer stops at parking areas instead of individual stops.

(Tar-10) I appreciate your survey, but you should know that the routes to Dallas are becoming so "clogged", that some mass transit is needed badly. I don't think more car/van pools or more highways is the answer. I am considering switching to a park and ride bus @ Arlington Stadium. Reasons - Cost, stress, etc.

(Tar-17) I ride the Fort Worth CITRAN Southwest Commuter Express Bus Service.

(Tar-17) The availability of commuter bus service (one pickup point-one destination only) helped me change a 65 min. ride into a 25 min. ride. This factor, even at greater cost than the normal or express bus service, caused me to chose bus.

(Tar-16) Our carpool is very beneficial and a savings. I would consider riding a bus only if the expense is very reasonable.

(Tar-7) If there was an express bus, I might ride. But in the vanpool I'm in they won't run-off and leave me if I'm a minute late and an express bus would I wouldn't have any other way home.

(Tar-17) My current bus route is in jeopardy of being cancelled by the City due to city council opposition and low ridership. The City has changed the route several times since Sept. This has caused a large drop in ridership on my route. The route is Route #2.

(Tar-16) Our buspool is an excellent transportation means and should be encouraged and expanded into rapid transportation.

(Tar-12) Exercise caution and avoid duplicating recent CITRAN/Ft. Worth City Council bungling of General Dynamics and Bell Helicopter commuter routes which resulted in 50% loss of riders and 22% loss of revenue.

(Tar-16) I was riding the subscription bus to my place of employment until they more than doubled the price. I would really prefer the bus if it was a reasonable price. Our buses were full while the neighborhood buses are not. Ft. Worth even has a number of Trolleys they support that are always empty. The money they spend on the trolleys could support the buses and bring the price down to a reasonable fee.

(Tar-16) Current City Council is trying to discontinue this service claiming insufficient funds, and they have successfully cut it in half in the past 3 months.

(Tar-16) There has been talk of discontinuing the Ft. Worth portion of the Rideshare program - I believe they should continue it.

(Tar-7) The bus company says they have subsidized a bus from here to General Dynamics even if the monthly fare was $50. About $2.50 a day. I can drive 4 times per month for much less than $50. Buses are apparently not very cost effective.

(Tar-16) I like the idea of having parking lots for commuter service and having commuter service for all that want this service but commuter service should be made attractive to the commuters. (Comments below). I first went through this form sort of in a hurry and then I took more time and went over it again and made changes.

> The Ft. Worth City Council has made such a mess out of the Bus Pool that about 50% of our bus riders have quit riding the bus and started driving their own cars.
>
> I feel, as well as a lot of others do, that the city council discriminated against Bell Helicopter and General Dynamics riders by trying to cut our bus service out that were coming to work with a full load and returning with a full load. Several of us have observed many buses being run on routes throughout the city with only two or three riders on some of the buses.
>
> The City Council indicated that we could afford to drive to work without bus service if bus service is only for the very poor or minorities then we should not be taxed for bus funding. We also feel that buses running in any areas of Ft. Worth with only two or three riders should be stopped also we feel that if bus service cannot be provided for all of us on a equal basis then all bus service should be discontinued in all of the Ft. Worth area and that no more tax money should be spent to fund planning for mass transit in the Ft. Worth Area.
>
> The way the buses are running now after so many people quit riding due to the Ft. Worth City Council actions. We have a lot more stops and it takes longer to run the routes.
>
> I feel as well as a lot of others do that no more funding for buses and mass transit should be made unless the attitude of the Ft. Worth City Council can be changed and that the people of this area are assured that bus service and plans for mass transit are for everyone to use if they choose and not for just the very poor and minorities.
>
> I like to ride the bus to work because it is more relaxing than to drive. Also it helps to keep so much traffic off of citystreets. I will keep riding the bus as long as it runs but would feel a lot better about it if things were being handled in a different way.
>
> I'm sure that Ft. Worth will run into a lot of problems if they continue to keep the attitude they have toward riders like employees of Bell Helicopter and General Dynamics when time comes for any voting on mass transit for this area or any other public transportation.

(E11-1) I would think that a bus service would be a great service and one that went to downtown Dallas would need at least 5-6 buses to fullfill the need. There are a great many people from this area who work in Dallas.

(Ell-1) If van pools or bus pools were available at reasonable rates. I would prefer joining one of those. As many people that leave from Ennis to Dallas, would make a bus program feasible.

(Era-1) My wife and I both worked at Glen Rose and rode buses. All buses privately owned. It's the best. There is over 4000 employees at times. Saves money time and less congestion which cause less accidents and saves a lot of gas.

(Hoo-3) This area seems to be open to an express bus to the downtown area of Ft. Worth and I believe it would be used.

(Som-1) A bus would be nice if the travel time were approximately the same as a carpool and vanpool. The area of our parking isn't safe due to theft and vandalism.

Suggested Improvements

(Tar-3) More parking areas at interchanges should be made available.

(Hoo-3) We appreciate any improvements. Sometimes we stick in the mud. Thanks for the new light and gravel. The owner of property has been very unselfish. We should pay him. Need a trash can. Some people litter up with bottles, etc. (I pick up).

(Tar-7) It's too bad more employers cannot offer such a benefit as this. It would cut down on traffic not to mention the energy savings.

(Tar-3) A larger parking lot available like the one at Arlington Stadium for people that use I-30 (we use I-20).

(Tar-5) If possible some type of paving would help, because when it rains, it becomes very muddy.

(Tar-13) This survey relates to present parking area and carpool. In all, I have carpooled from same area to same location about 11 years. Recommend one lane in congested areas, like Ft. Worth East-West Freeway, be limited to vehicles with two or more occupants.

(Som-1) Keep ample parking for carpooling or bus riding. It is a saving and convenience for us who work.

(Tar-9) If the State would buy and pave the present location and designate it as a parking area I would feel more secure about leaving my car here.

(Tar-3) At times large mobile homes are left parked for 1-2 days on the parking areas which creates insufficient area to park the cars. A larger surfaced area is needed as the number of cars parking here has increased over the past year.

(Par-3) Present parking area unmarked and very rough (lots space).

(Tar-11) You will find most church and shopping center parking lots near this location being used by car/vanpoolers. There are no lots strictly for carpool use. The reason my carpool uses this location is that the Arlington Police notified us not to use a shopping center lot nearby for this purpose any longer. There is a real need for car/van pool parking off I-20 in Arlington.

(Tar-17) Employers should encourage Ride-share, especially downtown.

(Joh-1) It would be helpful if we had trash cans and trash pick up. This might keep the beer bottles and cans off the ground.

(Hoo-2) Anything done to parking area would be appreciated by way of improvement.

(Tar-3) It is very difficult to find (safe) parking areas adjacent or near a main route such as in my case. If such areas could be provided, carpooling would probably increase.

(Tar-1) Need a legal parking lot. The present one could be illegal.

(Tar-7) My car has been vandalized 3 times when parked at the Northeast Mall which is highly patrolled. I don't park there anymore. I would like to use a mass transit system and possibly a guard to watch the cars while parked.

(Tar-8) Would prefer a parking and pick-up area in North Richland Hills nearer to my place of residence.

(Tar-3) Nicer and more park and ride areas would be beneficial.

(Par-3) I do not feel comfortable parking at this location. Maybe if there were some kind of lights there, I would not be so afraid to park there.

(Tar-9) I drive from Crowley and meet an employee friend and we ride together with sometimes 2 friends. It would be nice if it was paved and lighted or at least smooth.

(Tar-6) The only setback in parking here is worrying about the security of my car while I am not around.

(Par-3) The people that park in this area would certainly appreciate improvements.

Other Type of Remarks or Comments

(Tar-16) You Aggies invent or reinvent a way so that an individual could at nominal costs afford to keep personal private transportation.

(Tar-5) Cost of driving plus stress has gotten me to use pooling. I've also used and been satisfied with carpooling and riding the bus.

(Par-3) Ride lets us out at front door of plant and picks up there. If I drive, I must park 1/2 miles away and walk in weather.

(E11-2) This parking area is a central pickup point designated by our employer and used by co-workers. We then stop at 2 more designated spots before arriving at final destination.

(Tar-16) My insurance rate is higher because I carpool.

(Tar-9) Must ride with other construction workers to job site who live in area.

(Tar-6) Important problems could be solved by increased carpooling van-pooling or good bus service; problems such as national balance of payments, conservation of national resources, need for additional highways and the resultant taxes, U.S. dependance on foreign oil.

(Tar-6) I feel like I am helping the cause of conserving gas and stopping pollution.

(Hoo-2) I have lived in this area since 1959 and have carpooled all the time.

(Tar-4) On parking at this site - I talked to the manager of Winn Dixie before parking here. I drive to here if I have any errands to run in evening I'm close to grocery, drug store and it saves extra trips back to town.

(Tar-7) If I had completed this questionnaire 6 months ago, my answer on 16 would have been cost of driving, but I have received a new awareness of life today. (Q #16: Most important reason to pool).

(Tar-13) I do not carpool unless you consider my leaving home with my child and dropping him off at school and then driving to Park-and-Go lot.

(E11-2) What are you going to do? Charge us for parking here now?

(Tar-3) On question 8 - My vehicle was stolen from this location and not recovered. (Q #18: Feeling of security at lot).

(E11-1) I have completed 3 years of college - am working on my 4th year at E.T.S.U. Should finish 12/83.

(Joh-3) Need more pressure on companies like "Brown and Root" to encourage car pooling. Brown and Root has done the worst job of parking encouraging carpooling of any company I have worked for.

(Tar-7) We were using North East Mall, but there was too much theft going on to the car while we were at work.

(Tar-7) Ride share moved to Watauga. This location made it more convenient for her as she had been leaving the freeway to come to my house.

(Tar-11) This is my 4th carpool spanning some 6 years. Max of riders for a successful carpool is 3 with 4 being maximum. I have had 2 occasions with 2 people sharing rides that have a harder time of working out than do 3-4 people.

(Tar-8) We used K-mart parking lot from inception until 1 month ago, and we asked to refrain while lot was being torn up and resurfaced. We expect to return to that location (1500 block W. Pipe Line Rd) ASAP.

(E11-1) If taxes keep increasing from every aspect, persons having to commute such great distances to work should be given some sort of break on expenses rather than charged commuter taxes as some cities are proposing to do. At least we are attempting to provide financial support for our families and are not asking the government to take care of us and our families as so many are doing. I firmly believe there is work (maybe not the best jobs or the best pay) for anyone who truly wants to work. I know this is straying from the issue you are addressing but there needs to be new legislation introduced that taxes the corporations instead of cuts them free at every angle and takes so much from the working class people who need it the most. Where is the real justice in all that!!!

(Tar-3) I was just grateful this wasn't a ticket. We've never been sure we were parking legally in this lot.

(Tar-6) I vanpool to save money on gas, wear and tear on car, and the stress from rush hour traffic. It does not save any time. In fact I probably waste over an hour both ways, total.

(Par-1) Were it not for a reasonably safe place to park my car, I would be driving daily by myself.

(Tar-7) Car pool can establish deeper friendships.

(Hoo-2) I think carpooling is much safer, more economical and safer. The fewer cars on the road, the better.

(Par-2) Area convenience: Rider lives up this road 2 miles. I live north of W. Ford (US 80).

(Tar-7) Two of us leave this parking, continue to Irving, pick up one more, then end in Downtown Dallas.

(Tar-1) Having a place to park that is free and convenient encouraged me to car pool.

(Tar-6) Leave everything like it is at this location.

(Tar-15) Why shouldn't parking space be used when it is tax payers paying for it. I am senior citizen trying to keep working. I could not work and pay parking. I share a ride. If I am charged I might as well stay at home.

(Tar-1) I can drive and ride in the carpool cheaper than riding alone and/or bus.

(Tar-11) If gasoline keeps going up, there will be more carpoolers.