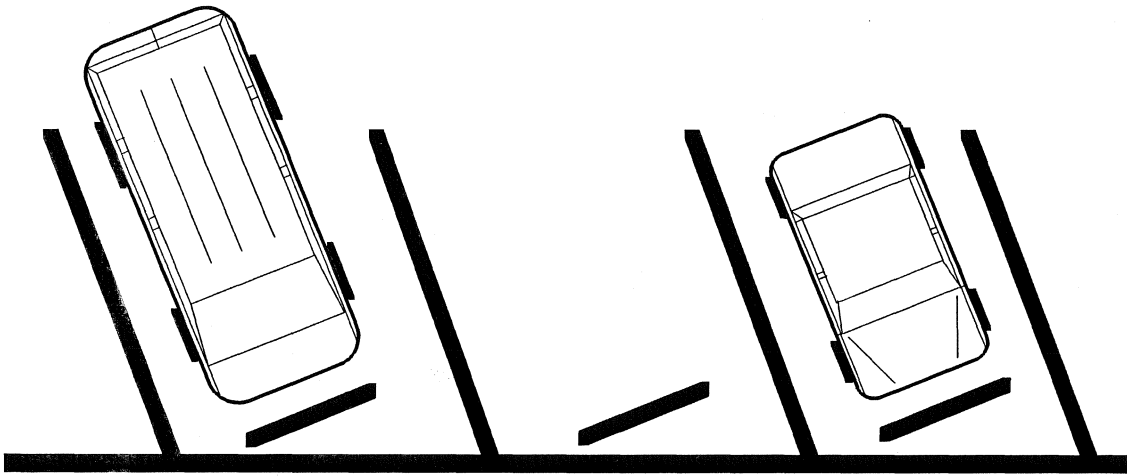


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# **REGIONAL ANALYSIS OF PARKING**

## **FINAL REPORT**



**DELAWARE VALLEY REGIONAL PLANNING COMMISSION**

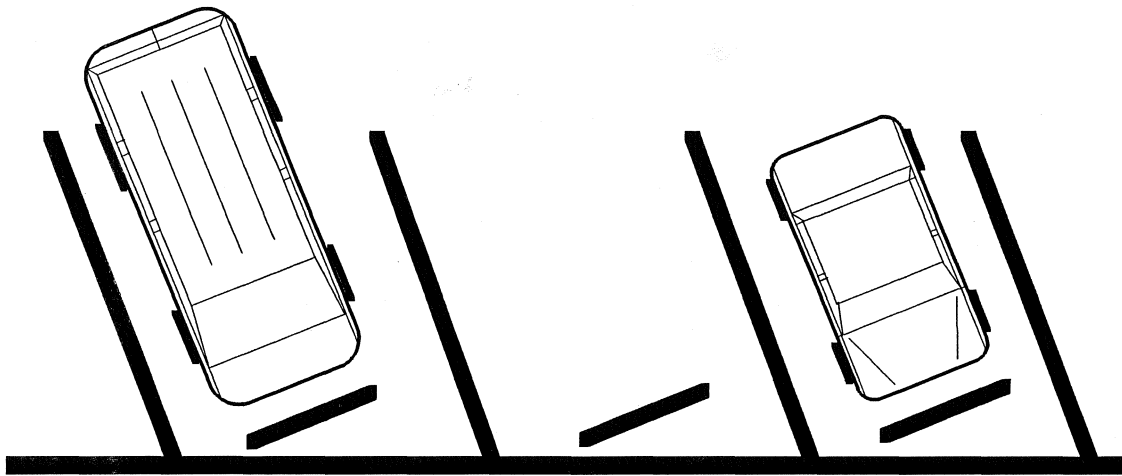
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# **REGIONAL ANALYSIS OF PARKING**

## **FINAL REPORT**



**November 1993**



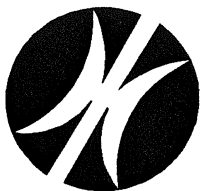
**DELAWARE VALLEY REGIONAL PLANNING COMMISSION**

**The Bourse Building, 8th Floor  
21 South 5th Street, Philadelphia, PA 19106**

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*Created in 1965, the Delaware Valley Regional Planning Commission (DVRPC) is an interstate, intercounty and intercity agency which provides continuing, comprehensive and coordinated planning for the orderly growth and development of the Delaware Valley region. The region includes Bucks, Chester, Delaware, and Montgomery counties as well as the City of Philadelphia in Pennsylvania and Burlington, Camden, Gloucester, and Mercer counties in New Jersey. The Commission is an advisory agency which divides its planning and service functions among the Office of the Executive Director, the Office of Public Affairs, and three line Divisions: Transportation Planning, Regional Information Services Center, which includes the Office of Regional Planning and Finance and Administration. DVRPC's mission for the 1990s is to emphasize technical assistance and services and to conduct high priority studies for member state and local governments, while determining and meeting the needs of the private sector.*



*The DVRPC logo is adapted from the official seal of the Commission and is designed as a stylized image of the Delaware Valley. The outer ring symbolizes the region as a whole while the diagonal bar signifies the Delaware River flowing through it. The two adjoining crescents represent the Commonwealth of Pennsylvania and the State of New Jersey. The logo combines these elements to depict the areas served by DVRPC.*

# DELAWARE VALLEY REGIONAL PLANNING COMMISSION

## Publication Abstract

<b>TITLE</b>	<b>Date Published:</b> 1993
Regional Analysis of Parking	<b>Publication No.</b> 93038

### Geographic Area Covered:

Southeastern Pennsylvania: Bucks, Chester, Delaware, Montgomery, and Philadelphia Counties

### Key Words:

Parking, Surface Parking, Garage Parking, Underground Parking, Parking Management Programs

## ABSTRACT

*The purpose of this study was to acquire better and more comprehensive parking data for southeastern Pennsylvania. Employers and parking facility owners/operators were surveyed to obtain information on their facilities and on parking management programs. Major findings from these surveys and information on parking management programs from other areas of the country are presented.*

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## EXECUTIVE SUMMARY

Comprehensive data on parking facilities and parking management programs in southeastern Pennsylvania is sparse. The purpose of this study was to acquire better and more comprehensive parking data.

The Delaware Valley Regional Planning Commission surveyed employers and parking facility owners/operators in southeastern Pennsylvania. All employers with one hundred or more employees were surveyed. The employer and parking facility questionnaire requested information on (1) quantity and use of parking, (2) cost of constructing, maintaining, and operating the parking facilities, and (3) current and future use of parking management programs, among other things. Parking management programs include preferential spaces for car pools and van pools, parking fees, reducing the amount of parking provided, and travel allowance programs.

There are several major findings from the employer survey:

- \* Very few employers know how much it cost to build, maintain, and operate their parking facilities. Only 31 percent of the survey respondents (less than 7 percent of employers who received the questionnaire) answered this question.
- \* Almost three-quarters of the respondents do not have any parking management programs.
- \* Almost three-quarters of the respondents do not have any interest in implementing any parking management programs.
- \* Very few employers (only 9 % of respondents) currently charge their employees a fee for parking.
- \* Fifty-six respondents intend to build over 13,200 new parking spaces. Assuming all southeastern Pennsylvania employers of 100 or more employees have needs for more parking in the same proportion as the respondents, approximately 41,000 new spaces will need to be constructed, at a total cost of \$825 million.
- \* The respondents provide 0.8 parking space per employee.

This report also presents information on parking management programs that are being implemented in other areas of the country:

- \* Education programs oriented towards employers, developers, commuters

who use parking facilities, and local governments to inform the public about the true costs (direct and indirect) of parking facilities, the problems associated with the status quo, and the merits of parking policy reform.

- \* Programs to encourage local governments to revise zoning and land development ordinances so as to reduce the amount of parking required.
- \* Programs to encourage all employers and developers to provide preferential parking spaces for car pools and van pools.
- \* Programs to encourage widespread use of transportation allowance programs.
- \* Programs to provide tax incentives to employers and developers who implement parking management programs/establish a regional parking tax.
- \* Comprehensive travel demand management programs to supplement parking management programs.

## CHAPTER I

### INTRODUCTION

There is very little comprehensive data available on parking facilities and parking management programs in the Delaware Valley region. Other than downtown Philadelphia, this data is almost non-existent in the five counties of southeastern Pennsylvania.

The purpose of this project is to begin establishing a database about regional workplace parking practices, availability, costs, subsidies, and employer contributions to employee parking. Employment sites and parking facilities in the Pennsylvania portion of the DVRPC region were surveyed in order to obtain this type of information. This project will provide valuable information to the Travel Demand Management programs that will attempt to increase the regional vehicle occupancy rates, reduce traffic volumes and air pollution, and improve our health. It will also give planners and decision-makers the ability to understand the nature of employer provided transportation subsidies.

Many observers believe that one of the major contributors to our society's widespread use of the single occupant automobile is the widespread availability of cheap and plentiful parking. In fact, throughout suburbia, parking is usually free to drivers. Parking facilities are expensive to build and maintain, but those costs are often folded into building or office lease costs and hidden. If these hidden costs and the costs of more efficient ways of traveling (such as ridesharing, using transit, bicycling, and walking) were well-known, it is probable that our society would create a friendlier atmosphere for these alternative modes of travel.

A recent federal law, the Clean Air Act Amendments (CAAA) of 1990, broadens the regulation of activities that pollute the air to include the daily commute in the eight metropolitan areas with the worst air pollution. The four-state Philadelphia region is one of these eight areas. The CAAA requires employers of 100 or more employees in those areas to reduce the number of vehicles used by employees to commute to work. The employers must implement programs that will increase the average vehicle occupancy of their employees' commuter vehicles. In other words, they will have to encourage more efficient modes of travel like ridesharing, transit use, bicycling, walking, and telecommuting.

One of the actions employers can take to encourage more efficient commuting is to more effectively manage parking. By treating parking as an expensive resource, employers, developers, property managers, and municipalities can discourage single occupant vehicle commuting. Parking management programs include (1) preferential spaces close to the office or factory door for car pools and van pools, (2) parking charges, especially for solo drivers, (3) a reduction in the amount of parking provided, accomplished voluntarily or through zoning ordinances, and (4) travel allowances which

employers give to each employee in conjunction with a parking charge of the same amount for solo drivers. Other programs, such as a guaranteed ride home, car pool matching, and midday shuttles should be provided as incentives and support when parking management programs are implemented.

Parking at the workplace is generally subsidized by employers, even encouraged through local development ordinances. Information about local parking policies is sketchy and cannot be considered in the development of other employer provided transportation programs such as employer transit subsidies, van pool and car pool programs, and paratransit services.

This project attempts to begin providing more dependable parking information. It is composed of four elements: (1) an employer survey, (2) a parking facility owner/operator survey, (3) interviews of property managers and other people involved with parking issues, and (4) collection of existing parking data. The project had these elements in order to obtain a wide range of information and opinions about parking facilities and parking management programs. In addition to describing these four elements, this report will also make recommendations about parking management programs and support programs that can help the states and the region develop policies and programs to support the delivery of a balanced cost-effective transportation system that contributes to the achievement of CAAA and Intermodal Surface Transportation Efficiency Act objectives.

## CHAPTER II EMPLOYER SURVEY

DVRPC surveyed major employers in the five-county Pennsylvania portion of the DVRPC region in the Spring of 1993. The survey was undertaken to (1) identify the location and quantity of employee parking facilities at selected employment sites, (2) identify parking prices, employer provided parking, and the level of employee parking subsidies at selected employment centers, (3) determine the value of paid and subsidized parking at these employment sites, and (4) determine the willingness of employers to begin parking management programs such as preferential parking for car pools and van pools or charging a parking fee.

The questionnaire (see Appendix A) was mailed to 2367 employers with 100 or more employees as identified by the Dun & Bradstreet employer directory. Seventy of these survey forms were returned by the U.S. Postal Service because the address was incorrect or the company relocated, and 490 questionnaires were completed and returned. Disregarding the questionnaires returned by the Postal Service, 21% of the questionnaires were completed and returned.

### QUESTIONNAIRE RESPONSES AND ANALYSIS

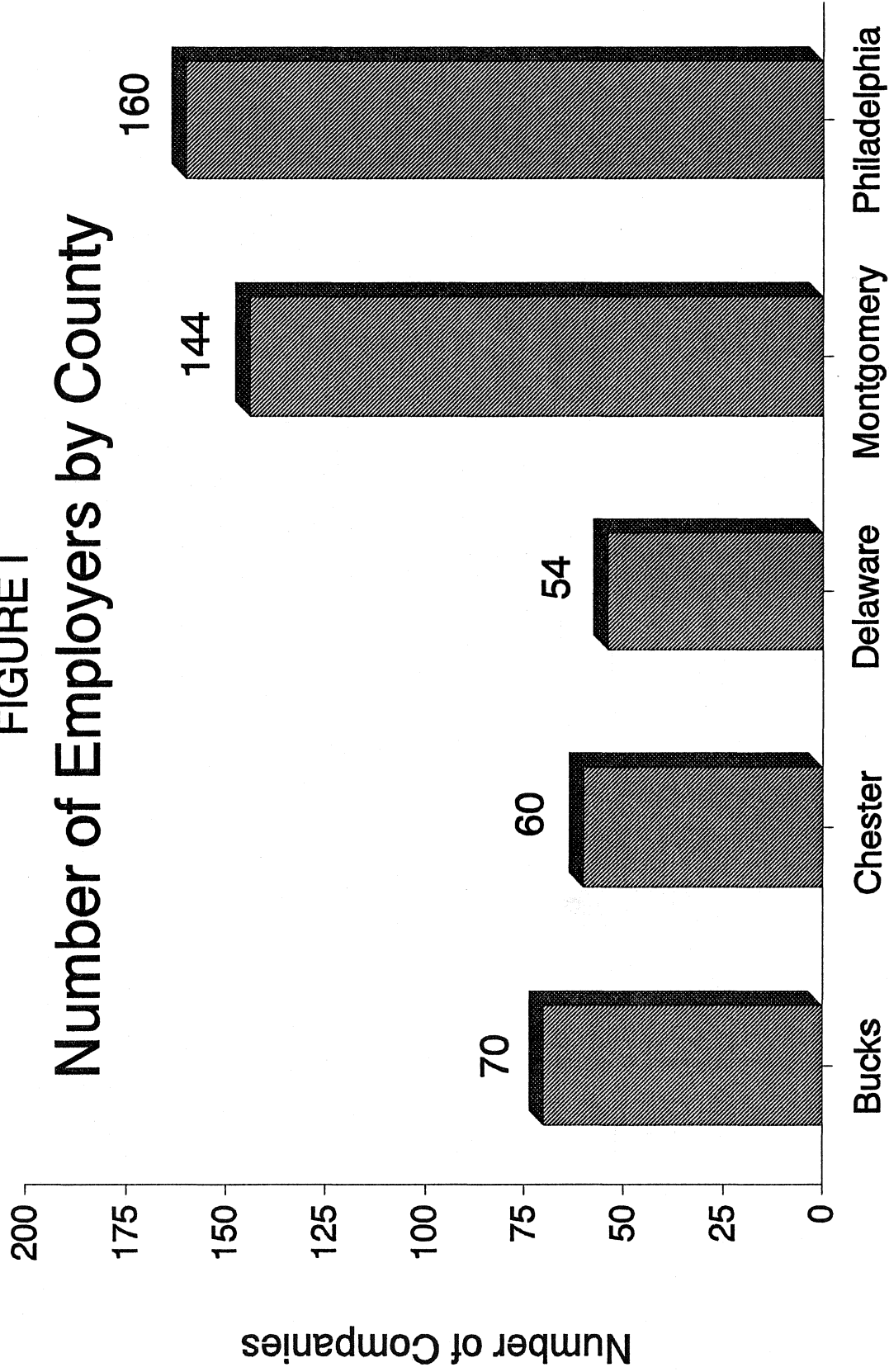
#### Question #1 - Identification

Name, Title, Name of Company, Street Address, City, State, Zip Code, and Phone Number

The distribution of employers who returned questionnaires by county is indicated in Figure I. The largest percentage of employers (one-third) is located in Philadelphia, with 30% located in Montgomery County, and the remaining 37% spread among Bucks, Chester, and Delaware Counties.

The county distribution of employees working for firms who responded to the survey is indicated in Figure II. Almost half (48%) of the employees work in Philadelphia, with the four suburban counties splitting the remaining 52%. This distribution of employees is very similar to the overall distribution as reported in the 1990 Census (Philadelphia 43%, Montgomery 23%, Delaware 12%, Bucks 12%, and Chester 10%). Therefore, the survey is balanced and representative in regards to the geographic distribution of employees.

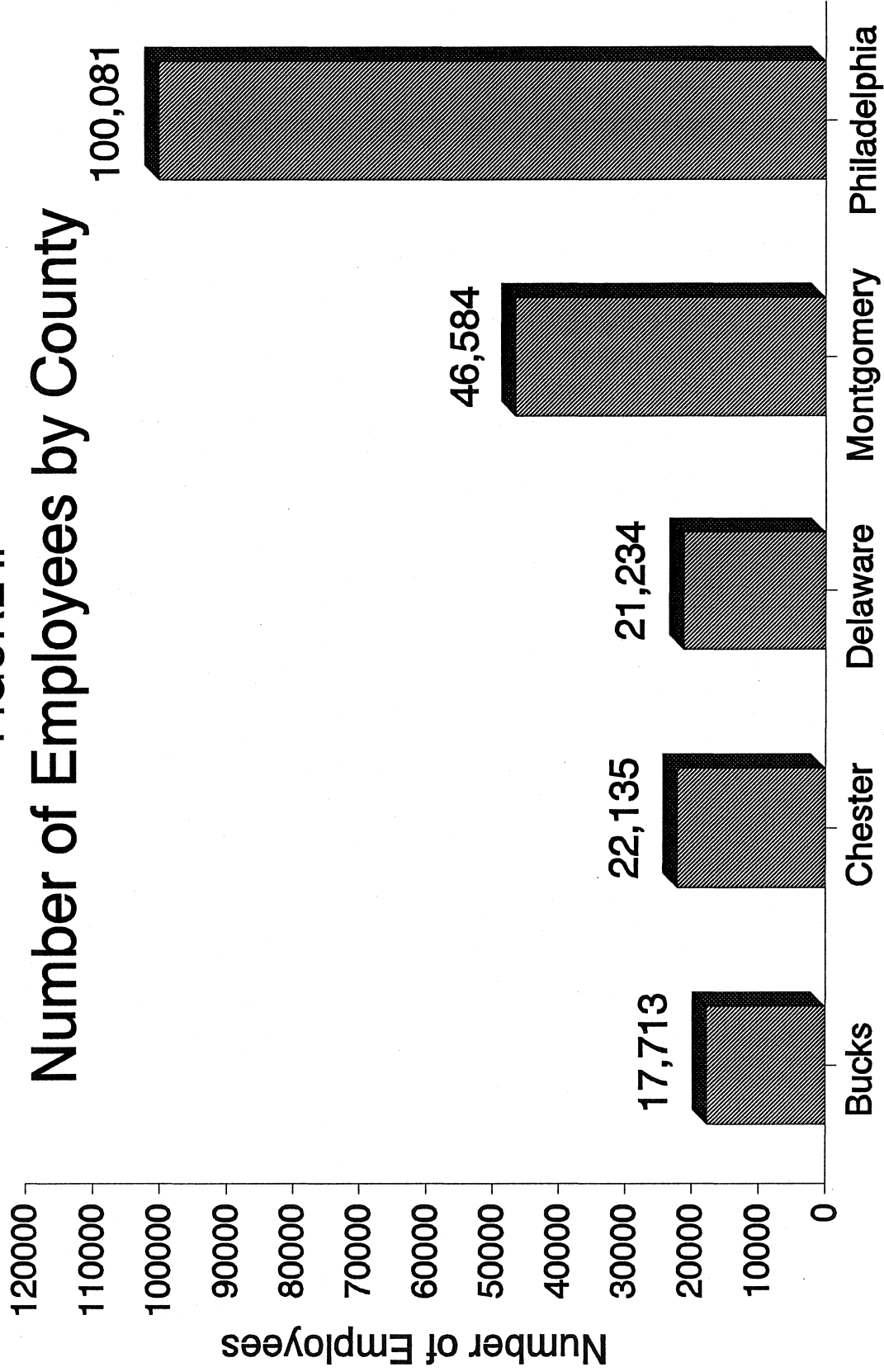
**FIGURE I**  
**Number of Employers by County**



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**FIGURE II**  
**Number of Employees by County**



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## Question #2 - Description of Company - 483 Respondents

	Employers	Employees
Agriculture	1	200
Mining	0	0
Construction	5	314
Manufacturing	122	41,311
Transportation/Communications	15	4,839
Wholesale	7	1,273
Retail	24	6,043
Finance	21	10,990
Services	91	21,245
Government	32	27,027
Other	165	94,910

More than 50% of the respondents characterize themselves as service companies (See Figure III); many of these organizations checked the "other" category. These companies include hospitals, nursing homes, schools, and restaurants. Approximately 25% are manufacturing firms. The remaining respondents are dispersed among the financial, retail, and governmental categories with very few employers in the wholesale, construction, agriculture, and mining fields.

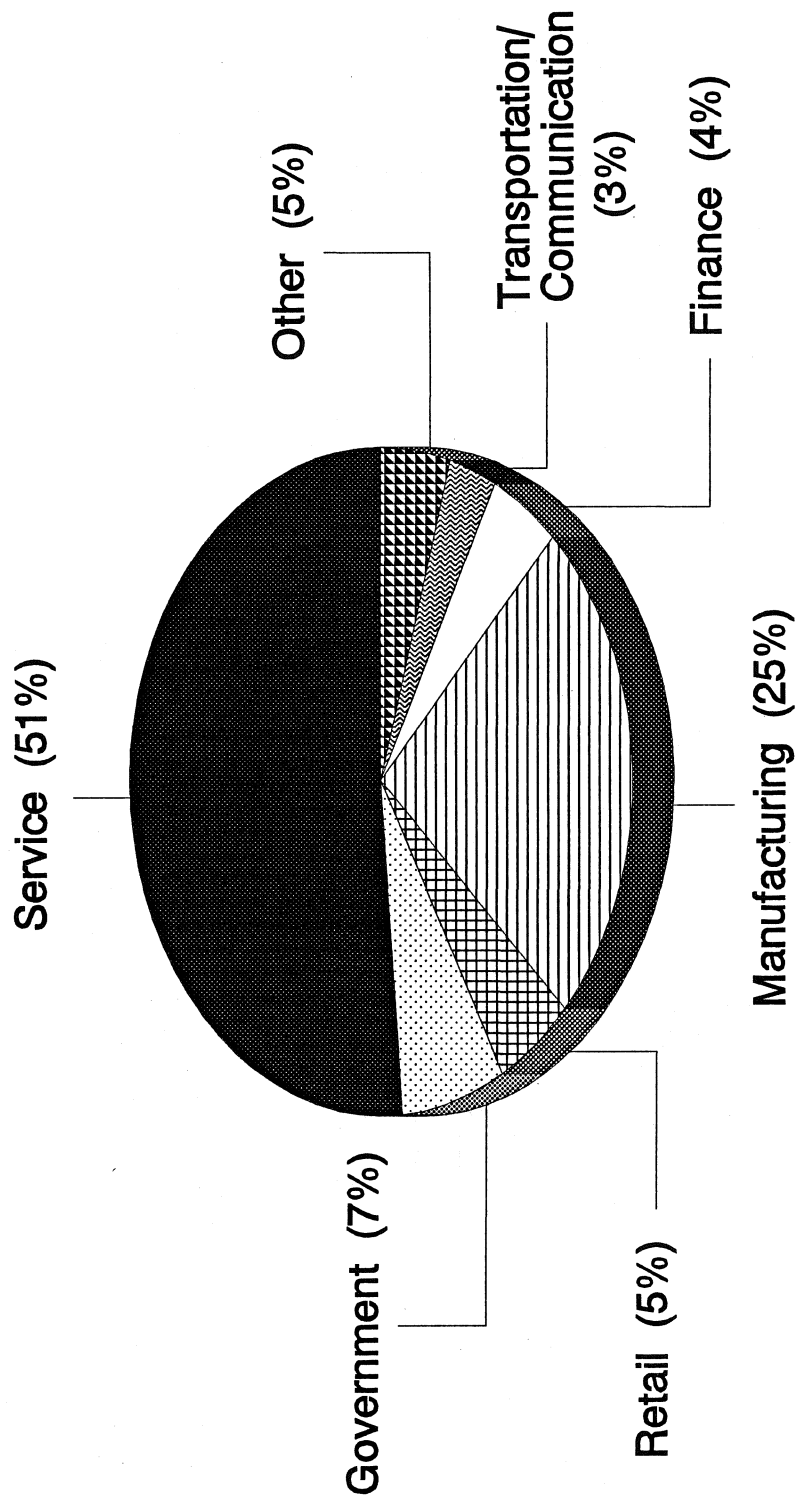
The distribution of the number of people employed by those surveyed in each of these industrial categories is shown in Figure IV. Forty-five percent of the respondents marked the "Other" category. Because of this, the employee distribution in this survey differs somewhat from the employee distribution in the general population of employers with 100 or more employees. The differences are most significant in four classifications: Finance (survey distribution 10.9%, general distribution 5.3%), Government (survey 6.9%, general 12.9%), Retail (survey 7.8%, general 2.9%), and Services (survey 43.8%, general 10.2%). All of the other classifications differ by three percent or less. As noted above, many of the respondents who checked the "Other" category are service organizations of one type or another; this will reduce the service discrepancy significantly.

## Question #3 - Floor Space - 427 Respondents

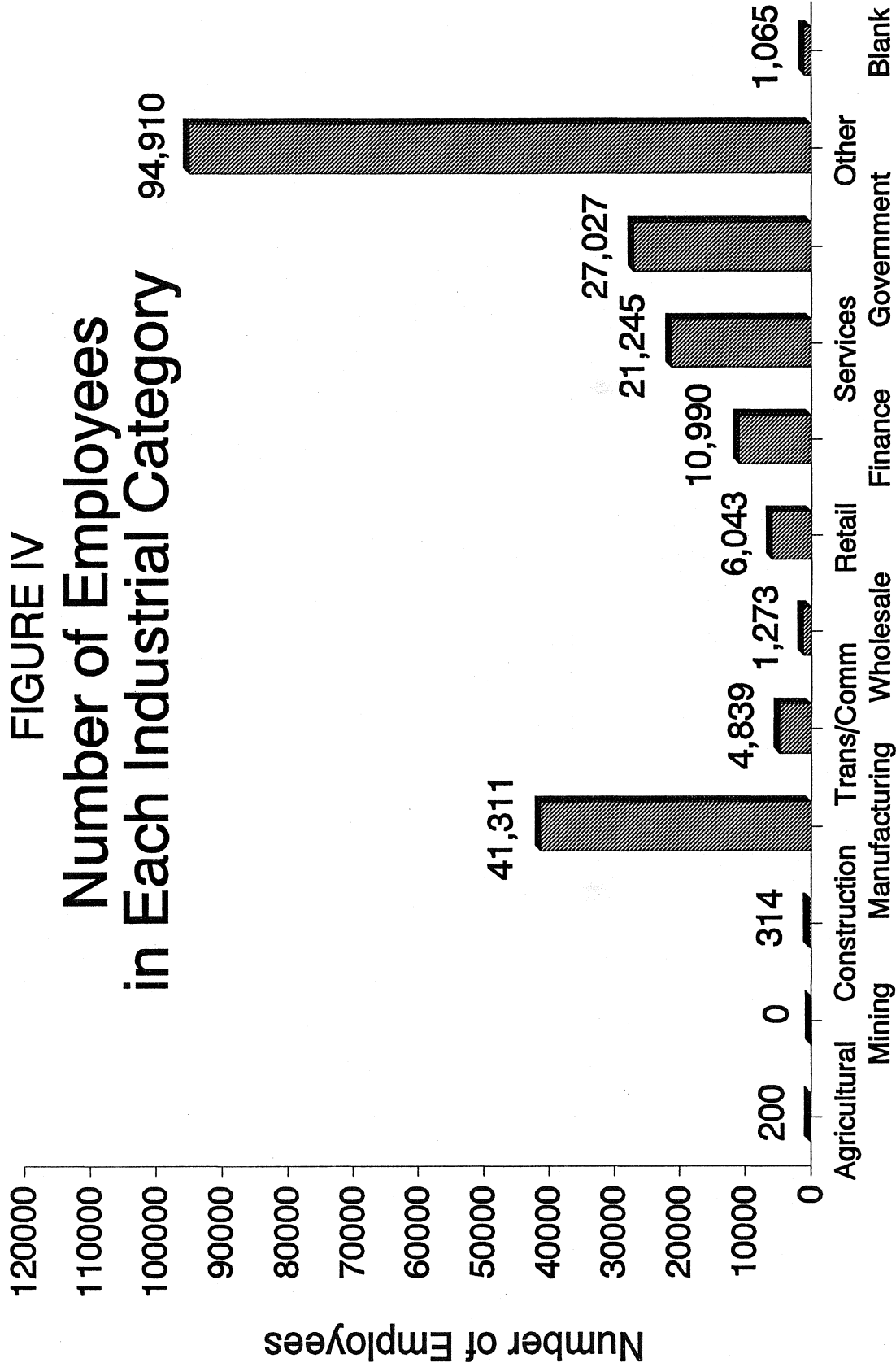
Range of Floor Space : 650 - 10,000,000 Square Feet

The survey respondents included companies of all sizes ranging from 650 square feet to 10 million square feet of floor space. Most of the respondents have between 150,000 and 500,000 square feet of floor space. See Figure V for the distribution of respondents by floor space. Figure VI shows the number of employees in each category of company size. The respondents represent a broad distribution of employers by floor area and work force size.

**FIGURE III**  
**Description of Company**



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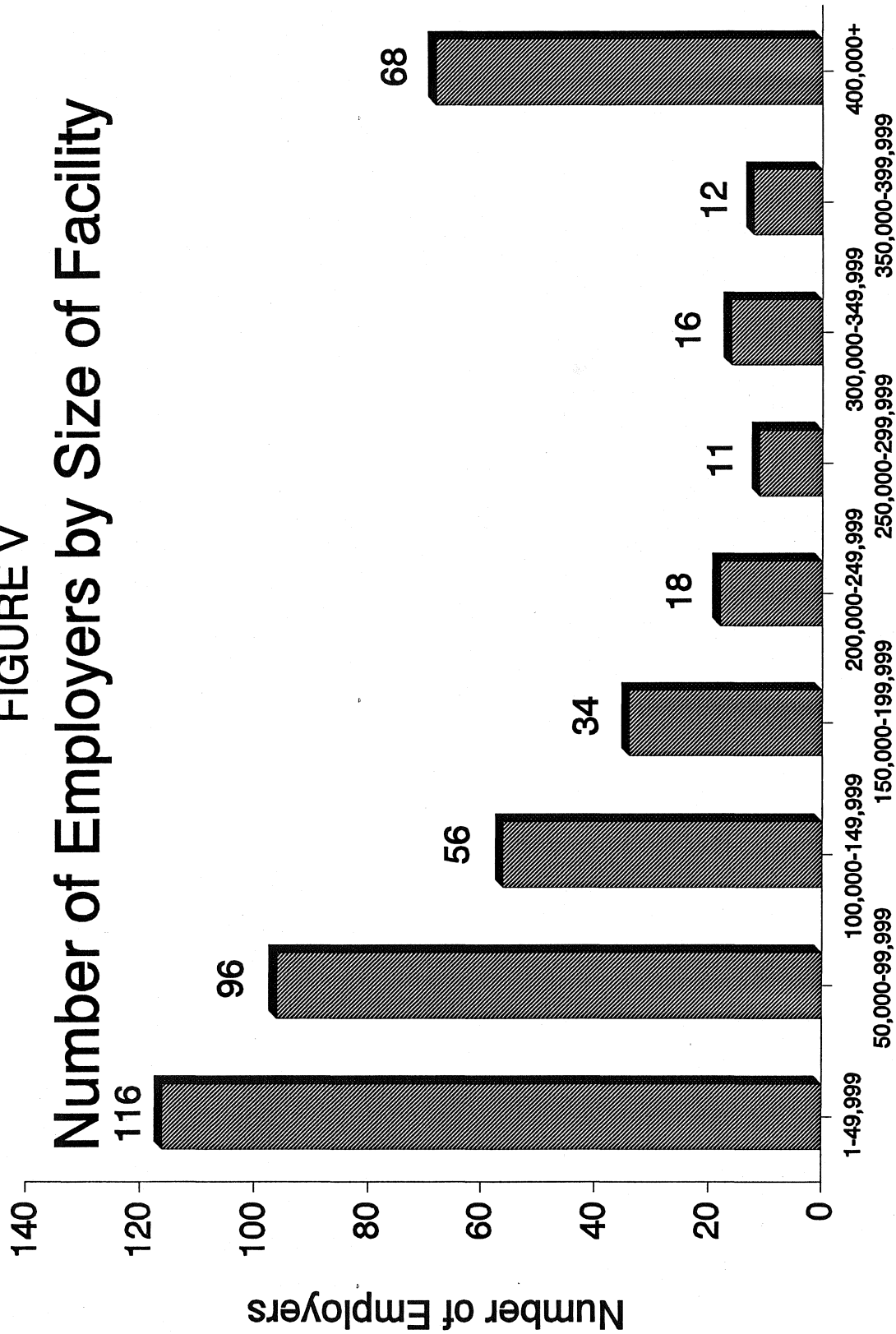


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Type of Company

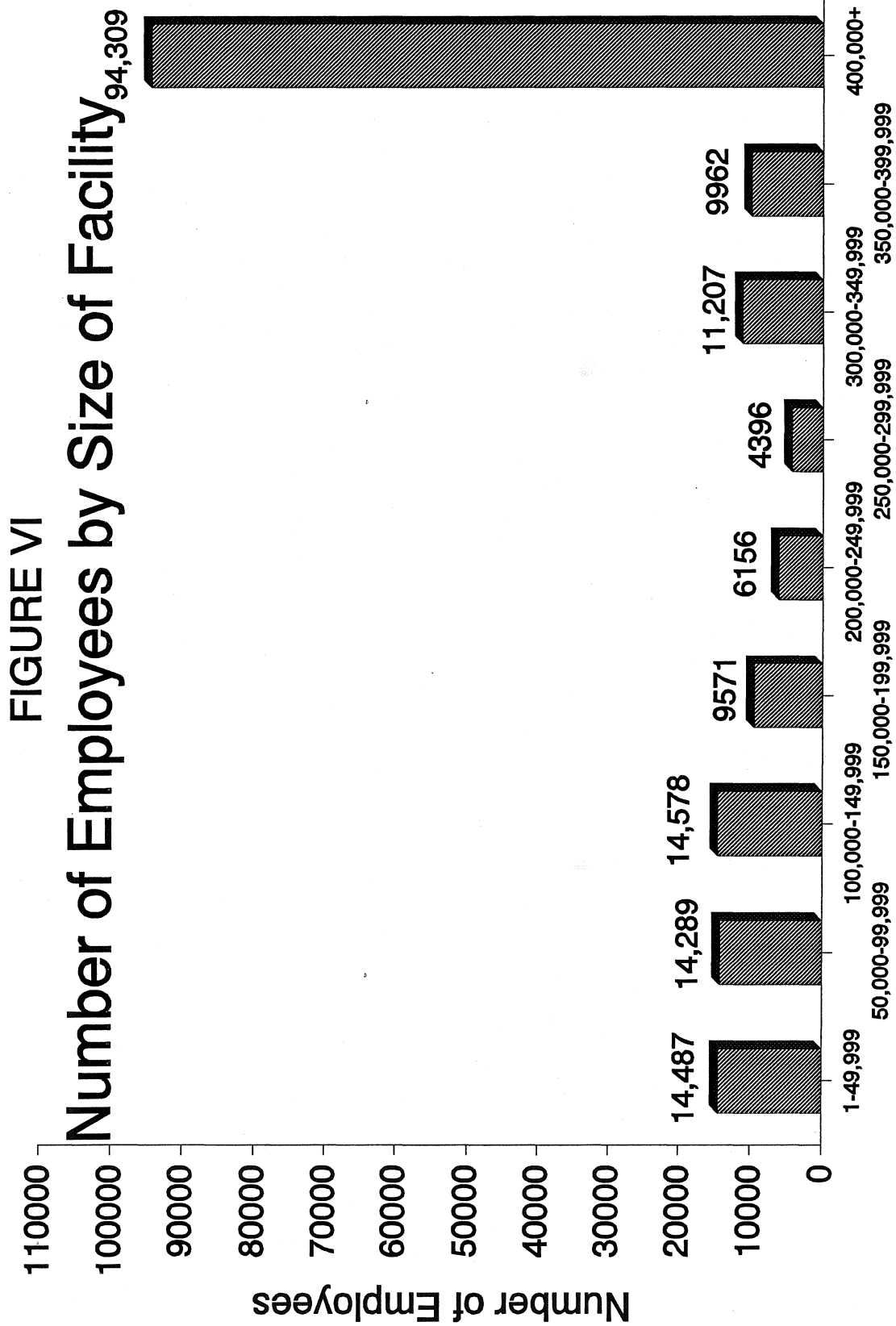
**FIGURE V**  
**Number of Employers by Size of Facility**



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Square Feet



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Square Feet

Figure VII indicates the floor space allocated to employees by company size category. The companies with the smallest floor area have the highest density of employees or the least space allocated to each employee.

Figure VIII indicates the square feet of office space per parking space. The density of parking spaces ranges from one parking space per 298 square feet of office space or 3.4 parking spaces per 1,000 square feet of office space (at companies with less than 50,000 square feet of office space) to one parking space per 1,266 square feet of office space or 0.8 parking space per 1,000 square feet of office space (at companies with between 250,000 and 300,000 square feet of office space). The Urban Land Institute has researched suburban office building parking characteristics and determined that there is an average parking ratio of approximately 2.5 parking spaces per 1,000 square feet of occupied floor area. (The demand ratios varied from 1.6 to 3.4 spaces.)

Question #4 - Number of Employees - 480 Respondents

The Total Number: 209,217

Range of Employees: 1 - 17,500

The number of employees working at the respondents' companies varied considerably (See Figure IX). The responses range from one to 17,500 employees with the average being 416. (Obviously, some companies had down-sized or the Dun & Bradstreet data on company size was incorrect.) The largest workforce (17,500 employees) is the only company with over 7500 workers.

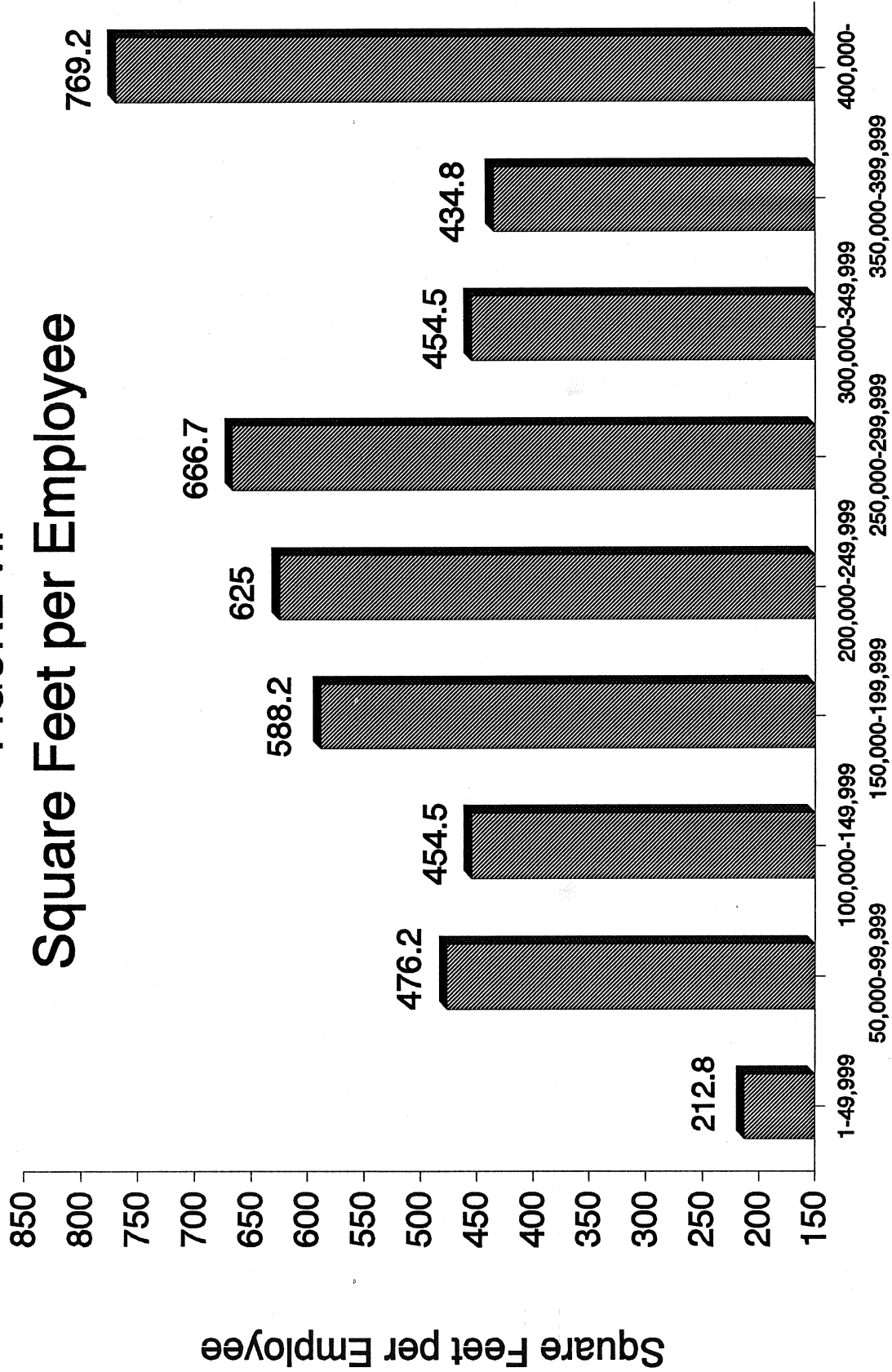
Figure X indicates the number of employees per parking space in each industrial category. Retail establishments have only .358 employee per parking space since most of retail parking space is for customers. At the other end of the scale, transportation and communications firms have over 1.7 employees per space and service companies have about 1.6 employees per space.

There is 634.5 square feet for each employee at the respondents' firms. Only the data from respondents who answered questions #3 (amount of floor space) and #4 (the number of employees) were used to calculate this number. The total amount of office space for all of the respondents is 113,545,461 square feet. These respondents employ 178,955 employees.

Question #5 - Parking Spaces Available - 435 Respondents

Most respondents (95%) have a surface parking facility with an average of 359 spaces. Only 5% of the respondents have a parking structure or an underground parking facility at their location. The average number of spaces for the structures is 588 and the average for the underground facilities is 171 spaces. Table I indicates the total parking spaces by type of facility.

**FIGURE VII**  
**Square Feet per Employee**



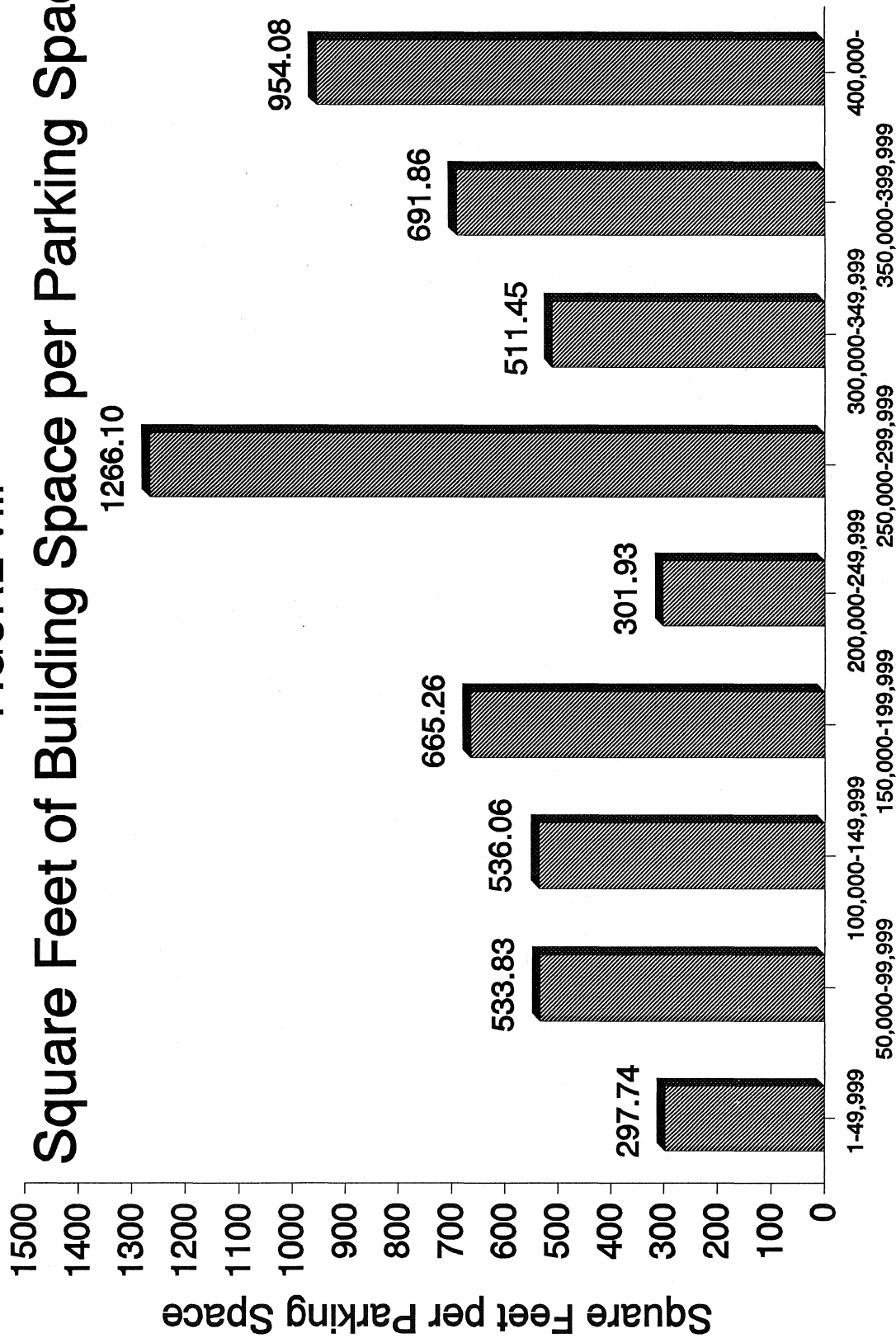
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**Square Foot Category**



**FIGURE VIII**  
**Square Feet of Building Space per Parking Space**

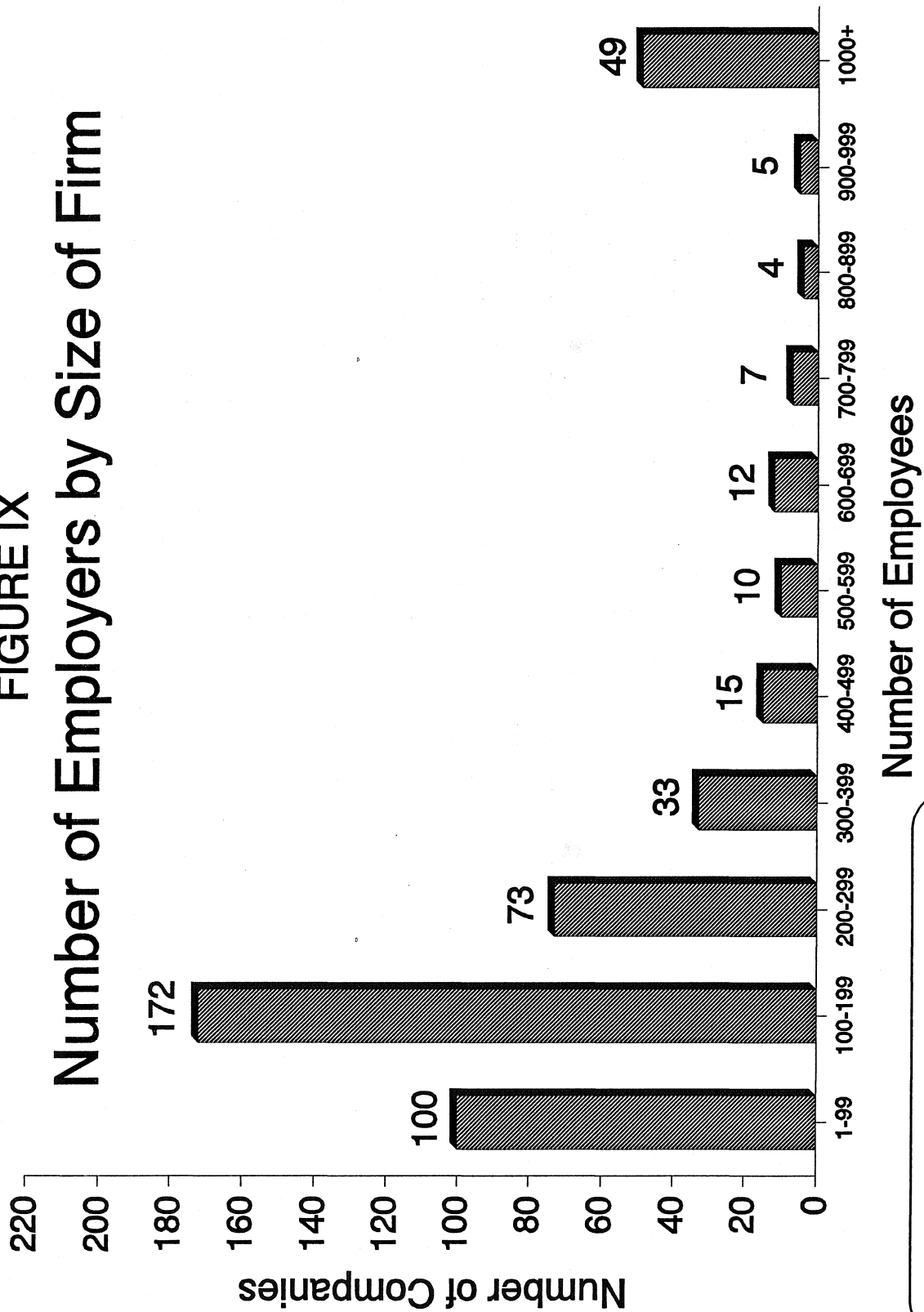


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**Square Foot Category**

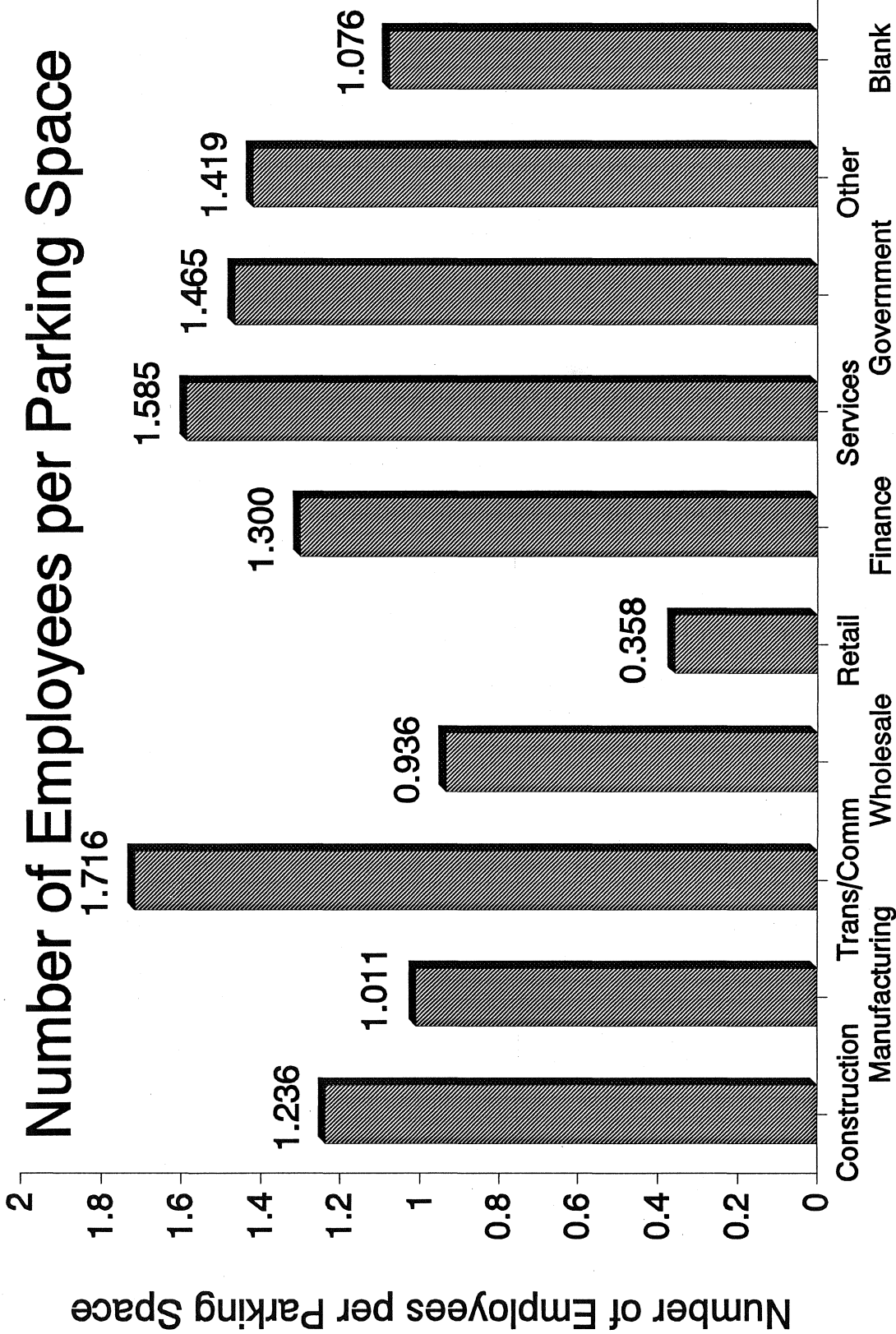
**FIGURE IX**  
**Number of Employers by Size of Firm**



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FIGURE X



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Type of Company

NOTE: Agricultural and mining companies do not have any parking space available so these categories are not applicable.

The respondents provide 0.802 parking space per employee. The data from both the respondents who have and do not have a parking facility were included in this calculation. The respondents have a total of 170,479 parking spaces and 212,570 employees.

TABLE I Total Parking Spaces by Type of Facility			
Number of Facilities		Number of Parking Spaces Owned*      Leased*	
Surface Total	413	148,236(Total)	
Own*	287	107,258	
Lease	23	4,896	
Structure	30	17,626	
Own	21	16,538	
Lease	4	662	
Underground	24	4,097	
Own	9	1,961	
Lease	9	247	
Other		520	

\* Owned and leased totals include only employers who only own and only lease, not those who both own and lease; this is why number of owned spaces plus number of leased spaces do not equal the total number of spaces.

Question #6 - Uses of Parking Spaces - 468 Respondents

Employer Responses (respondents could check more than one use):

Offices	330
Sales Representatives	146
Visitors	344
Hotels	13
Parking for employees of other firms to commute to another worksite	17

Many companies use their parking for a variety of reasons (See Figure XI). Respondents could check more than one use so the sum of the responses is more than the number of respondents. Parking for visitors (74%) and offices (71%) were the most common uses cited. A little more than half (53%) of the respondents checked the "other" category, and 31% use their parking spaces to accommodate sales representatives. Less than 4% allow their parking to be used by employees of other firms commuting to another work site, and less than 3% of respondents have parking facilities for hotel uses.

Question #7 - Current Parking Management Programs - 133 Respondents  
Employer Responses (Employers could check more than one program):

	<u>Employers</u>	<u>Employees</u>
Preferential Spaces for Car Pools	26	52,644
Parking Fees	40	57,373
Supply Limitations	41	41,338
Other	44	40,280

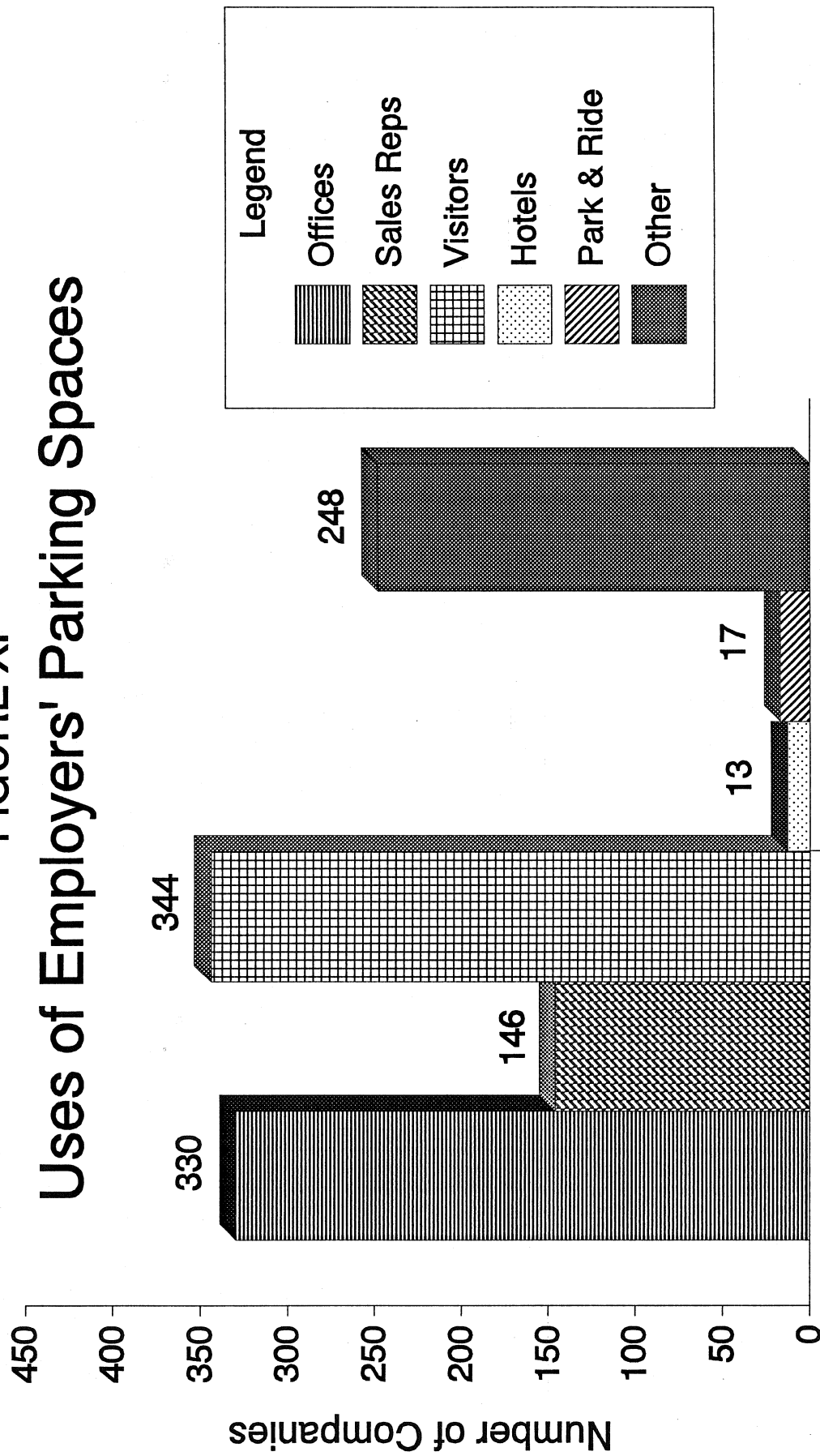
Note: 96 respondents checked either "preferential spaces," "parking fees," or "supply limitations."

Most employers (73%) do not have any parking management programs. Only 20% of the respondents have any type of parking management program (preferential spaces, parking fees, supply limitations) which encourages employees who are solo drivers to commute by another means. This finding was expected; since driving a car and having a parking space are commonplace, any voluntary restrictions would not be popular.

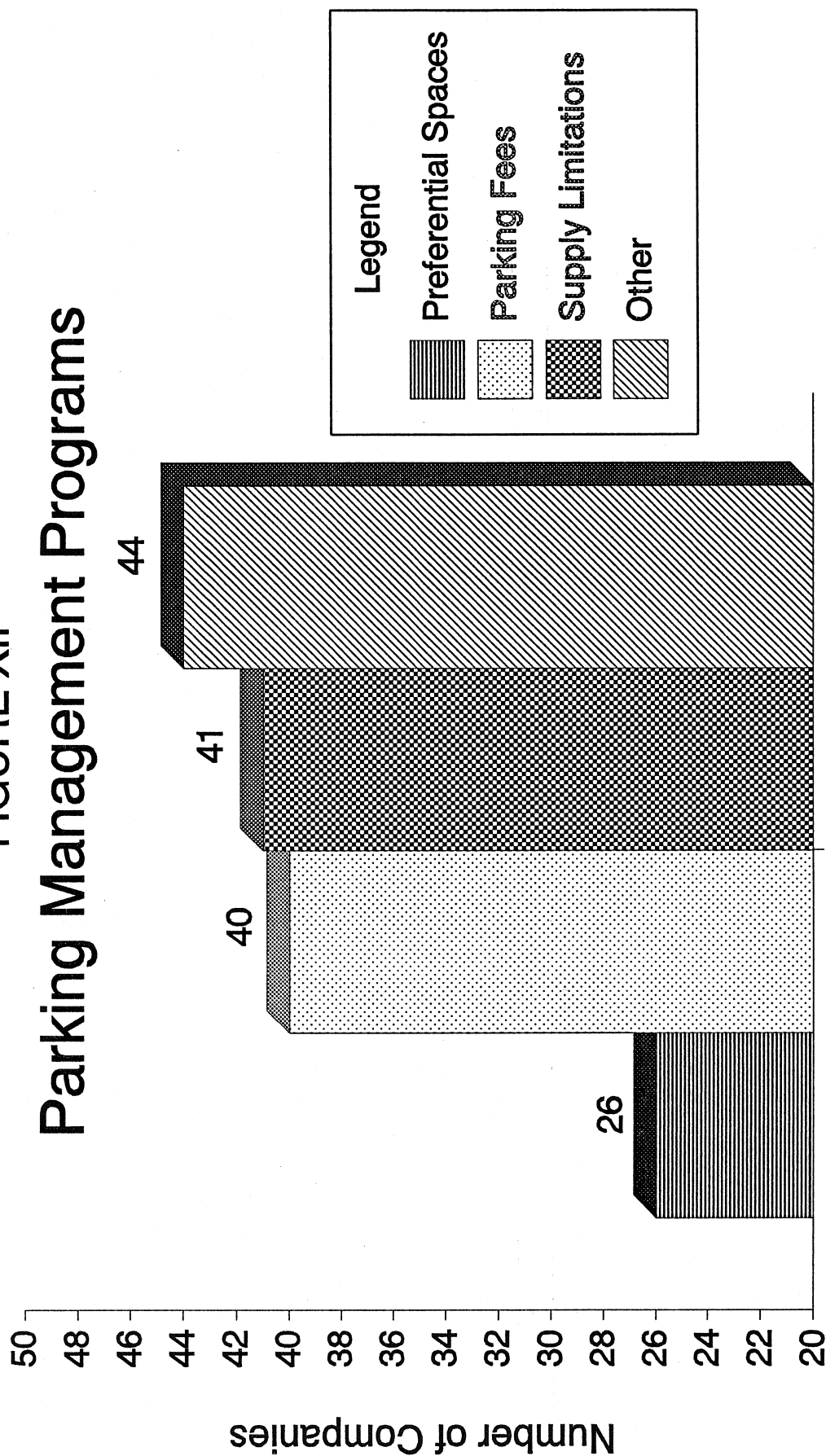
Almost one tenth of the employers marked the "other" category. These responses consisted of parking for the handicapped, preferential parking for management, and reserved visitor parking. Eight percent of the respondents have parking fees, and the same percentage limit the supply of parking spaces. Also, approximately 5% of the companies have preferential spaces for car pools and van pools (See Figure XII).

Figure XIII shows the number of firms by industrial classification that currently have parking management programs. Figure XIV shows the number of employees that work for these firms. For example, 12,260 employees work for nine manufacturers that have preferential spaces for car pools and van pools, while 125 employees work for one manufacturer that has parking fees. These numbers indicate that there are already a sizable number of employers who have parking management programs and a sizable number of employees who work for those employers. This is encouraging since parking management programs will become more necessary once the employer trip reduction requirements of the CAAA become effective in 1994.

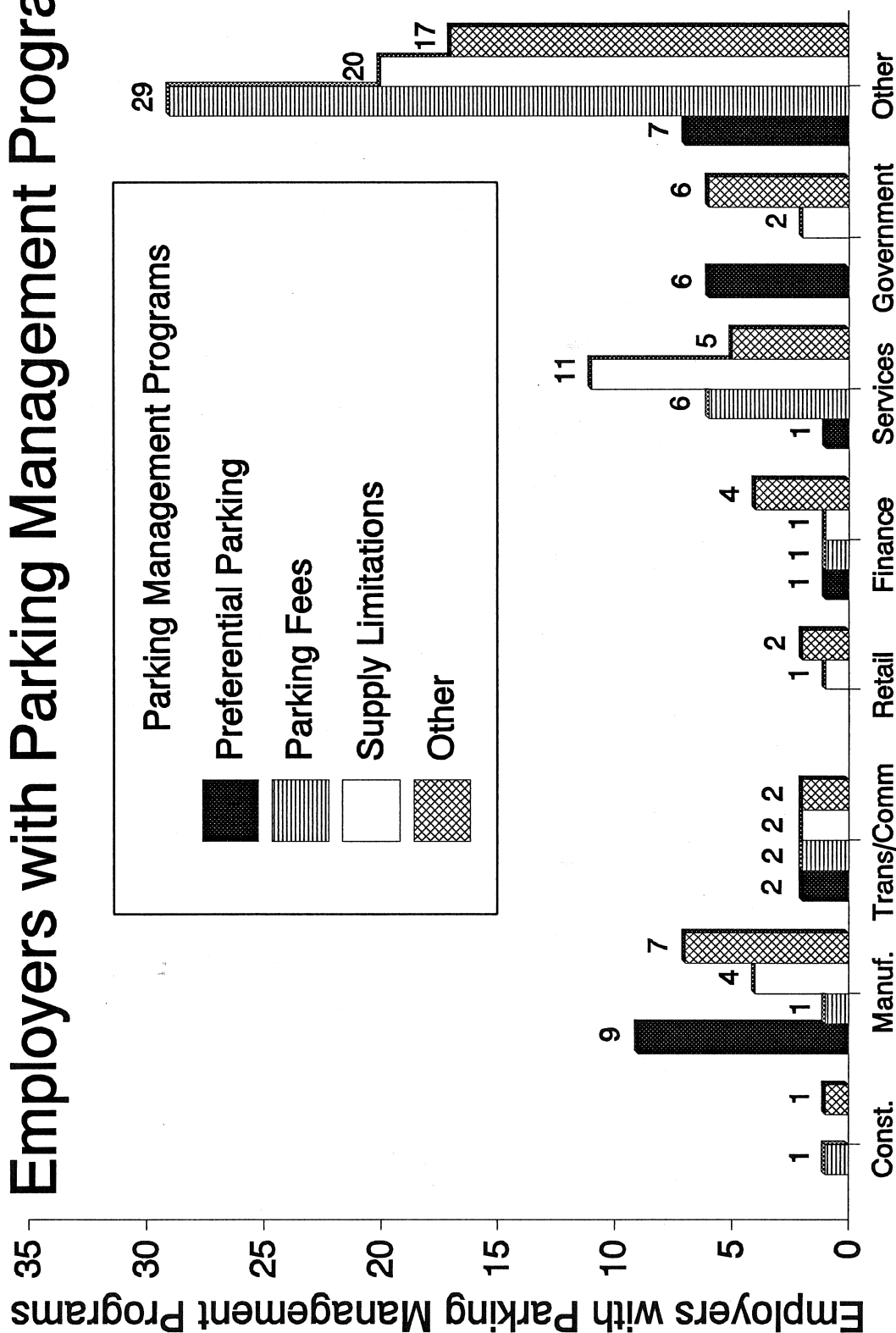
# FIGURE XI Uses of Employers' Parking Spaces



**FIGURE XII**  
**Parking Management Programs**



# FIGURE XIII Employers with Parking Management Programs



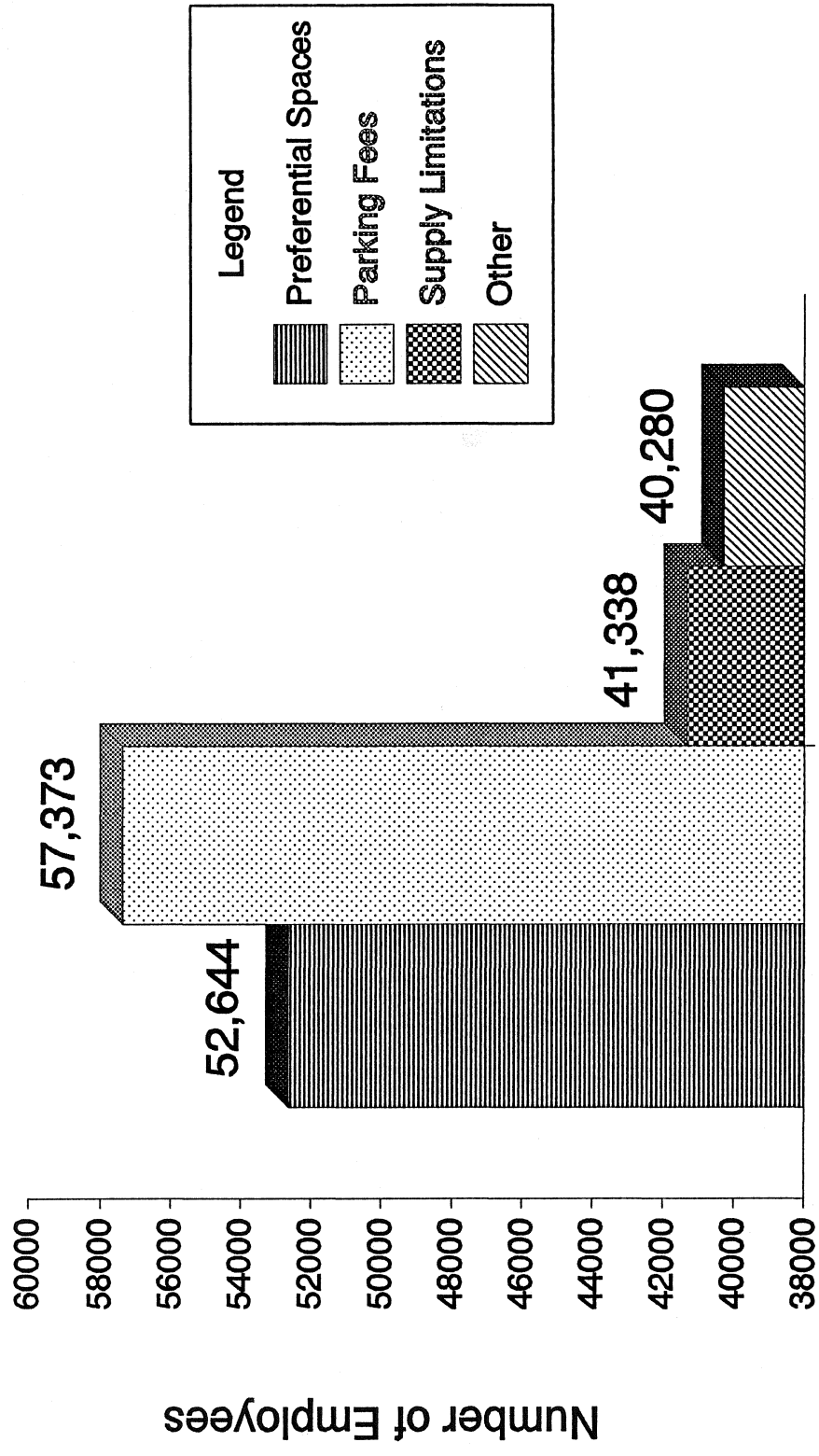
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Type of Company

NOTE: Agricultural, mining, and  
wholesale employers do not have  
any parking management programs.



Figure XIV  
 Number of Employees Working  
 for Firms with Parking Management Programs



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Question #8 - Interest in Parking Management Programs - 125 Respondents Who Have an Interest in Programs

Number of Responses (Employers could check more than one program):

Parking Charges	18
Limiting Supply	6
Preferential Parking for Car Pools and Van Pools	98
Transportation Allowances	50

Most respondents (74%) do not have any interest in implementing any parking management programs. Twenty-six percent of the respondents do have an interest in instituting parking management programs. About one fifth of the employers have an interest in providing preferential parking for car pools and van pools. About 10% have an interest in providing transportation allowances to each employee; a cash allowance is given to each employee and those who drive alone to work are charged an equivalent amount for parking while those who car pool, van pool, use transit, or bicycle to work, or telecommute can keep the money as an incentive to not drive alone. About 4% of the respondents expressed an interest in parking charges and about 1% have an interest in limiting the number of spaces that are provided (See Figure XV).

These results are encouraging since employers are not being forced to implement parking management programs. Over one-quarter of the respondents are voluntarily considering these programs. If this many employers actually implement these programs, it will greatly encourage many solo drivers to seek an alternate means of travel.

Question #9 - How Parking Facilities Were Obtained - 448 Respondents

Employer Responses:

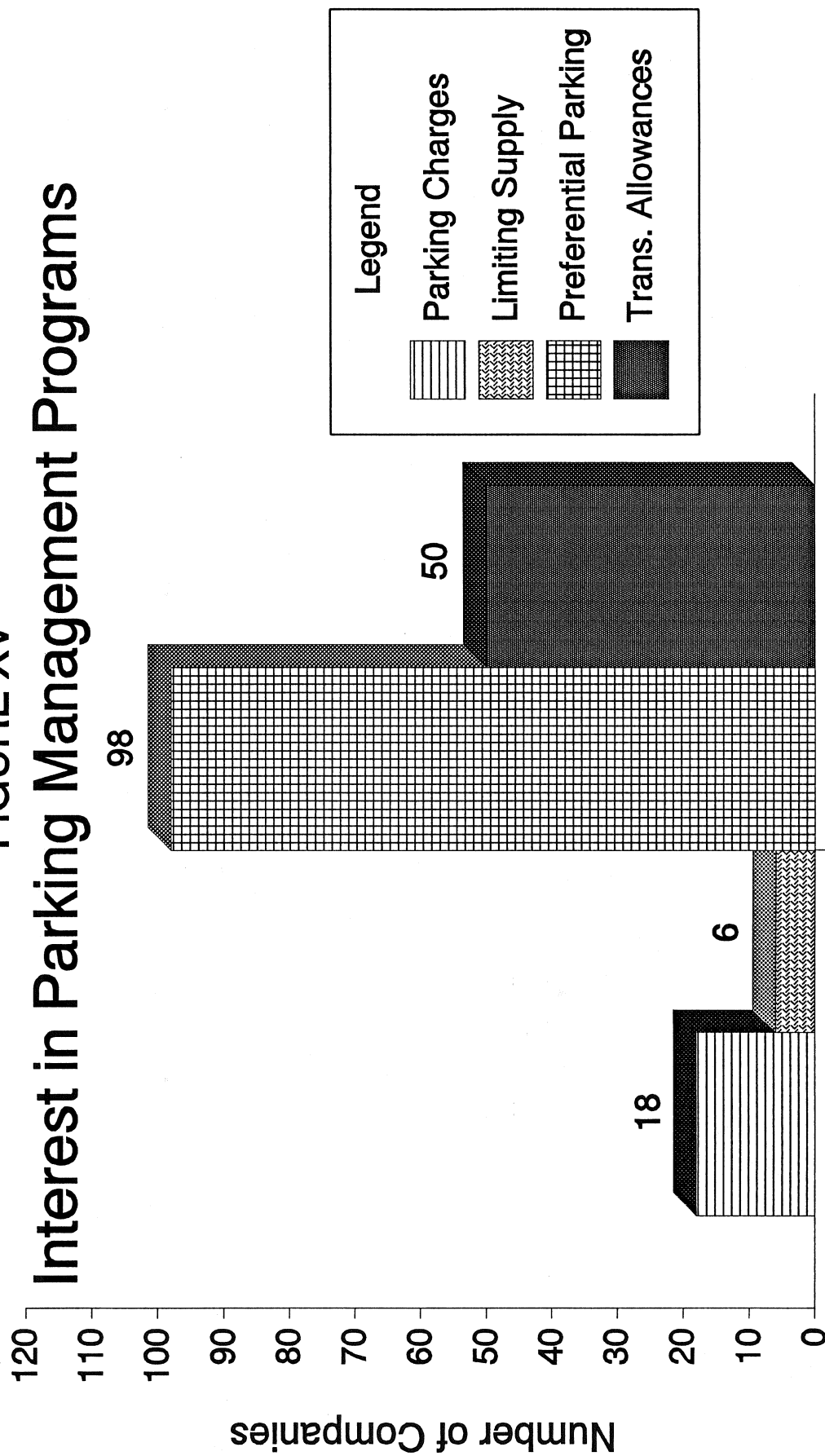
Built own space	309
Lease from someone else	38
Part of rental agreement	66
Other	35

Two-thirds of the respondents (69%) built their own parking facilities while only 15% obtain their parking as part of a rental agreement (See Figure XVI). The remaining 16% are closely divided: 8% lease from someone else and 8% obtain their parking in other ways. The "other" category included responses stating that the parking lot existed at the time of purchase, the company owns the parking facility, or no parking lot exists.

Question #10 - Costs of Parking Facilities - 154 Respondents

The responses were inconsistent and many were not credible, so the data is not presented here.

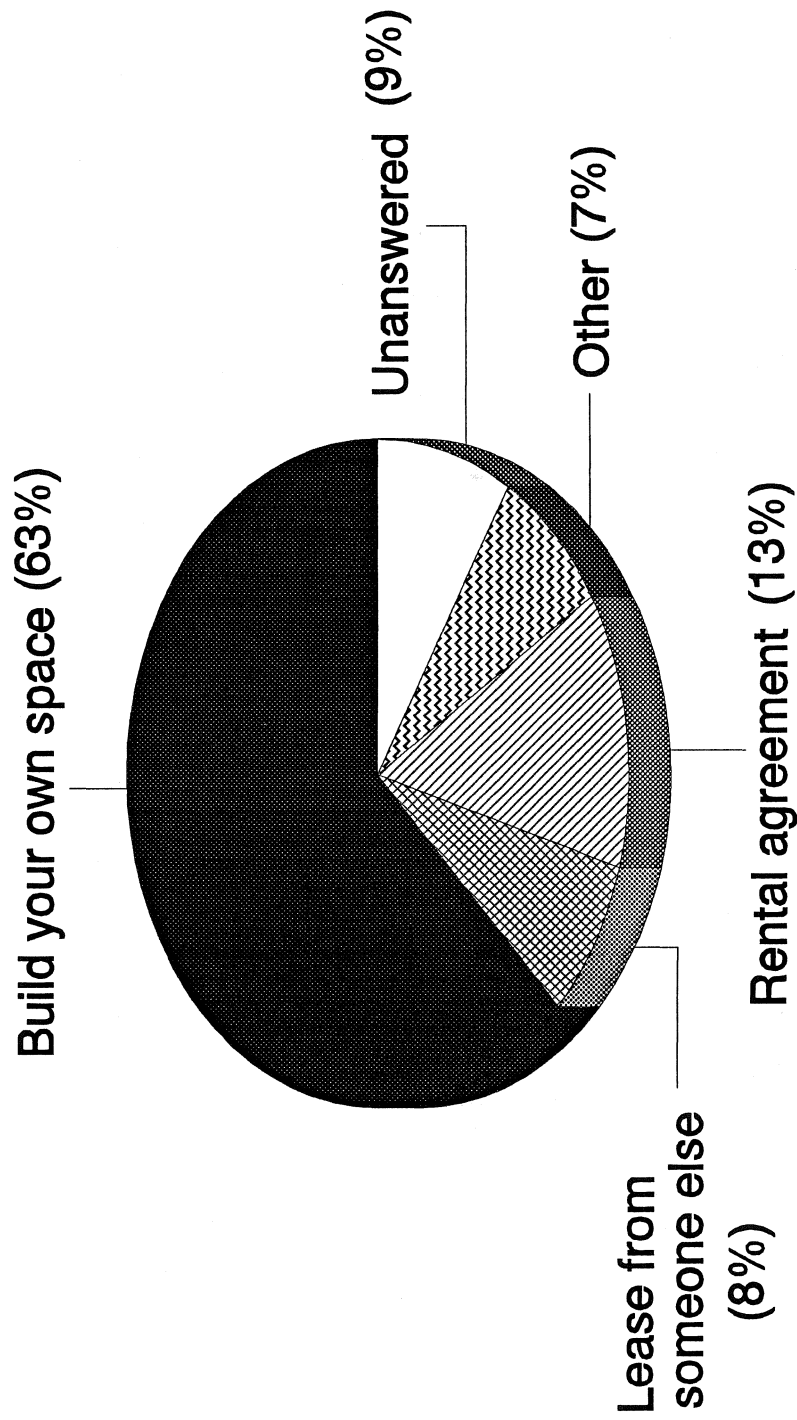
**FIGURE XV**  
**Interest in Parking Management Programs**



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**FIGURE XVI**  
**Means of Obtaining Parking Spaces**



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Question #11 - Employee Parking Costs - 45 Respondents Who Charge for Parking	
Daily Charges	Monthly Charges
Average : \$6.42	Average : \$105.53
Range : \$0.85 to \$15.00	Range : \$3.00 to \$220.00

Very few respondents (only 9%) indicated that they charge employees for parking. These employers are primarily located in downtown Philadelphia. The daily charges range from \$.85 to \$15.00 with the average falling at approximately \$6.42. The average of the monthly charges is \$105.53 and range from \$3.00 to \$220.00 per employee. The lower charges are primarily for service organizations including schools and hospitals. Figures XVII and XVIII indicate the type of firms that have monthly and daily parking charges, respectively.

Question #12 - Reduced Fees for Car Poolers and Van Poolers - 266 Respondents  
Employer Responses: Yes 1; No 265

Only one respondent (0.4%) provides reduced fees for car poolers and van poolers. Over 99% of the respondents stated that reduced fees are not given.

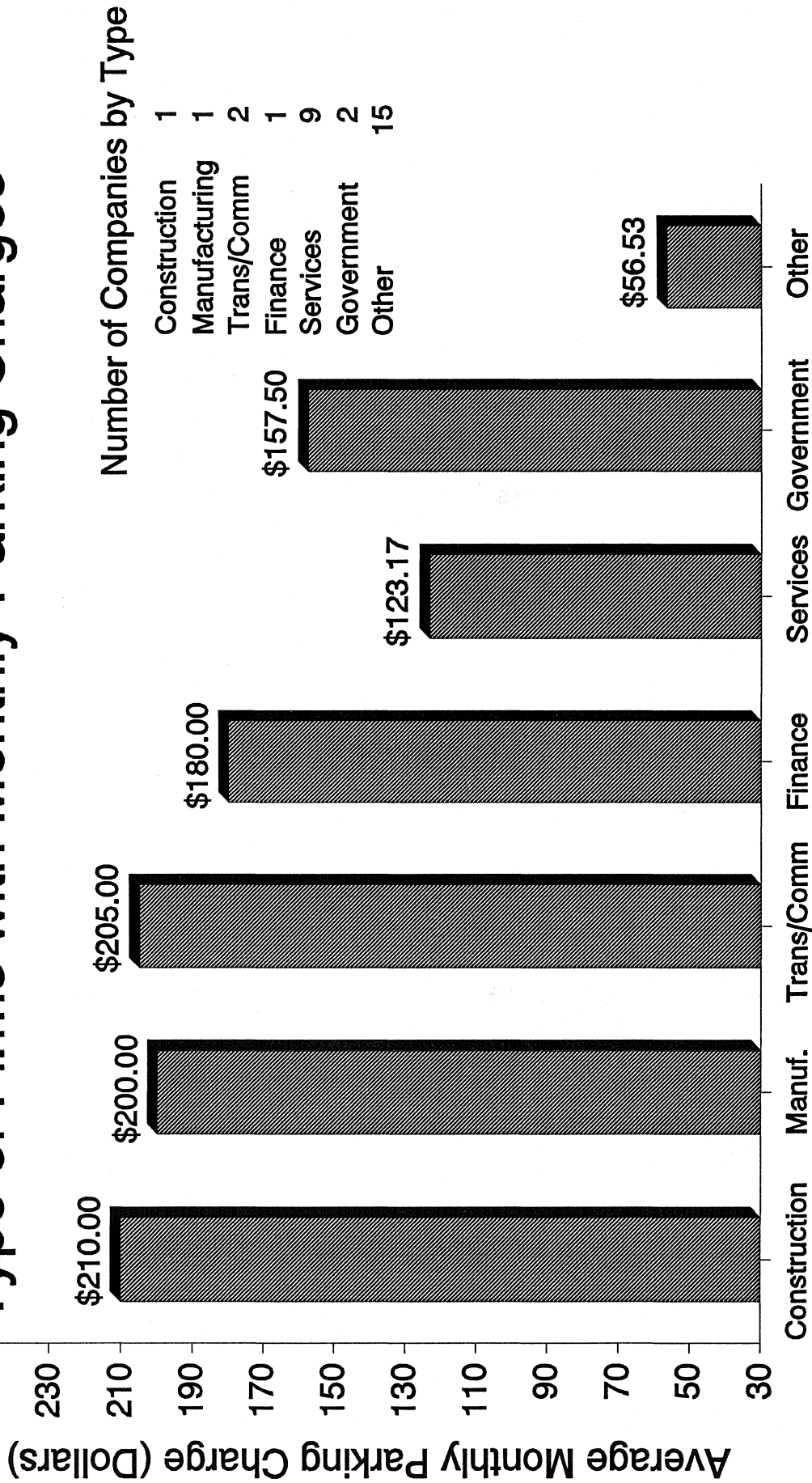
Question #13 - Plans to Build New Parking Spaces - 461 Respondents  
Employer Responses: Yes 56; No 405

A major portion of the respondents (88%) have no plans to build new parking spaces. About 12% plan to construct new parking facilities; these employers were asked to state the type of facility they intend to build. Approximately two thirds of them plan on building a surface lot with the number of spaces ranging from 12 to 3000. One fifth expect to build a parking structure with the number of spaces between 86 and 2500. The remaining eight employers are undecided about the type of facility they plan to construct.

Fifty-six respondents indicate that they plan to build 13,200 spaces, 5,650 of which will be surface spaces and 7,550 of which will be above-ground structured spaces. The respondents to this survey employ 209,217 employees. If we assume that all employers of 100 or more employees (650,000 total employees) had needs for more parking in the same proportion as the respondents, then approximately 41,000 new spaces, 17,500 of which would be surface spaces and 23,500 of which would be above-ground structured spaces, will need to be constructed.

FIGURE XVII

# Type of Firms with Monthly Parking Charges

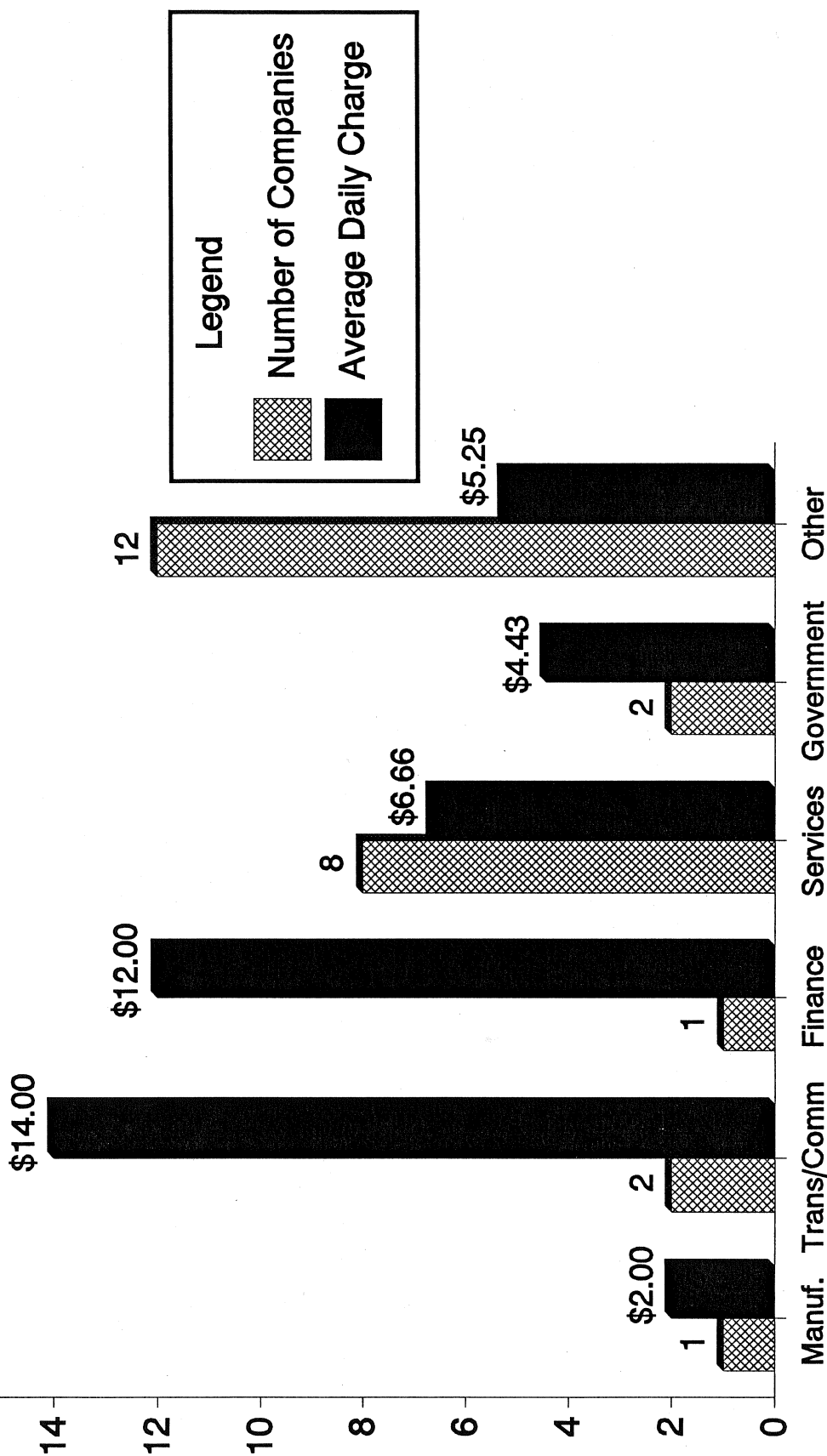


Note: The agricultural , mining, wholesale, and retail companies do not have any daily parking charges.

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FIGURE XVIII  
Type of Firms with Daily Parking Charges



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Note: The agricultural, mining, construction, wholesale, and retail companies do not have any daily parking charges.

Question #14A - Effect of Employer Trip Reduction Program on Parking Demand - 428 Respondents

Employer Responses: Yes 94; No 334

Most of the respondents (78%) believe that the Employer Trip Reduction Program (ETRP) will have no effect on the demand for parking in the company's area (See Figure XIX). Only a fifth of the employers (22%) feel that ETRP will change the demand for the area's parking.

Question #14B - Effect of Employer Trip Reduction Program on Future Expansion - 401 Respondents

Employer Responses: Yes 65; No 336

The bulk of respondents (84%) do not feel that the ETRP will have any bearing on the company's plans for future expansion (See Figure XX). Only 16% believe that future plans could be affected.

Question #15 - Comments or Suggestions

Respondents provided extensive comments and suggestions. Because of this, only those responses that several employers mentioned are listed below.

1. Public transportation must be improved.
2. The hours of the employees vary greatly (3 or more shifts) making ridesharing quite difficult.
3. Delivery and service vehicles' propulsion systems should be converted to natural gas.
4. Information concerning ETRP must be better marketed so all companies can seek solutions to controlling air pollution.
5. Non-profit organizations should be exempt from ETRP.
6. Many employees use their cars during the day for business reasons.
7. Chester County should not be included with Philadelphia County.
8. Zoning ordinances specify that one parking space must be maintained for each employee during the largest shifts making supply limitations illegal.



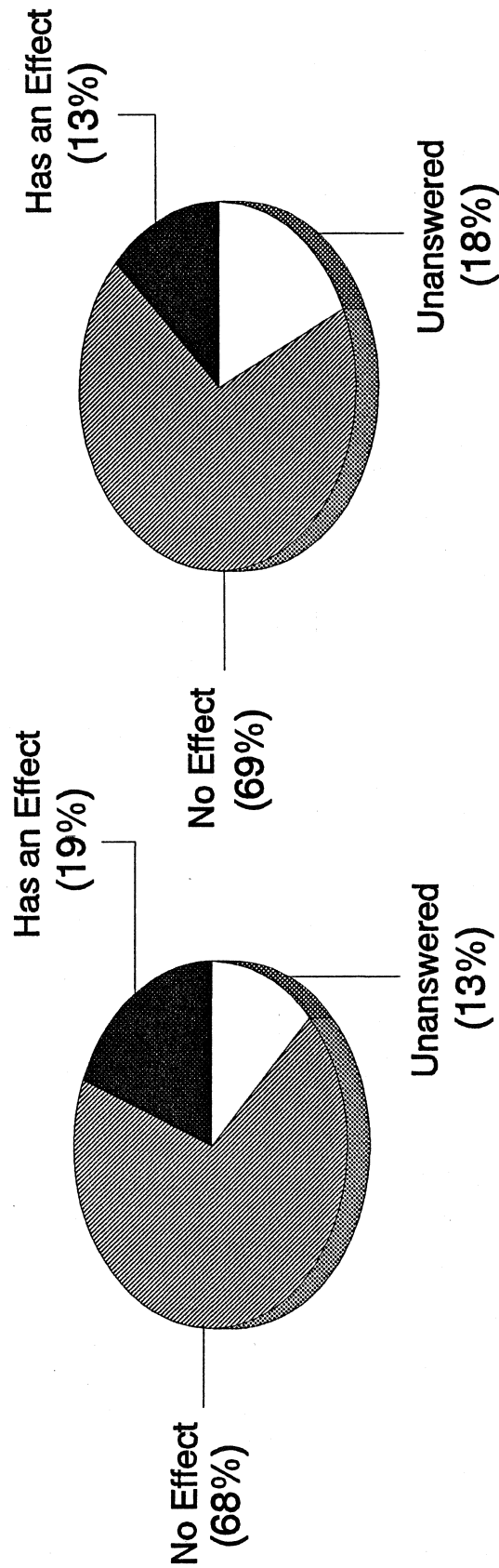
# Effects of Employer Trip Reduction Programs . . .

FIGURE XIX

On Employers' Parking Demand

FIGURE XX

On Employers' Future Expansion



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## CHAPTER III

### PARKING FACILITY OWNER/OPERATOR SURVEY

DVRPC surveyed all known parking facility owners and operators in the five-county Pennsylvania portion of the DVRPC region. Sources of information on owners and operators included the City of Philadelphia Planning Commission's 1990 Center City Parking Inventory and the telephone directory's Yellow Pages "parking" listings. Three hundred seventy-eight questionnaires (see Appendix B) were mailed to owners and operators. The U.S. Postal Service returned 86 of them because the address was incorrect or the company relocated, and 24 questionnaires were completed and returned. Disregarding the questionnaires returned by the Postal Service, eight percent of the questionnaires were completed and returned. This low response is probably because owner/operators do not wish to share information on their facilities and many owner/operators have small staffs who cannot take the time to complete a questionnaire which requires researching information.

### QUESTIONNAIRE RESPONSES AND ANALYSIS

#### Question #1 - Identification Information

Name, Title, Name of Company, Street Address, Town, State, Zip Code, Phone Number, Address of Parking Facility

NOTE: Two-thirds of the respondents' parking facilities are owned by companies that operate only one facility.

Twenty-three of the respondents are located in Philadelphia, while the other one is located in Delaware County.

#### Question #2 - Type of Facility and Number of Parking Spaces - 22 Respondents (More than one category could be checked)

Most respondents (91%) have a surface parking facility; the average number of spaces is 60 with a range of 5 to 280 spaces. Approximately 14% of the respondents manage a parking structure with the number of spaces ranging from 1 to 900 and averaging 377 spaces. The same percentage of operators manage an underground facility with an average of 148 spaces and a range of 20 to 240 spaces (See Table II).

TABLE II			
Size of Parking Facility			
	Number of Responses	Sum of Parking Spaces	Average Parking Spaces
Surface	20	1194	60
Structure	3	1131	377
Underground	3	444	148
Other	0	0	0

Question #3 - Use of Parking Spaces - 21 Respondents (More than one use could be checked)

Hotels	1
Commuter Parking	6
Residential Parking	4
Shopping	2
Sales Representatives	1
Visitors/Tourists	4
Other	11

More than half (52%) of the respondents provide parking for a reason not listed in the questionnaire. These uses include parking for employees, patients, and customers. About a quarter of the respondents use their parking spaces for commuters. Both residential parking and parking for visitors or tourists are uses that 19% of the operators serve. Also, 10% or less of the parking facility operators provide parking for shoppers, hotels, or sales representatives (See Figure XXI).

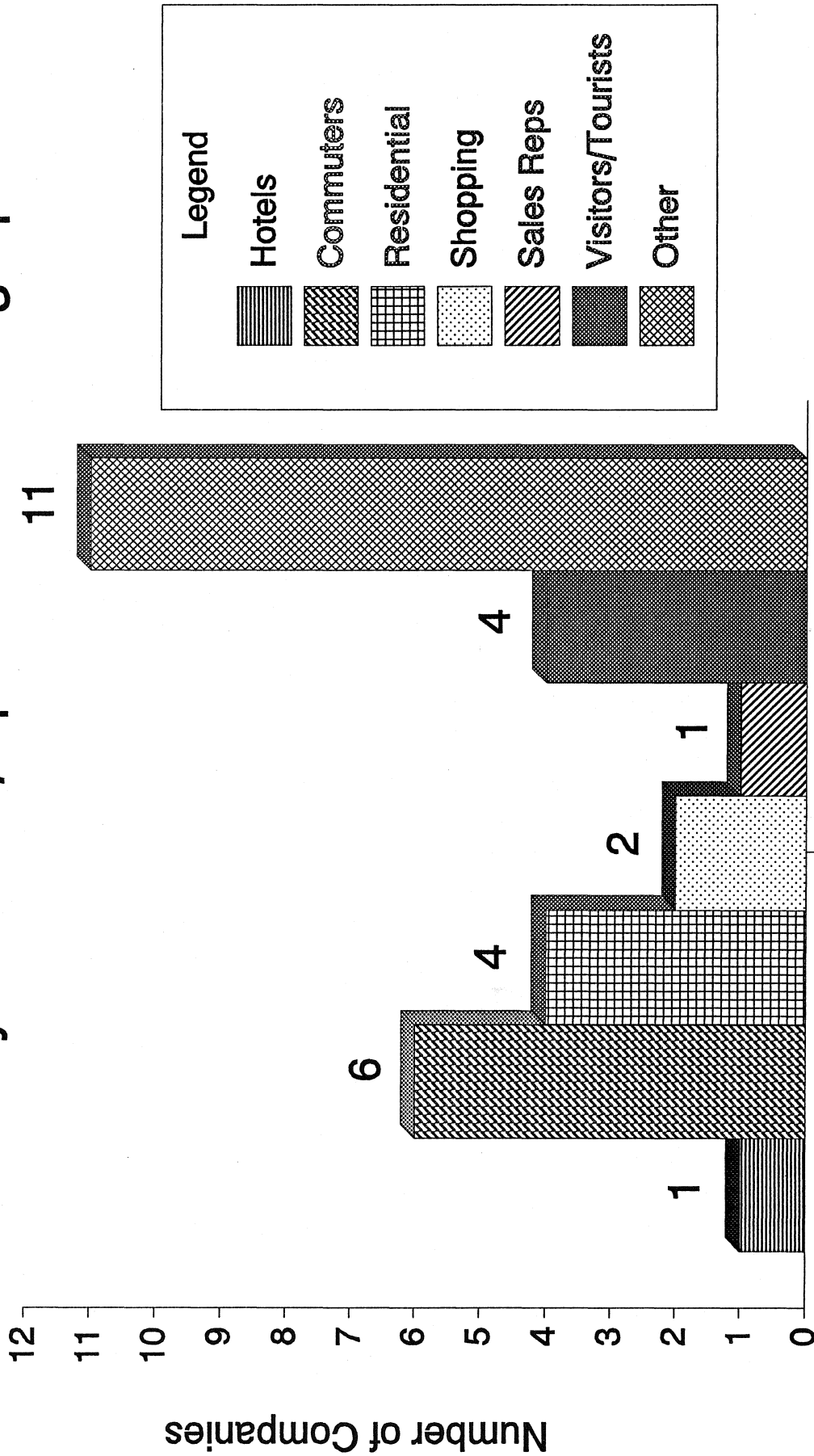
Question #4 - Costs of Parking Facility - 9 Respondents

The responses were inconsistent and several were not credible, so the data is not presented here.

Question #5 - Parking Charges - 6 Respondents

Only 25% of the respondents answered this question. Four respondents stated that their facility has monthly charges. These monthly costs range from \$3.00 to \$141.00 and average \$89.75 (See Table III). Only one respondent has a weekly charge and that charge is \$7.50. Two respondents have daily charges which average \$3.75 and range from \$2.00 to \$5.50.

**FIGURE XXI**  
**Uses of Facility Owners'/Operators' Parking Spaces**



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TABLE III				
Parking Charges				
	Number of Respondents	Average	High (\$)	Low (\$)
Per Day	2	\$3.75	\$5.50	\$2.00
Per Week	1	\$7.50	\$7.50	\$7.50
Per Month	4	\$89.75	\$141.00	\$3.00

Question #6 - Rent or Lease Specifications - 2 Respondents

Only two respondents allow a company to rent or lease spaces from them. The two parking facilities rent or lease one space and 19 spaces respectively. Only the company that rents or leases one space listed a monthly fee and that fee is \$3.00.

Question #7 - Current Parking Management Programs - 19 Respondents

Number of Responses:

Yes	1
No	18

Most of the respondents (95%) do not have any parking management programs. Only one respondent has a parking management program and this respondent checked the "other" category, stating that he/she has reduced fees for residents.

Question #8 - Interest in Parking Management Programs - 1 Respondent

Only one parking facility operator expressed an interest in implementing any parking management programs. This operator is interested in reduced fees for car pools, reduced fees for van pools, and preferential parking for car pools and van pools.

Question #9 - Reduced Fees for Car Pools or Van Pools - 0 Respondents

This question was to be answered by operators who have reduced fees for car pools or van pools. None of the respondents do.

#### Question #10 - Percentage of Capacity - 17 Respondents

About 71% of the respondents answered this question. The highest rate of utilization (about 80%) occurs Monday through Friday between 6:00 a.m. and 4:00 p.m. About 70% of capacity is used between 4:00 p.m. and 6:00 p.m. Only 25 to 40 percent of spaces are used on weekends. The results with the ranges and the average for each category are listed in Table IV.

TABLE IV						
Use of Facility as a Percentage of Capacity (In Percentages)						
	6:00am-10:00am		10:00am-4:00pm		4:00pm-6:00pm	
	Range	Average	Range	Average	Range	Average
Monday	10 - 100	78%	20 - 100	79%	10 - 100	71%
Tuesday	10 - 100	81%	20 - 100	81%	10 - 100	70%
Wednesday	10 - 100	82%	20 - 100	80%	10 - 100	71%
Thursday	10 - 100	82%	20 - 100	80%	10 - 100	70%
Friday	10 - 100	82%	20 - 100	80%	10 - 100	67%
Saturday	0 - 100	33%	0 - 95	32%	0 - 100	39%
Sunday	0 - 100	25%	0 - 100	27%	0 - 100	26%

#### Question #11 - Plans to Build New Parking Spaces - 21 Respondents

Number of Responses:

Yes 1

No 20

Most of the respondents (95%) do not plan to build any new parking spaces (See Figure XXII). Only one respondent may build new spaces in the future, but the parking manager did not specify which type of facility he or she intends to build.

#### Question #12A - Effect of Employer Trip Reduction Program on Parking Demand - 20 Respondents

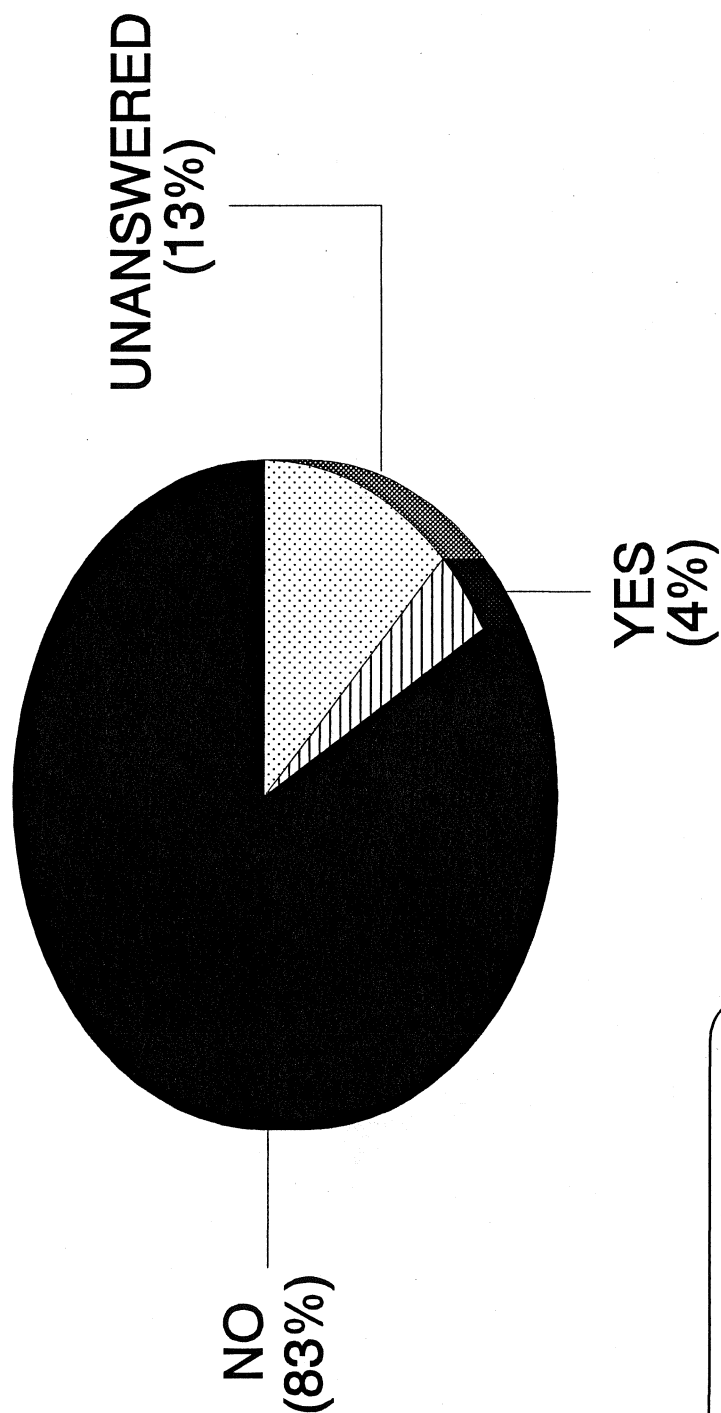
Number of Employer Responses:

Yes 1

No 19

Most of the respondents (95%) believe that the Employer Trip Reduction Program (ETRP) will have no effect on the demand for parking in the company's area (See Figure XXIII). Only one parking manager stated that ETRP will have some effect on parking demand.

**FIGURE XXII**  
**Plans to Build New Parking Spaces**



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# Effects of Employer Trip Reduction Programs . . .

FIGURE XXIII

On Facility Owners' Parking Demand

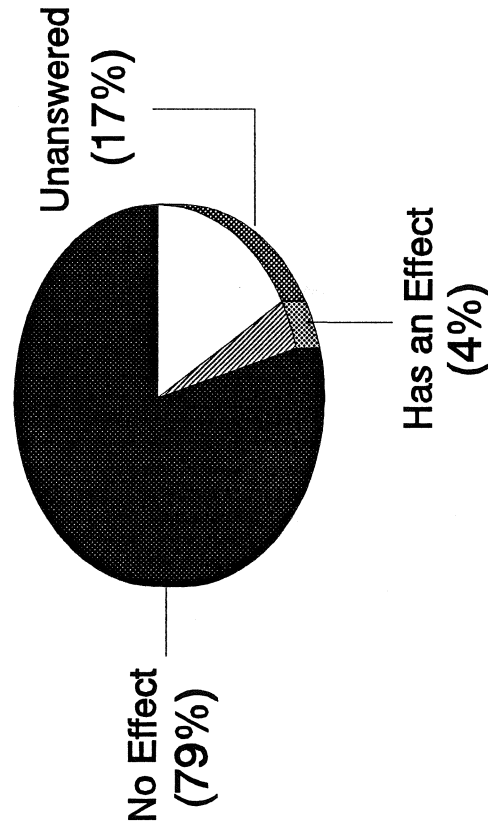
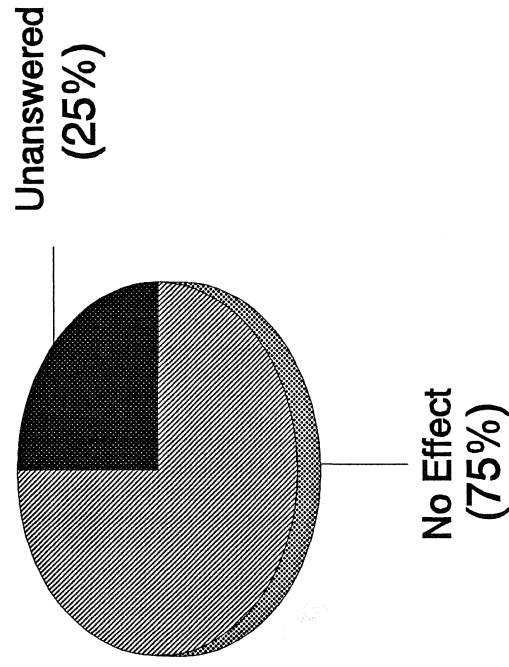


FIGURE XXIV

On Facility Owners' Future Expansion



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Question #12B - Effect of Employer Trip Reduction Program on Future Expansion - 18 Respondents

Number of Employer Responses

Yes 0

No 18

All of the respondents believe that the ETRP will have no affect on the company's plans for future expansion (See Figure XXIV).

Question #13 - Comments or Suggestions

The comments and suggestions vary extensively. Some comments from the participating respondents are listed below.

1. Our parking lot is not open to the public.
2. Some of the questions on the survey are not applicable to our company.
3. Our parking facility is not large enough to accommodate our employees.

## CHAPTER IV

### INTERVIEWS

While much useful information was gathered from the employer and facility surveys, several individuals who are involved with parking issues were interviewed in order to gather more in-depth information and opinions about parking and potential impacts of the Employer Trip Reduction Program (ETRP).

Four individuals were interviewed: (1) David Cohen, Director of Planning and Management, the Central Philadelphia Development Corporation (CPDC), (2) Joseph Zaritsky, President and Robert Zaritsky, Vice-President of Marketing, the Parkway Corporation, and (3) William Danusiar, Senior Development Manager, the Radnor Corporation. The CPDC is a quasi-public agency that promotes economic development for downtown Philadelphia and has undertaken several successful programs, such as the Center City District and street maintenance and cleaning programs. The Parkway Corporation is a private parking company which operates more than forty parking facilities in downtown Philadelphia. The Radnor Corporation is the subsidiary of the Sun Corporation which owns the Radnor Corporate Center in Radnor Township, Delaware County.

#### 1. David Cohen, Central Philadelphia Development Corporation (CPDC)

Mr. Cohen praised the Philadelphia Parking Authority for its effectiveness and efficiency at enforcing parking regulations and collecting revenue. However, he believes that the City lacks an overall parking policy and lacks a coordinating mechanism for parking issues. For example, policy should be adopted to discourage single-occupant vehicle employee commuting and encourage reduced parking fees for shoppers who make purchases.

CPDC is pursuing the idea of "interceptor" or "fringe" parking garages which would be located on the edge of downtown Philadelphia. These garages would be located on such major highways as I-95, I-76, and Delaware Avenue. Commuters could park in fringe parking facilities and walk or use transit to get to their work place, thus reducing downtown congestion and making Center City a more pleasant place to walk, shop, and undertake business.

#### 2. Joseph and Robert Zaritsky, Parkway Corporation

The Parkway Corporation manages over forty surface lots and above-ground and below-ground garages in downtown Philadelphia which contain more than 11,000 parking

spaces. The parking facilities are used for a variety of purposes, including commuter parking, shopping, hotels, residential parking, parking for sales representatives, visitors, and tourists. Parking fees range from \$60 to \$200 per month, with the average being approximately \$110 per month. The average daily fee is \$6 to \$7 per day. In addition to the monthly rates, Parkway also provides reduced Early-Bird and Super Early-Bird daily rates.

The Zaritsky's indicated that the costs of Parkway's parking facilities were unavailable. Many of the facilities were built when detailed records on land and construction costs were not kept.

The Parkway Corporation does not have any programs that encourage car pooling or van pooling. Such programs might include preferential spaces (closer to the entrance) for car pools and van pools and reduced fees for car pools and van pools. However, they will be considering those types of programs.

Parkway's business for the past year is approximately twenty percent below the previous year. Their facilities have rarely been full during the past year. (The Philadelphia Inquirer reported on July 23, 1993 that downtown Philadelphia had a twenty percent vacancy rate for office space. This is certainly a contributing factor.) Parkway hopes that the new Pennsylvania Convention Center will improve their business. They plan to build a new parking garage next to the Convention Center.

The Zaritsky's believe that the Employer Trip Reduction Program will negatively affect the demand for parking in downtown Philadelphia and Parkway's plans for expansion. They would like to see incentives for people to travel on alternate modes of transportation, including investments in the region's public transit system, rather than disincentives to commuting by automobile.

### 3. William Danusiar, Radnor Corporation

The Radnor Corporation owns the Radnor Corporation Center, a suburban office campus in Radnor Township, Delaware County. The property has fifty-four tenants with 2,000 employees, 750,000 square feet of floor space, and 2,050 free parking spaces (including a recently constructed 316 space above-ground garage). The spaces are used by employees and visitors. No further parking facility expansions are planned.

While the Radnor Corporation does not currently manage their parking facilities in a way that would encourage ridesharing, they do subsidize a shuttle that travels between the nearby Radnor train station and the Radnor Corporate Center. This shuttle service, subcontracted to a private transit operator, meets each train during the morning rush hours, takes employees to their offices, and takes them back to the train station at the end of the day. The Radnor Corporation is also interested in implementing passive

parking management programs such as preferential spaces for car pools and van pools. It is also participating in the Lower Main Line Transportation Management Association, which will assist members in setting up travel demand management programs to comply with the Employer Trip Reduction Program requirements.

The cost the tenants pay for the parking facilities is included in their lease payments; it is not a separate cost line item. The cost of constructing the Center's parking facilities in the 1970s could not be determined. The new 316 space garage was constructed for a new tenant who recently moved in to the Center; its cost was reported to be approximately \$1,200,000 (\$3,800 per space). This is considerably below the nationwide average of \$10,000 per space in above-ground garages determined by the ENO Foundation in 1989.



## CHAPTER V

### EXISTING PARKING DATA

Extensive parking data is not available for the entire southeastern Pennsylvania five-county area. The most extensive data can be found in the Philadelphia City Planning Commission's 1990 Center City Parking Inventory. However, comprehensive county-wide parking studies or inventories have not been done in the four suburban counties. County planners are only aware of one or two municipal parking studies that have been undertaken.

The Center City inventory examined the area bounded by Spring Garden Street on the north, South Street on the south, the Schuylkill River on the west, and the Delaware River on the east (approximately 310 square blocks and 4.5 square miles). In this area (in 1990), there were a total of 60,514 public and private off-street parking spaces. There were approximately 45,000 public spaces and 15,000 private spaces at that time. Seventy-five percent of the spaces were occupied during the day. The size of the facilities ranged from ten-space lots to a 1,179 space above-ground garage. The all-day rates ranged from \$2.50 to \$13.00.

Philadelphia's recently adopted Center City Zoning Code is a good example of a parking management program, namely limiting the supply of parking. Prior to adoption of the new zoning code, the construction of most parking lots and garages were relatively unrestricted, providing they received a zoning certificate. The new zoning code significantly restricts their construction, especially along certain streets.

Public surface lots are prohibited on Chestnut, Walnut, Locust, Juniper, and Spruce Streets and the Benjamin Franklin Parkway for certain locations. All non-accessory lots are prohibited south of Chestnut Street. Temporary public parking lots (those that will be in operation for less than five years) are permitted with a special permit from the Zoning Board of Adjustment except for lots located on Chestnut Street or within 200 feet of the Benjamin Franklin Parkway. Parking garages with more than 500 spaces are prohibited south of Chestnut Street.

The new zoning code also encourages the construction of interceptor garages on the periphery of Center City. These areas include Vine and Callowhill Streets between 18th and Front Streets, Columbus Boulevard or I-95 between Spring Garden and Chestnut Streets, and I-76 between Spring Garden and Chestnut Streets.

These parking restrictions are meant to make Center City more pedestrian-friendly and to encourage commuters to ride mass transit to work. Together with the City's Transit First policy and actions (giving transit vehicles priority over private cars) and mass transit improvements, the City is attempting to increase transit use and decrease car use into Center City.

The Urban Transportation Monitor of April 16, 1993 published the results of a survey of selected large cities, including Philadelphia, concerning downtown parking. The article indicated that Philadelphia had 6,800 on-street parking spaces in 1980, the highest charge at on-street parking meters is \$ .25 for fifteen minutes and the lowest charge is \$ .25 per twenty-five minutes, and the shortest maximum time period allowed for on-street parking is sixty minutes and the longest maximum period is 180 minutes. The City has not tested any payment method for parking meters other than coins and it has not implemented any restrictions or changes in downtown parking to reduce single occupant vehicle commuting. City policy calls for a parking surcharge on all day parkers in order to discourage commuting by auto and to release space for short-term parking.



## CHAPTER VI

### PARKING MANAGEMENT PROGRAMS BEING IMPLEMENTED ELSEWHERE

The following information is presented to provide examples of programs that could be implemented in southeastern Pennsylvania. At the end of each section entities are listed that would be responsible for implementing these programs, if they are implemented in southeastern Pennsylvania.

**Education programs that educate the public, especially employers, developers, commuters who use parking facilities, and local governments, about the true costs (direct and indirect) of parking facilities, the problems associated with the status quo, and the merits of parking policy reform.**

One of the important findings of the employer survey was that more than two-thirds of the respondents did not say how much it cost to build, operate, or maintain their parking facilities. Out of the entire sample, less than 7% provided this information. It is safe to assume that many of the employers who did not provide this cost information honestly do not know what these costs are, since many of them wrote a note on the questionnaire admitting as much. If there is a high level of ignorance regarding parking facility costs, it will be difficult to implement parking management programs that attempt to use parking facilities more efficiently and openly compare employer parking costs with employer transit, ridesharing, and bicycling costs.

The true costs of parking facilities include those for the parking facility (land, construction, maintenance, and operations), stormwater management, congestion, employees' time, air pollution and associated health care, energy, police, accidents, and insurance. Parking facilities also waste land resources, decrease density, create an unwalkable environment, and encourage solo driving.

As discussed in Chapter II, Question # 13, employers who employ 100 or more employees plan to build about 41,000 new spaces (17,500 surface spaces and 23,500 above-ground structured spaces). According to cost data discussed in Chapter II, the cost of constructing and maintaining the surface spaces will be \$92 million (based on ENO Foundation nationwide data). The cost of constructing and maintaining the above-ground structured spaces will be \$733 million (ENO Foundation). The total cost for the surface and garage spaces will be \$825 million.

Providing employer-paid parking also affects transportation system performance. A survey of more than 5,000 commuters to downtown Los Angeles found that employer-paid parking increases the number of solo drivers by 44%, increases parking demand by 34%, increases automobile vehicle miles traveled to work by 33%, increases gasoline consumed for driving to work by 33%, increases the cost of automobile travel to work by

33%, and increases the total cost of parking at and driving to work by 33% (Source: Donald Shoup and Richard Willson, Commuting, Congestion, and Pollution: The Employer-Paid Parking Connection, 1992).

It is fair to say that, once the other direct and indirect costs are calculated and the cost of new spaces built by employers of less than 100 employees, parking lot operators, and developers are added to the above cost, the cost of building at least 41,000 new spaces in the five counties will total in the billions of dollars. Employers can obtain the same transportation/parking capacity at a fraction of this cost through travel demand management (TDM) programs and incentives. The money that employers save when fewer spaces need to be built and maintained could be spent on these TDM programs, such as ridesharing subsidies and bicycle parking, as well as on-site amenities such as a cafeteria or day-care center, or other employee benefits. Indeed, this parking cost information should be used to balance the costs incurred by employers to implement TDM programs to comply with the Clean Air Act Amendments employer trip reduction program (ETRP) requirements: the savings accruing to employers from building fewer parking spaces than they otherwise would can be used to pay for the ETRPs.

Responsible entities:

DVRPC, with distribution of this report

Transportation management associations (TMAs), with education of their members and all employers, developers, and local governments in their service area

County planning commissions, with education of municipalities

Municipalities, with education of all employers and developers

SEPTA and other transportation providers, in their marketing efforts

**Programs to encourage local governments to revise zoning and land development ordinances so as to reduce the amount of parking required.**

Typical suburban governments require at least one space per employee, which encourages commuters to drive alone to work. These policies create seas of asphalt parking which help to create sprawl and discourage a pedestrian scale environment, which in turn further encourages solo driving and discourages walking and transit use. A study of suburban business parks determined that only one-half of available parking spaces was being used, on average (Source: Urban Land Institute, Employment and Parking in Suburban Business Parks, 1986, p. 16.)

Municipal governments can revise their zoning and land development ordinances to eliminate the requirement for a minimum number of spaces. The "one size fits all" approach should be discarded in favor of methods that set requirements on a per-employer basis. Parking requirements can be reduced when developers and employers actively encourage mass transit use, ridesharing, bicycling, walking, and telecommuting.

This should be done in conjunction with on-street parking permit programs in the areas surrounding the work sites (to ensure that commuters do not simply shift their parking location) and employer- and developer-based TDM program requirements in the local ordinances. TDM programs that provide incentives such as ridesharing, transit, or bicycling subsidies and support programs such as guaranteed ride home programs and midday shuttles are absolute necessities when the parking supply is being reduced and employees are being discouraged from driving alone.

Local governments can allay developers' and property owners' concerns about reducing the parking supply by encouraging them to separate parking and office space costs in leases. This may allow developers to offer more competitive rents to tenants, as well as flexibility in the number of spaces allocated to each tenant. Employers should also ask for this flexibility and for the separation of office and parking costs.

Responsible entities:

Municipal governments

TMA's and county planning departments can provide assistance

**Programs to encourage all employers and developers to provide preferential parking spaces for car pools and van pools.**

This is a relatively low cost program that will provide a visible incentive for commuters to rideshare. This could be required through local zoning and land development ordinances.

Responsible entities:

Municipal governments

TMA's and county planning departments can provide assistance

**Programs to encourage widespread use of transportation allowance programs.**

This concept is, in essence, a parking charge with a twist: Instead of instituting a penalty (making all auto commuters pay for parking and making all these people very unhappy), a transportation allowance program provides an incentive to commute in any way other than driving alone. The employer gives each employee a monthly transportation subsidy. Those who drive alone must pay the employer the same amount; this is the same as a parking charge but, on balance, the commuter doesn't lose any money in the transaction (the employer doesn't, either). Meanwhile, those who car pool, van pool, use transit, bicycle, or walk to work, or telecommute, get to keep the subsidy as an incentive for not driving alone. Presenting a parking charge in this manner makes it much more politically acceptable. In addition, a transportation allowance program is fairer than providing a subsidy (free parking) only to those employees who drive to work.

In a study of employees at a suburban New York City employer (W. Patrick Beaton,

Hamou Meghdir, and F. Joseph Carragher, Assessing the Effectiveness of Transportation Control Measures: The Use of Stated Preference Models to Project Modal Split for the Work Trip, 1992), a \$1 daily parking charge combined with a \$1 daily ridesharing coupon for everyone and a guaranteed ride home program increased average vehicle occupancy by about 30%. Another study (Thomas Higgins, The Effectiveness of Employer Based Transportation Control Measures in Suburban Areas: National Review Findings, 1990) determined that solo driving decreased between 12 and 40% after parking fees were instituted.

In addition, the Internal Revenue Service Code's rule which defines employer-paid parking subsidies as a "working condition fringe" that is exempt from income taxation should be revised to add a condition to this exemption: parking is exempt "if the employer offers the employee the option to receive, in lieu of the parking, the fair market value of the parking subsidy, either as a taxable cash commute allowance or as a mass transit or ridesharing subsidy." (Source: Donald Shoup and Richard Willson, Commuting, Congestion, and Pollution: The Employer-Paid Parking Connection, 1992.)

Responsible entities:

Employers  
TMAs can provide assistance

**Programs to provide tax incentives to employers and developers who implement parking management programs/establish a regional parking tax.**

Federal, state, or local tax incentives would reward those employers and developers who make unpopular decisions regarding parking, such as charging for parking or reducing the supply of it. The savings resulting from the tax incentive could be used for other employee benefits, such as TDM program subsidies or day-care programs. Governments can pay for these incentives by instituting a tax on all commuter and employer parking in southeastern Pennsylvania.

Responsible entities:

Federal, state, and local governments  
PennDOT and TMAs could provide assistance

**Comprehensive TDM programs to accompany any parking management programs.**

In order for commuters to give up their parking spaces, alternatives and incentives must be provided. A transportation allowance program provides subsidies to employees who do not drive alone. This will reduce the number of parking spaces needed and, thus, save employers and developers money. The money saved can be used to provide TDM programs and subsidies to employees.

Some of the support programs that could be included are the following:

- preferential parking spaces for car pools and van pools
- guaranteed ride home programs
- midday shuttles to restaurants, banks, and stores
- car pool matching services
- van pool and bus pool assistance programs
- bicycle parking and showers
- bus passenger shelters and sidewalks

Responsible entities:

Employers and developers

**Additional data needs.**

Additional parking data is needed for the DVRPC region, especially outside of Center City Philadelphia. Comprehensive parking inventories should be undertaken in each county to determine the number of parking spaces, the cost of building, operating, and maintaining the parking facilities, the types of facilities, the purposes for which the parking is used, if any parking management programs are being used, plans to build additional parking, and plans to implement parking management programs. The counties could request that the municipalities assist in the effort by providing subdivision and land development information and taking inventories.

Responsible entities:

County planning departments  
Municipalities