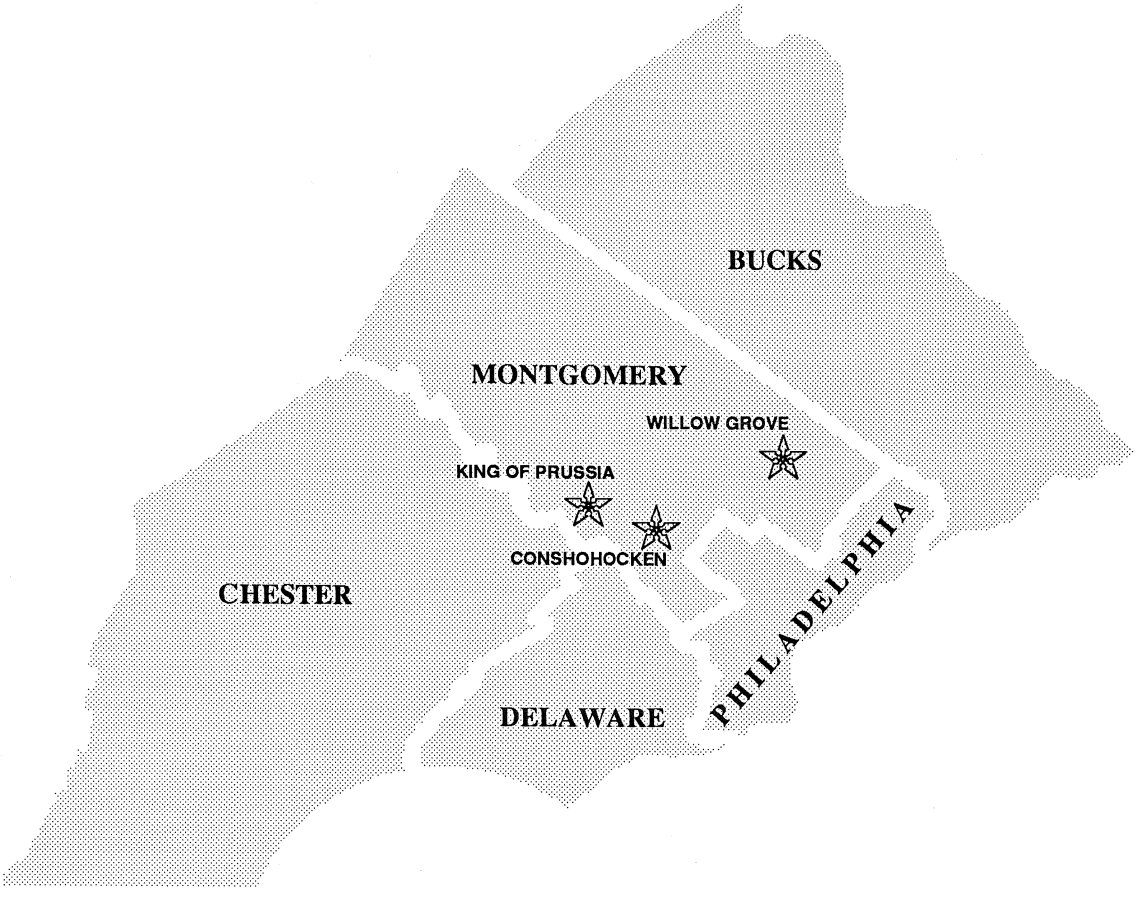
A PROGRAM OF TRANSPORTATION MANAGEMENT IN MONTGOMERY COUNTY, PA FINAL REPORT



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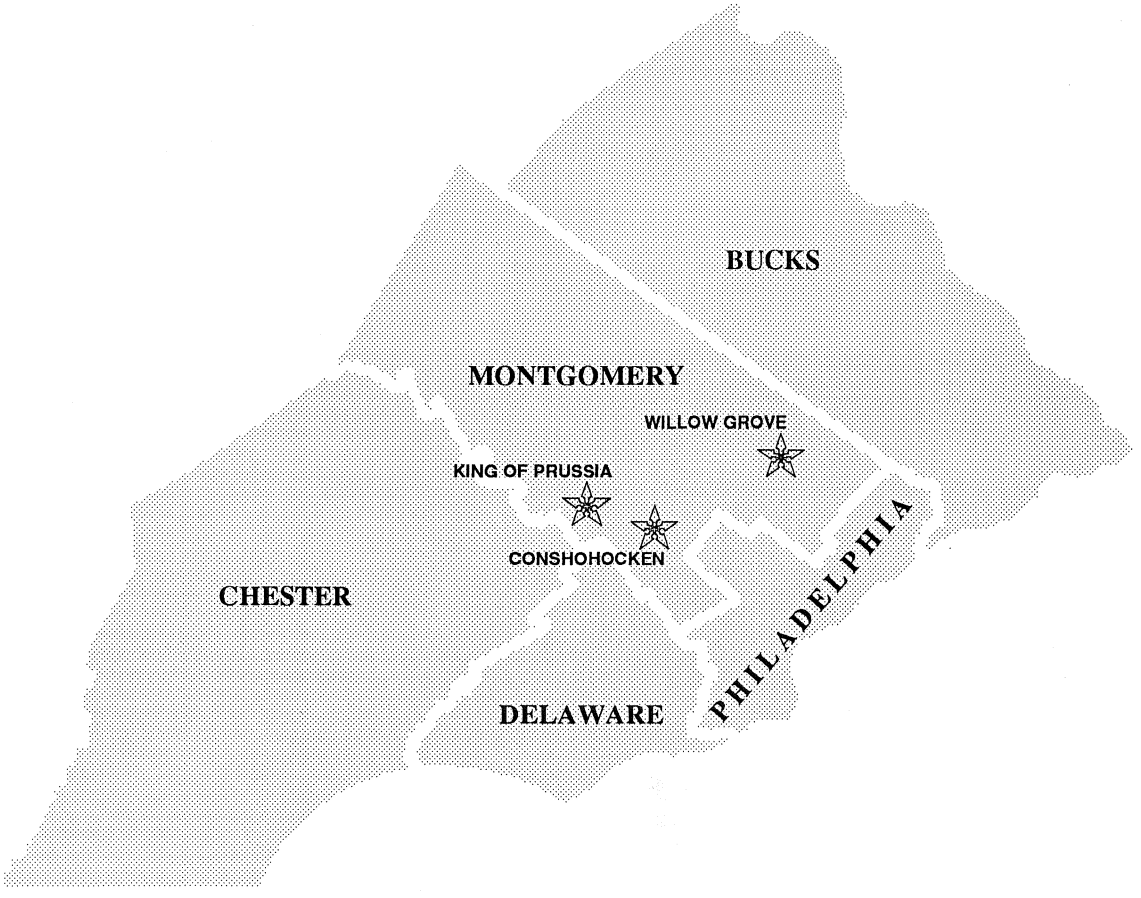

A Publication of the

Delaware Valley Regional Planning Commission

The Bourse Building

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Philadelphia, Pennsylvania 19106

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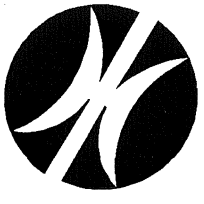
Created in 1965, the Delaware Valley Regional Planning Commission (DVRPC) is an interstate, intercounty and intercity agency which provides continuing, comprehensive and coordinated planning for the orderly growth and development of the Delaware Valley region. The region includes Bucks, Chester, Delaware, 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

TITLE	Date Published:	*June 1993*
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Geographic Area Covered:

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Transportation Management Associations, Public-Private Partnership, Needs Assessments, Issue Identification, Program Identification, Program Design, Operation

ABSTRACT

This report summarizes the work funded by a Federal Transit Administration Suburban Mobility Initiative grant. The project's purpose was to establish three transportation management associations in areas with different characteristics to address traffic congestion and mass transit issues in an atmosphere of public-private cooperation.

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EXECUTIVE SUMMARY

Because of increasing and often severe traffic congestion and labor market access problems, three major suburban employment centers in the Philadelphia area - King of Prussia, Willow Grove, and Conshohocken/West Conshohocken - decided to pursue voluntary travel demand management programs. Transportation management associations (TMAs), voluntary membership organizations that represent a public-private partnership approach to solving local transportation problems, were established in King of Prussia (the Greater Valley Forge TMA) and Willow Grove (the Partnership for Transportation Action TMA). Conshohocken has not yet formally established a TMA.

This is the final report for the Federal Transit Administration (FTA) Suburban Mobility Initiative grant which was intended to fund the formation of these three transportation management associations (TMAs), all in Montgomery County, PA.

This report will describe the development of local public and private sector interest in establishing TMAs, the needs assessments and program design reports that were undertaken, and other activities that were performed in order to lay the groundwork for successful TMA operations.

CHAPTER I

DEVELOPMENT OF LOCAL PUBLIC AND PRIVATE SECTOR INTEREST

King of Prussia, Willow Grove, and Conshohocken are major suburban employment centers that employ approximately 165,000 persons. Severe traffic congestion occurs because most commuters drive alone in their cars and major new highway capacity will not be built. Contributing to this, traditional public transit does not serve the suburb-to-suburb commute well. County and local community leaders felt that these congestion and labor access problems would hinder economic development, and believed that TMAs could help reduce traffic volumes and improve labor access through transit, ridesharing, and other travel demand reduction programs.

Local public and private sector interests in Montgomery County initiated discussions with DVRPC to apply to FTA for a Suburban Mobility Initiative grant in July 1988. These three areas were chosen because of their unique suburban characteristics. Both the King of Prussia and Willow Grove areas are sprawling, multi-municipal regions that have had and continue to have significant office and retail development. The King of Prussia and Willow Grove communities believed that a new coalition of diverse interests, in the form of a TMA, was needed to resolve transportation problems, prevent new problems, and act as a driving force that would act and direct funding for travel demand management activities. DVRPC believed that, since no TMAs existed in Pennsylvania or southern New Jersey, the establishment of TMAs in King of Prussia and/or Willow Grove would set a valuable precedent. Since they are both among the largest business growth areas in the country, successful TMAs in those areas could stimulate numerous other alliances between the public and private sectors.

In contrast, the Conshohocken/West Conshohocken area was the third area chosen because it was about to experience major redevelopment within a very small area which already had transportation infrastructure in place. This location would become very attractive after I-476 would be completed; it would be located at a major interchange of two interstate highways. Because of the small area where the redevelopment effort would be concentrated, alternative modes of travel to solo driving would have to be encouraged. The community believed a TMA should be pursued.

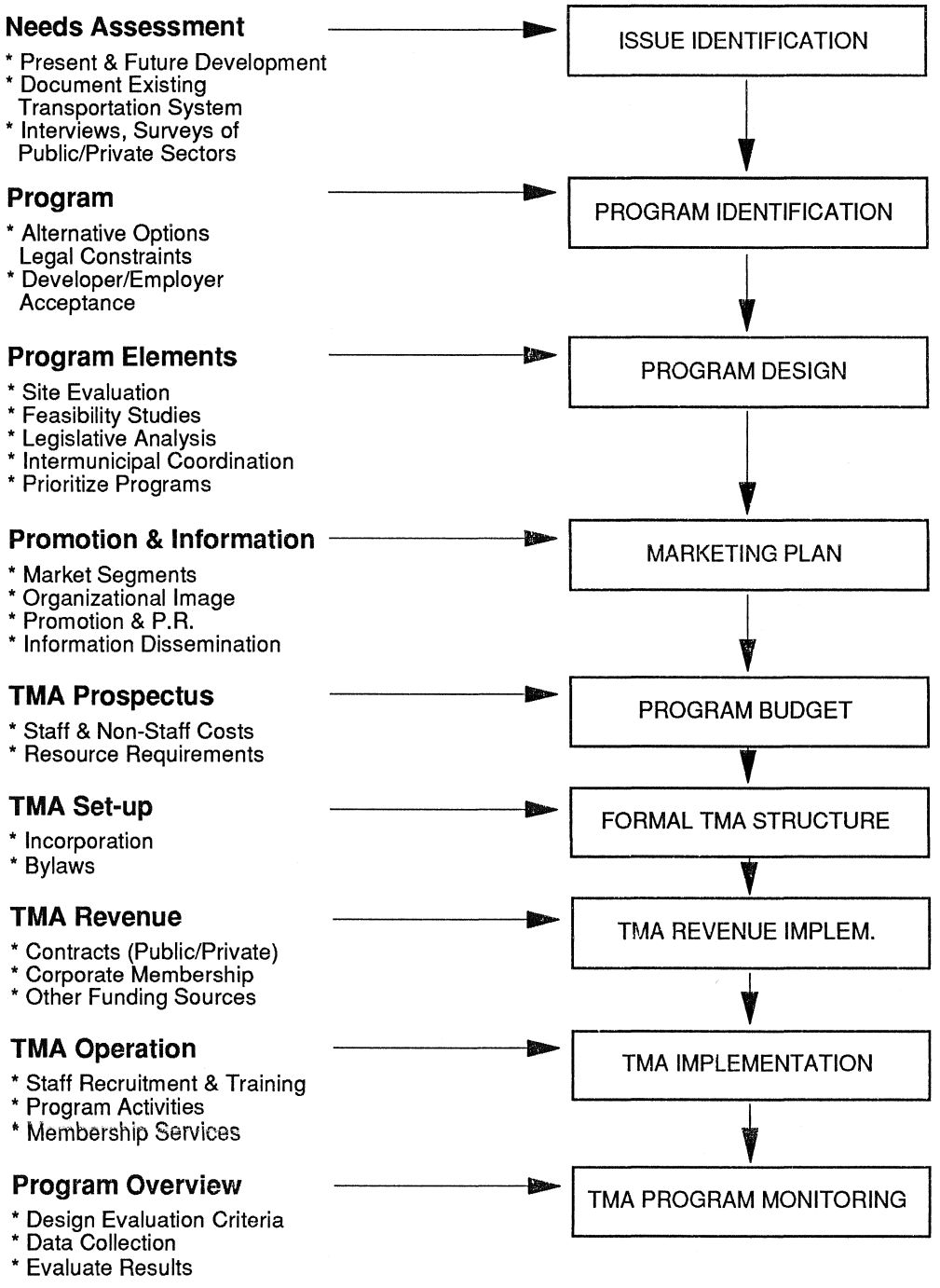
Because of the serious nature of traffic congestion and labor access, the County and DVRPC believed all three areas should be a part of the grant proposal. DVRPC applied for a $350,000 grant to be matched by $35,000 in local contributions, with $242,000 going to the formation of a King of Prussia TMA, $88,000 for Willow Grove, and $55,000 for Conshohocken. This grant application was approved shortly thereafter.

King of Prussia, Willow Grove, and Conshohocken steering committees were formed to guide the TMA development process. In both King of Prussia and Willow Grove, the committees were composed of DVRPC, the local chambers of commerce, county and municipal governments, and local employers and developers. The Conshohocken

steering committee was composed of developers and local and county government officials. The TMA development process is depicted on Figure I.

Figure I

TRANSPORTATION MANAGEMENT ASSOCIATION
Development Process



CHAPTER II

NEEDS ASSESSMENTS

DVRPC assessed the transportation needs (issue identification) for the King of Prussia and Willow Grove areas. The needs assessments included surveys of all employers with 25 or more employees, selected interviews of key employers, developers, and government officials, and an examination of development data and existing transportation services. The information obtained included opinions on transportation problems, programs to address those problems, and programs in which those who were surveyed would be interested in participating.

GREATER VALLEY FORGE TMA ISSUE IDENTIFICATION

INTRODUCTION

The Regional Perspective

While the entire Philadelphia region has seen significant increases in traffic over the past two decades, the King of Prussia area has grown from a remote suburb of Philadelphia to one of the region's major employment centers. Its proximity to interchanges with four major regional highways (Route 422, the Pennsylvania Turnpike, Route 202, and the Schuylkill Expressway) means that almost as many vehicles travel through King of Prussia during the peak hours as are headed for destinations within Upper Merion or Tredyffrin Townships. Roadways which were once adequate to serve the needs of a sparsely populated, almost rural community are now experiencing some level of congestion during most of the day.

The source of all this traffic in the King of Prussia area is rapid employment growth, development, and investment. Meeting all this growth in travel demand by expanding highway capacity is not possible. Economic growth of the sort experienced in the Valley Forge/King of Prussia area occurs much more quickly than corresponding roadway capacity expansion can occur. Therefore, in order to maintain a vigorous business climate, the capability to manage congestion and improve labor market access must be improved. Travel demand management through a Transportation Management Association (TMA) is being proposed to complement what highway improvements are underway.

Needs Assessment Process

In order to determine the transportation needs of the King of Prussia area, the Delaware Valley Regional Planning Commission (DVRPC) staff performed an in-depth analysis of the existing transportation system and employers' needs. This analysis had three parts: (1) a review of existing transportation conditions, (2) interviews with King of Prussia employers, and (3) an employer survey.

A. EXISTING TRANSPORTATION CONDITIONS

TMA Area Growth Analysis

Traffic volumes in the King of Prussia area will almost certainly increase in the future. According to DVRPC estimates, population by 2015 in Montgomery and Chester counties is expected to grow by almost 16%, employment by almost 25%, and car ownership by 29.4% from 1987. Without changes to the roadway network and changes in travel habits, vehicle trips resulting from this growth will almost certainly cause gridlock on major roads in the King of Prussia area.

In 1987, DVRPC published a report entitled "Arterial Deficiency Analysis". This report examined a number of roadways throughout the region with the purpose of identifying the corridors with the highest congestion levels. The Route 202 corridor, which bisects the TMA area, was designated in this report as one of the most deficient regional arterial corridors in the Delaware Valley. This status was determined after traffic volume on segments of selected roadways was measured and compared to the amount of traffic that each segment was designed to carry without congestion (its capacity). Segments were considered deficient if the resulting volume-to-capacity ratio was greater than 1.0. Almost all of the segments analyzed on U.S. 202, throughout the region, had ratios of greater than 1.0. In addition, this regional analysis showed the Greater Valley Forge TMA area to be located in county planning areas experiencing heavy roadway congestion.

Residential population in Upper Merion Township has remained fairly stable since 1970, growing 18% from 23,000 to 28,000 (Source: Township Manager) at the present time. Tredyffrin Township, however, has seen a significant amount of residential population growth in the study area. The Chesterbrook developments, which were constructed entirely since 1970, make up over 2,500 households. Assuming four trips per household per day, it can be estimated that the Chesterbrook residential developments alone have added 10,000 daily trips to the study area roadways since 1970.

Office and retail development has grown within the study area at a much greater rate. While exact statistics are not available, it has been conservatively estimated by Upper Merion and Tredyffrin Township officials that over 5,000,000 square feet of development have been constructed in the study area since 1980. This development includes Chesterbrook's office campus, The Court at King of Prussia shopping mall, a significant portion of the King of Prussia Industrial Park, and the Westlakes, Renaissance, Berwyn Park, and Southpointe office developments. Using typical estimating factors for space requirements and transit use, it can be estimated that more than 50,000 daily trips (two per employee) have been added to the roadway system as a result of this development.

There is a significant amount of commercial development still planned for the study area. In Upper Merion Township alone, 19 parcels are under consideration for development of over 2.5 million square feet. In addition, more than 500 dwelling untis are planned. More than 2.4 million square feet of commercial development and 842 dwelling

units are also planned in the Tredyffrin Township part of the study area. Assuming one employee for every 150 square feet, with two trips per day per employee, and four trips per day per dwelling unit, it can be estimated that if the planned amount of square feet is constructed and occupied, more than 73,000 daily trips could be added to the roadway system in the study area.

Traffic Analysis

In 1985, Upper Merion Township hired the consulting engineering firm of Booz-Allen-Hamilton to conduct a township-wide traffic engineering analysis. This study examined all of the township's major roadways to identify congested corridors and intersections, and to recommend improvements where necessary. This study identified 29 congested intersections.

DVRPC, as part of services to decision-makers, operates the Urban Transportation Planning System computer modeling program to estimate the effects of localized growth on the regional roadway network. This computer simulation uses existing traffic counts and adds traffic to be generated by proposed local facilities to project traffic impacts on specific roadways. This simulation can also be used to project the impacts of regional growth on a specific area. Using these projections, 10 sites within the study area were chosen to illustrate traffic growth percentages over the twenty year period from 1980-2000. These sites are the following:

1. Valley Forge Road at Route 422
2. Route 422 between Valley Forge Road and Route 202
3. North Gulph Road between First Avenue and Goddard Boulevard
4. Route 202 between Route 422 and North Gulph Road
5. North Henderson Road between Route 202 and Valley Forge Road
6. Schuylkill Expressway between Route 202 and I-476
7. South Henderson Road between the Turnpike underpass and Route 202
8. Valley Forge Road west of North Henderson Road
9. Route 202 at Goddard Boulevard
10. Route 202 between Town Center Road and Henderson Road

All of the sites with the exception of one have experienced growth since 1980, and are expected to see more growth as the Year 2000 approaches. It should also be noted that traffic will not grow at the same rate acrosss all roadways. Other factors, including a lack of additional roadway capacity and the availability of new alternative routes will affect the growth rates on some roadways into the next decade. According to the simulation, the highest percentage traffic growth is expected to occur on the Schuylkill Expressway and at the Route 422 ramps on Valley Forge Road.

Roadway improvements in the study area are planned under a variety of programs. There are 10 projects in Upper Merion Township and 6 projects in Tredyffrin Township programmed for improvements under the Pennsylvania Department of Transportation's

(PennDOT) Twelve Year Program, and seven capital improvement projects in Upper Merion Township identified by the 1985 traffic study. Funding sources have not as yet been found for all of these projects.

Public Transit Availability

The study area is currently served by the Southeastern Pennsylvania Transportation Authority (SEPTA) through four bus routes and the Norristown High Speed (trolley) Line (Route 100). The Norristown High Speed Line uses the Norristown Transportation Center as its terminal. This terminal serves not only the High Speed Line but also all SEPTA buses which stop in Norristown and the Norristown DeKalb Street stop of the R-6 Regional Rail Line. For most bus routes, the lower level of the King of Prussia Plaza behind Friendly's Restraurant is used as a terminal. All routes which serve the study area stop at The Plaza. They are the following:

Route 45: Service between Center City and the King of Prussia Plaza, the King of Prussia Industrial Park, and the high-rise residential units on Valley Forge Road via the Schuylkill Expressway, South Gulph Road, North Gulph Road, First Avenue, Allendale and Valley Forge Roads. Both east and westbound service operates at 15-20 minute intervals (headways) during the peak commuting times, half hourly all other times.

Route 92: Service between the King of Prussia Plaza and the Paoli Regional Rail station, Immaculata College, Exton Square Mall, and West Chester via PA 252, US 30, King Road, and PA 100. Service operates on 2-hour headways during weekdays and on Saturdays with no evening service offered.

Route 95: Service between the King of Prussia Plaza and the Plymouth Meeting Mall via Allendale Road, Valley Forge Road, Bridgeport, Conshohocken, and Germantown Pike. Service operates hourly from 8:45am to 5:45pm on weekdays and 6:45 on Saturdays. No evening service is offered.

Route 99: Service between Norristown and the King of Prussia Plaza, Phoenixville, Spring City, and Royersford via US 202, First Avenue, North Gulph Road, PA 23, and PA 724. Service between Norristown and the Plaza operates half-hourly during the day and hourly during the evenings on weekdays and Saturdays. Service between Royersford and the Plaza operates hourly on both weekdays and Saturdays.

Route 100: Light rail service between 69th Street terminal and Norristown with 6 stops in the study area. Service operates about every 15-20 minutes during the peak commuting hours, about every twenty to thirty minutes during other times, and offers evening, Saturday, and Sunday service as well. Hourly service in also provided after midnight.

In response to changing transit needs in the study area, SEPTA is changing two existing routes (92 and 95) and adding two bus routes (Rts. 124 and 205). Route 124

provides service between Center City and Chesterbrook via the Schuylkill Expressway, South Gulph Road, South Henderson Road, US 202, Swedesford Road, Devon Park Drive, and Chesterbrook Boulevard, initiating service to both the South Henderson Road and Chesterbrook Boulevard Corridors. Route 205 provides service between the Wayne Regional Rail station and the King of Prussia Plaza via Eagle Road, King of Prussia Road, and South Gulph Road.

Changes to Route 95 include eliminating current service to the King of Prussia Industrial Park and Bridgeport, instead utilizing US 202, South Henderson Road, and PA 20 to access Renaissance Boulevard, Swedeland, and PA 23 and continue the trip to the Plymouth Meeting Mall. Changes to Route 92 include serving the proposed one-way couplet of Devon Park Drive and the parallel stretch of Swedesford Road, and serving Chesterbrook Boulevard (also served by new Route 124) before returning to the original routing at PA 252.

Private Transit Availability

The study area is also served by more than thirty private transportation companies. These carriers provide fixed-route, taxi, limousine, airport, paratransit, feeder, shuttle, and van pool services in the King of Prussia area. See DVRPC's Directory of Transportation Service Providers in the Delaware Valley Region for information on the services these companies provide.

B. INTERVIEWS WITH KING OF PRUSSIA EMPLOYERS

Another key component of the issue identification phase was interviews with those most directly affected by congestion. DVRPC staff met personally with chief executive officers or high-level staff members of thirty employers and developers in King of Prussia during November 1988 to February 1989. It was important to become acquainted with key area developers, employers, business organizations, and municipal managers. They are, in essence, the clients of the TMA program who must be consulted about areawide transportation needs. The interviews drew participants into the TMA process; at the same time, a degree of information was conveyed that a survey alone could not accomplish. It is implicit in the issue identification task that the TMA program be developed to meet the identified needs of the area. The continued participation of those interviewed was sought to ensure that the program that emerges from this process is accepted and supported.

In meetings with private sector management staff, DVRPC staff not only explained the TMA concept but also gained firsthand knowledge about the operation of each company and the transportation issues affecting its management and employees. These discussions helped to prioritize the programs that the TMA can implement.

Several aspects of the transportation system were discussed. First, DVRPC staff asked about transportation-related problems the company was facing, such as traffic

congestion, public transit availability, or inability to fill vacancies because of the company's location. Second, each company was asked about potential solutions to those problems. Third, DVRPC asked about potential participation in programs that help to solve those problems.

The major transportation issues identified in this process were categorized into the following major areas:

(1) Highway Construction
(2) Parking Problems
(3) Bus Transit/Ridesharing
(4) Commuter Rail
(5) Commuter Information/Signage
(6) Areawide Coordination
(7) Highway Financing
(8) Private Role in Highway Improvements
(9) Economic Development

The interviews touched on may aspects of transportation in King of Prussia. The presence of congestion was cited by virturally everyone interviewed; problems at specific locations ranged from bottlenecks and intersection delays to lack of additional lanes to carry traffic at capacity. A general lack of highway improvements stemming from delays in PennDOT programming was also mentioned.

Highway access was also mentioned as problematic. Apparently, not enough roads lead directly to King of Prussia -- or perhaps too many, since King of Prussia is located at major regional travel routes and can be frustrating to get to. Circulation internal to the area is also difficult for some industries. Insufficient transit circulating within King of Prussia forces many employees to drive their own cars for errands, lunch, and company business. Hotel representatives in particular mentioned that tourists are generally stranded in King of Prussia, unless they have their own cars. Highway signage leaves a lot to be desired as well, according to many.

Labor access was also a main topic in many interviews. Difficulty in recruiting, high employee turnover, and many unfilled positions were mentioned by almost every industry, but especially by light manufacturing and hospitality representatives, and usually at lower level jobs such as clerical. There appears to be much inefficient transportation provided by individual companies that pick up people in Philadelphia and at area train stations. Many interviewd perceived a negative mobility image which stemmed from poor access to King of Prussia. A unified marketing approach was recommended to overcome the perception that "King of Prussia was hard to get to".

Developers mentioned that they would like more input into decision-making about road construction or other improvements which affect their developments. They also said that more coordination between members of similar industries and more interface between

King of Prussia employers or developers and state offices and utilities was needed. Many interviewees were amenable to negotiated traffic reduction strategies and decried the lack of better communication between the public and private sectors. Better coordination among jurisdictons -- municipal, county, and state -- was often mentioned by public sector representatives.

Two matrices were prepared to summarize the interview results. Table I, "Initial Findings from Interviews by Client Group," lists the major issues from the private and public sector viewpoints. Table II, "Initial Findings from Interviews by Geographic Area," lists the major issues by company site, business park, and TMA area.

DVRPC found three issues that were named unanimously by employers, developers, associations, municipalities, and the state. These were (1) congestion, (2) private financing of highway improvements, and (3) private highway building.

Lack of transit and paratransit and better rail links to activity centers were also named by five of the six groups. These results were presented to Steering Committee members who agreed with many of these viewpoints.

C. EMPLOYER SURVEY

DVRPC staff conducted an extensive survey of employers in the King of Prussia area. The purposes of the survey were to (1) gather basic information about the firms, (2) determine opinions about what transportation problems exist, (3) determine opinions about what transportation programs are needed, (4) gather zip code lists of employees residences, and (5) determine which employers wish to participate in developing the TMA.

With this information, the TMA would be able to successfully implement a program in which employers will participate. They would be more willing to take part in programs they feel would solve transportation problems. The zip code information would be used to develop transit and car/van pooling services for employees.

Identification of Employers to be Surveyed

DVRPC staff determined the employee population to be approximately 42,500. U.S. Census and King of Prussia Chamber of Commerce statistics were used to develop that estimate.

Staff attempted to survey as many employers as possible, with a goal of surveying all firms with more than 25 employees and many with less than that. The major sources of information were the Dun & Bradstreet Employer Directory, the King of Prussia and Greater Philadelphia chamber of commerce, the American Business Firms Directory, developers, and business park managers. These sources of information usually provided the company name, address, telephone number, and contact person. The contact person was usually the chief executive officer, president or general manager.

Table I

INITIAL FINDINGS FROM INTERVIEWS BY CLIENT GROUP
KING OF PRUSSIA TRANSPORTATION MANAGEMENT ASSOCIATION

Issue Identification Matrix

Issues Raised as of February 1989	Private Sector			Public Sector		
	Emp.	Devel.	Assn.	MCD	Co.	State.
Highways						
Congestion	X	X	X	X	X	X
Accessibility	X	X	X	X		
Financing		X	X	X	X	
Traffic Flow Improvements				X	X	X
Lack of Construction	X	X	X	X	X	
Private Role in Hwy. Improvements						
Prioritizing		X				X
Financing	X	X	X	X	X	X
Building	X	X	X	X	X	X
Parking Problems	X	X				X
Bus Transit/Ridesharing						
Lack of Transit	X	X	X	X		X
Lack of Paratransit	X	X	X	X		X
Frequency	X		X			
Routing	X					
Circulation	X	X	X			
Links to Airports	X	X				
Financing					X	X
Amenities					X	
Commuter Rail						
Frequency						
Links to Activity Areas	X	X	X	X		X
Commuter Information/Signage	X	X	X		X	X
Areawide Coordination						
Emergency Travel				X	X	X
Intermodal				X	X	
Municipal Approval Process			X			
Lack of Public/Private Forum			X			
Economic Development						
Growth Management	X	X		X	X	
Labor Access	X	X	X	X		
"Marketing" of King of Prussia Area	X	X	X			

Table II

INITIAL FINDINGS FROM INTERVIEWS BY CLIENT GROUP
KING OF PRUSSIA TRANSPORTATION MANAGEMENT ASSOCIATION

Issue Identification Matrix

Issues Raised as of February 1989	Site	Park	Area
Highways			
Congestion	X	X	X
Accessibility	X	X	X
Financing		X	X
Traffic Flow Improvements	X	X	
Lack of Construction	X	X	X
Private Role in Hwy. Improvements			
Prioritizing			X
Financing	X	X	X
Building	X	X	X
Parking Problems	X	X	
Bus Transit/Ridesharing			
Lack of Transit	X	X	X
Lack of Paratransit	X	X	X
Frequency	X		
Routing	X	X	
Circulation	X	X	X
Links to Airports	X		X
Commuter Rail			
Frequency			
Links to Activity Areas	X	X	X
Commuter Information/Signage	X		X
Areawide Coordination			
Emergency Travel			X
Intermodal			X
Municipal Approval Process		X	X
Lack of Public/Private Forum			
Economic Development			
Growth Management	X		X
Labor Access	X		X
"Marketing" of King of Prussia Area	X		X

Staff developed a questionnaire cover letter to explain the TMA and ask employers to answer the questions. For several business parks, the developer or business park manager signed the letter. Mr. Hunter Robinson, Executive Vice President, King of Prussia Chamber of Commerce, signed the letter for businesses that were members of the Chamber; Mr. Ronald Wagenmann, Township Manager, Upper Merion Township, and Mr. Joseph Janasik, Township Manager, Tredyffrin Township, signed for other employers. DVRPC felt that employers would prefer to respond to the questionnaire if it came from their landlord, the township, or the chamber of commerce (people they know) as opposed to the commission.

Survey Package

The survey package contained three items: (1) the cover letter which introduced the employers to the TMA concept and asked them to fill out the questionnaire, (2) the questionnaire, and (3) a postage paid return envelope. We requested the employers to mail the completed survey form to DVRPC.

Survey Mailing

DVRPC staff mailed the questionnaires between December 1988 and March 1989. As surveys were mailed and completed ones returned, staff kept track of to whom and when they were mailed in the computer file.

For those employers who did not respond to the survey within two or three weeks, DVRPC attempted to make a follow-up call to many of them. The staff especially concentrated on the larger employers, those with more than 100 employees. Staff was very successful in getting most of these employers to respond to the survey.

Survey Results

As of June 30, 1989, questionnaires were mailed to 330 employers who employed approximately 30,000 persons (see Figure II). One hundred seventeen questionnaires were returned, representing 18,853 employees. The response rate was 35 percent. The returned questionnaires represent 44 percent of the total King of Prussia area employment.

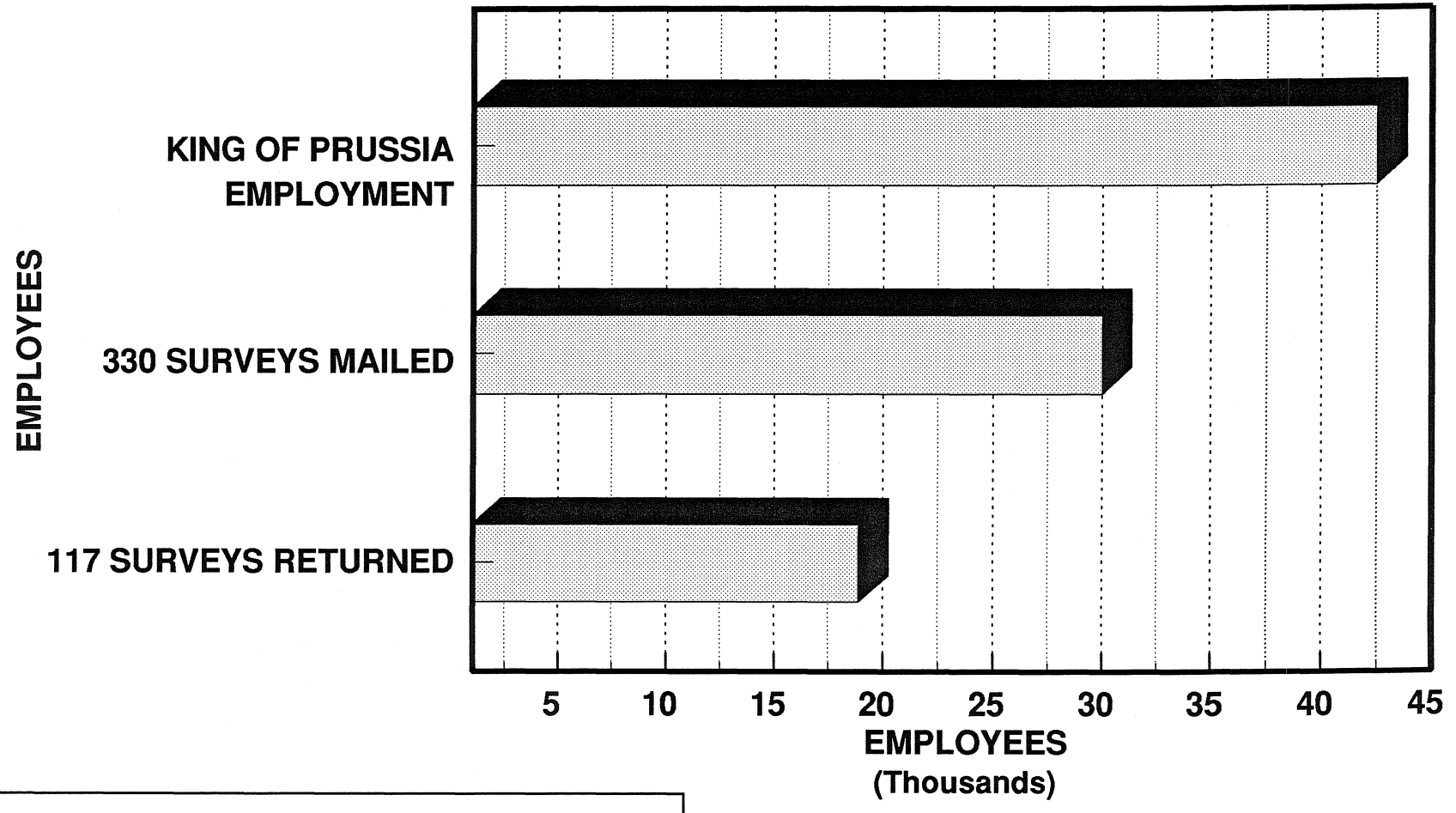
Figure III shows the distribution of respondents by subarea. Subarea 1 is the King of Prussia Industrial Park and General Electic plant. Subarea 2 is the retail area in the Route 202 corridor. Subarea 3 is Upper Merion Township south of Conrail's Trenton Cut-off line. Subarea 4 is the Chesterbrook portion of Tredyffrin Township.

Figures IV and V indicate the distribution of respondents by company size and type of firm. Forty-six percent of survey respondents were from service or professional sectors. Nine percent each belonged to retail trade and manufacturing sectors. The remaining companies were distributed over the developer, institution, construction, and wholesale trade categories.

FIGURE II

GREATER VALLEY FORGE TRANSPORTATION NEEDS ASSESSMENT

EMPLOYER SURVEY STATISTICS



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Project: GREATER VALLEY FORGE TMA Implementation

FIGURE III

GREATER VALLEY FORGE TRANSPORTATION NEEDS ASSESSMENT

SURVEY RETURNS BY SUBAREA BASED ON NUMBER OF EMPLOYEES

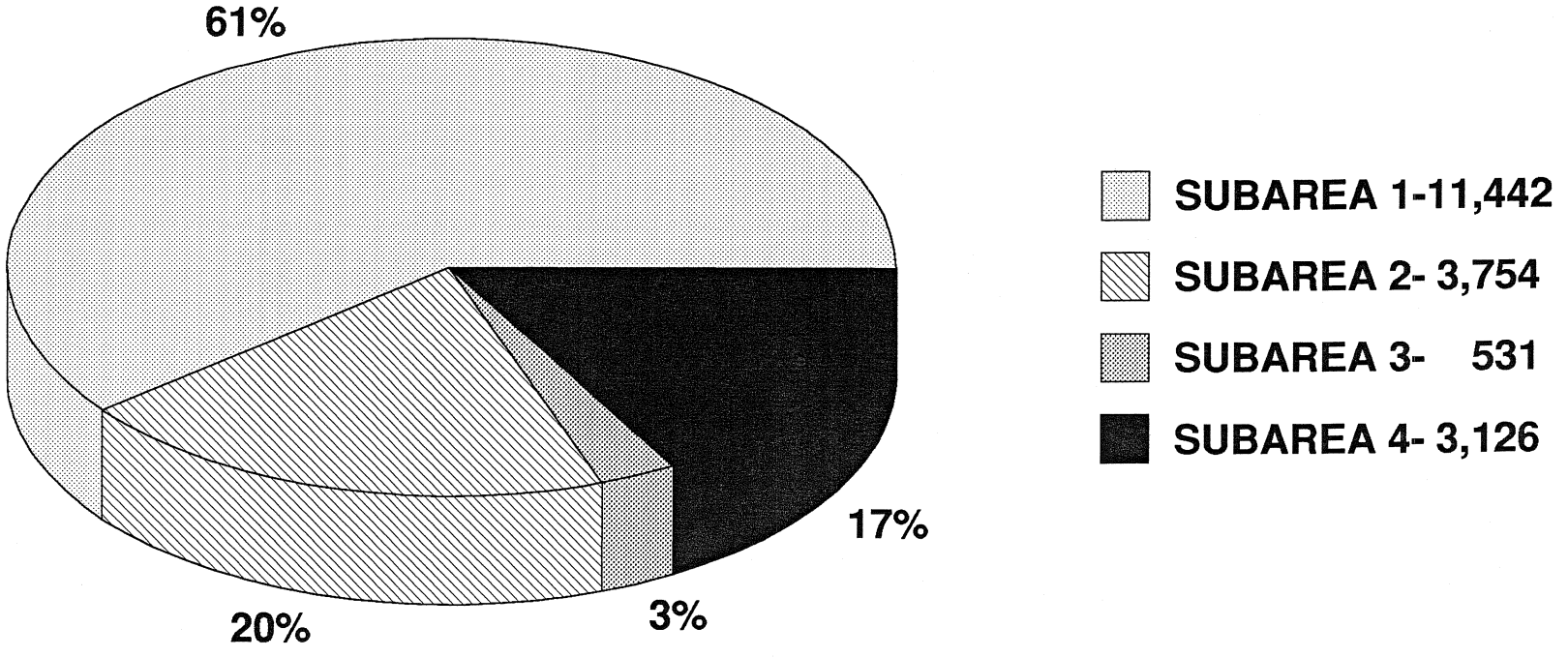

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FIGURE IV

GREATER VALLEY FORGE TRANSPORTATION NEEDS ASSESSMENT

SURVEY RETURNS BY FIRM SIZE

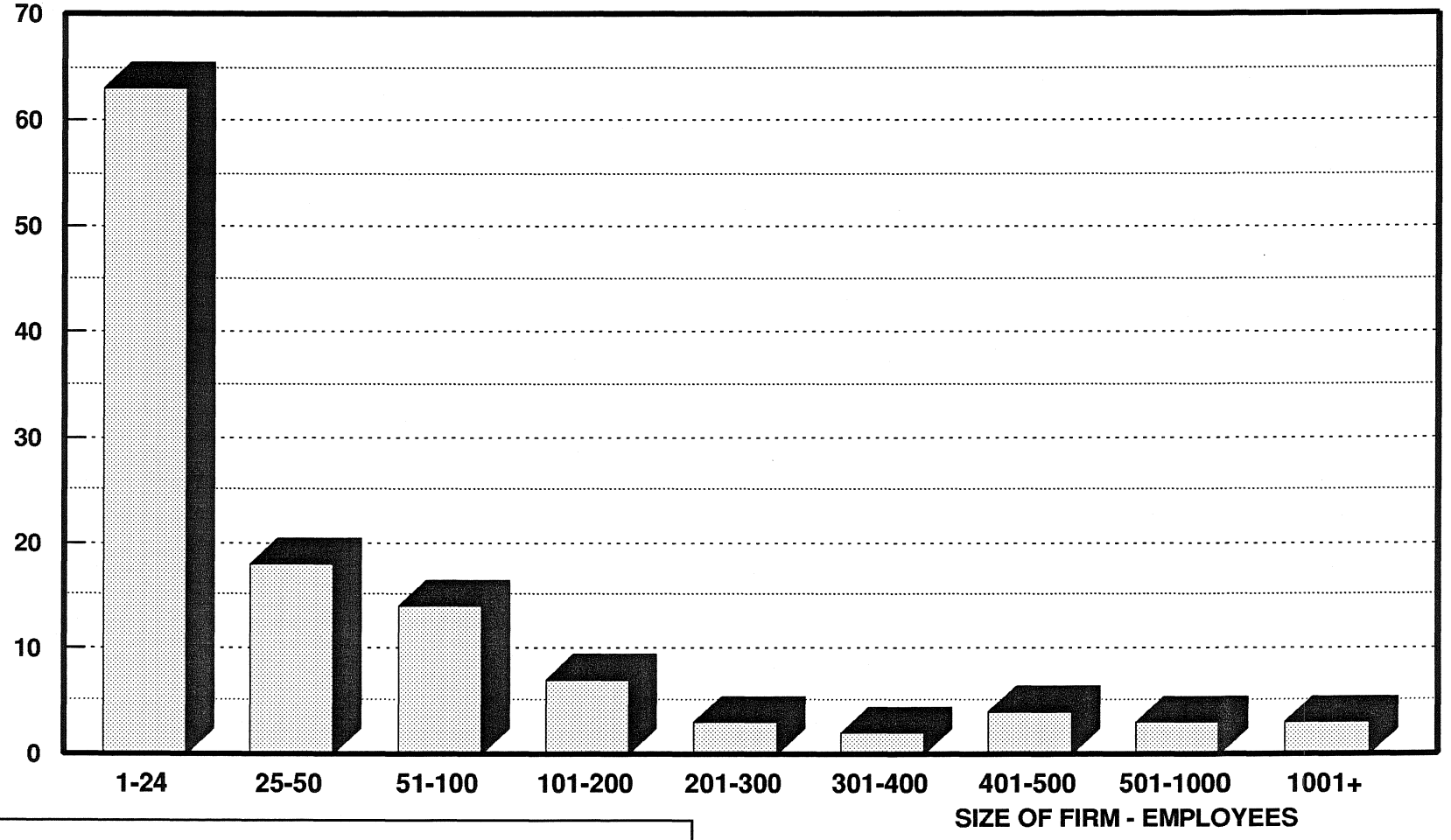

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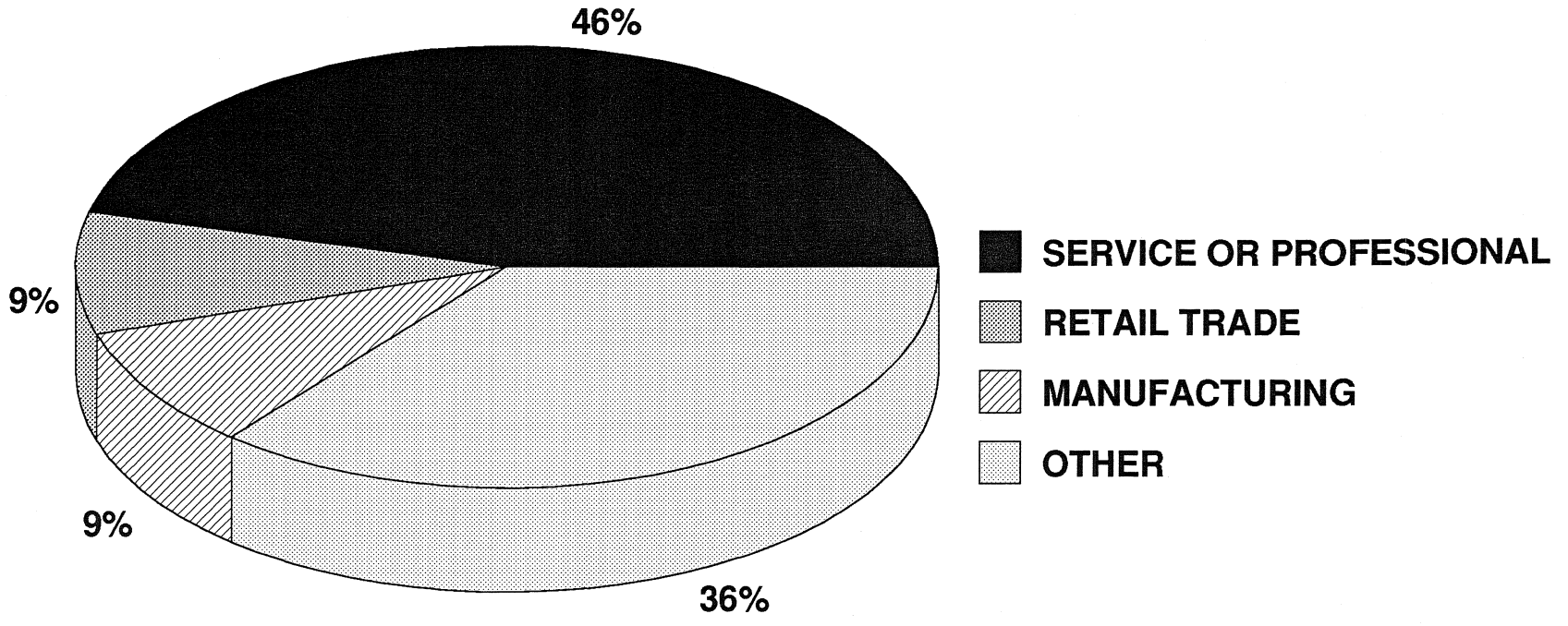
FIGURE V

GREATER VALLEY FORGE TRANSPORTATION NEEDS ASSESSMENT

TYPES OF FIRMS SURVEYED



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Fifty-four percent of all employers use a fixed work schedule; 24% use a staggered shift schedule; 22% use flextime scheduling; one percent use a compressed work week (see Figure VI). Figure VII indicates the work schedule by percentage of employees.

Note that the fixed work schedule applies to 69% of the total number of employees included in the survey data base. Staggered shift represents 28% and flextime represents 3% of all employees.

The most prevalent transportation program offered is alternative scheduling which 13 companies mentioned (11%); relatively few companies mentioned the availability of car pooling (9 firms), van pools (5 firms), preferential parking (5 firms) or transit assistance (4 firms). Figure VIII also illustrates the varying numbers of employees who potentially benefit from these programs. Example: 13 firms with alternative scheduling employed 17 percent of King of Prussia employees.

Peak hour traffic congestion is the most serious transportation problem; it was mentioned by 88% of all firms. This represents 93% of total employment from surveys returned. The next most serious issue was inadequate public transit access, which was mentioned by 45% of all firms, representing 89% of all employment. Inadequate circulation within the area was noted by 38% of employers representing 77% of employment sampled. Finally, poor highway access was mentioned by 34% of employers, representing 66% of employees. Insufficient parking is not a problem. Figure IX summarizes these results. Almost all respondents felt that these problems would remain the same, if not get worse, in the next five to ten years.

Transit quality was felt to be poor or unavailable by 51% and excellent or adequate by 36% of all firms. Figure X depicts these findings.

Forty-one percent of all respondents felt that their ability to fill entry level positions was affected by the lack of transportation. Nineteen percent reported unfilled positions at all levels and 21% cited high employee turnover as consequences of lack of transportation. Fifteen percent also mentioned a lack of sufficient parking as an issue related to the unavailability of transit. (See Figure XI.)

Figure XII indicates the types of programs that these firms would be willing to consider imlementing. Forty-six percent (A on the chart) of all firms indicated that they would participate in an areawide highway needs evaluation; these employers represent 83% of the work force covered by survey respondents. Twenty-eight percent (B on the chart) of all firms said they would encourage their employees to use public transit; this represents 81% of the work force covered by employees to use public transit; this represents 81% of the work force covered by the survey. Twenty-six percent (C) said that they would participate in the planning of commuter-related transportation improvements; this represents 80% of all employees. Thirteen percent (D) said they would adopt alternative work scheduling; however, these firms represent only 13% of the surveyed

FIGURE VI

GREATER VALLEY FORGE TRANSPORTATION NEEDS ASSESSMENT

EMPLOYER WORK SCHEDULE

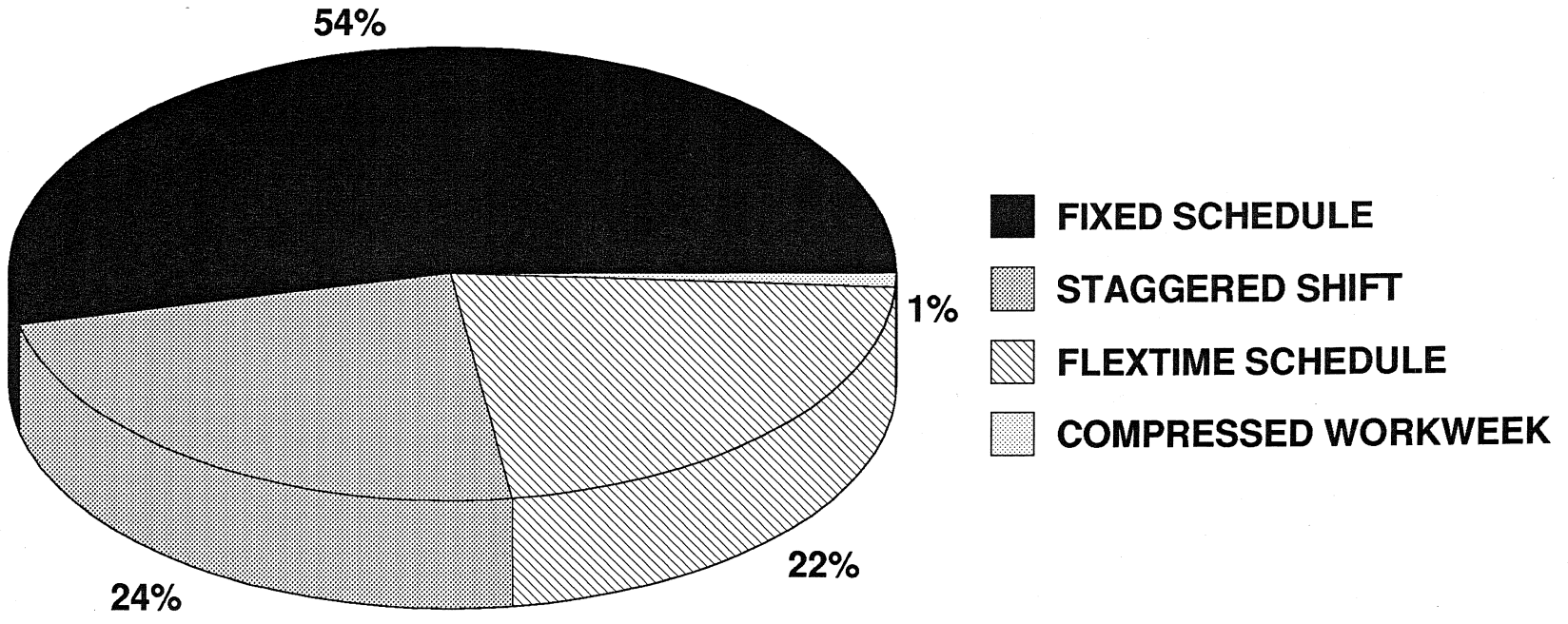

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FIGURE VII

GREATER VALLEY FORGE TRANSPORTATION NEEDS ASSESSMENT

EMPLOYEES COVERED BY WORK SCHEDULE

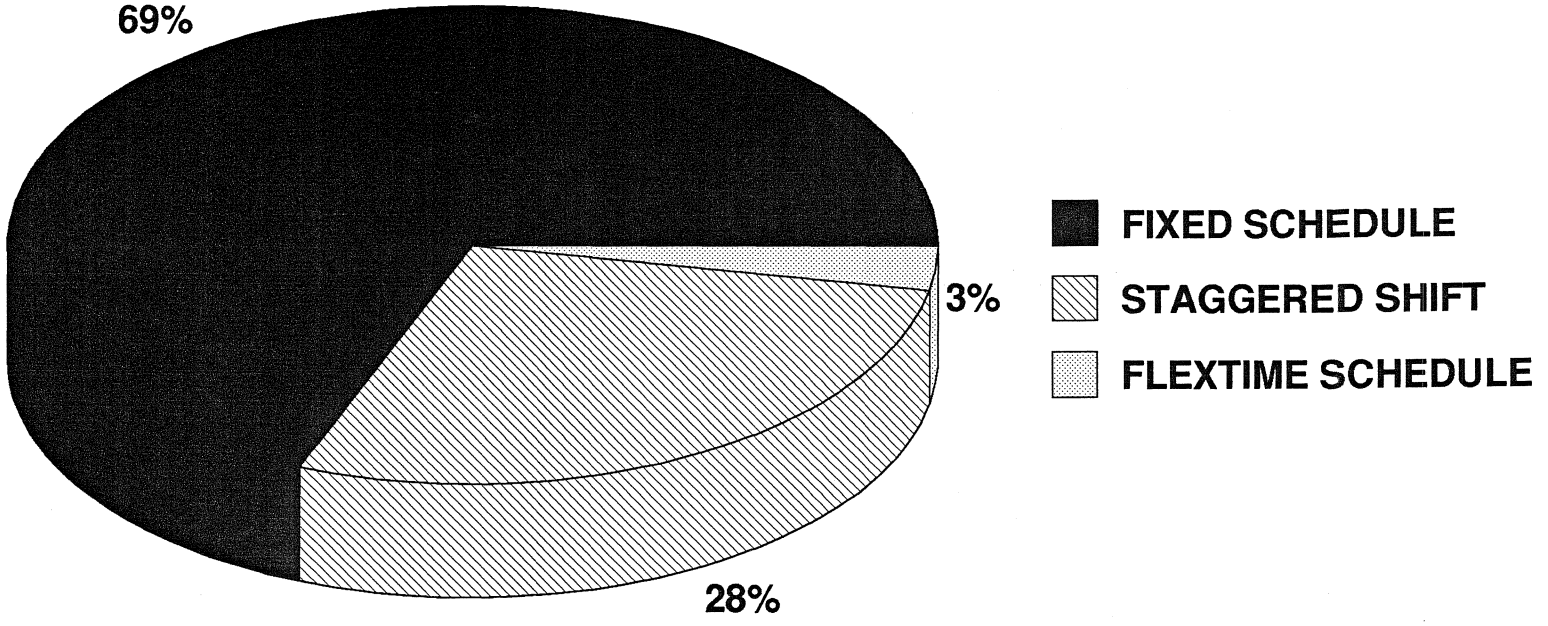

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FIGURE VIII

GREATER VALLEY FORGE TRANSPORTATION NEEDS ASSESSMENT

EMPLOYER TRANSPORTATION PROGRAMS

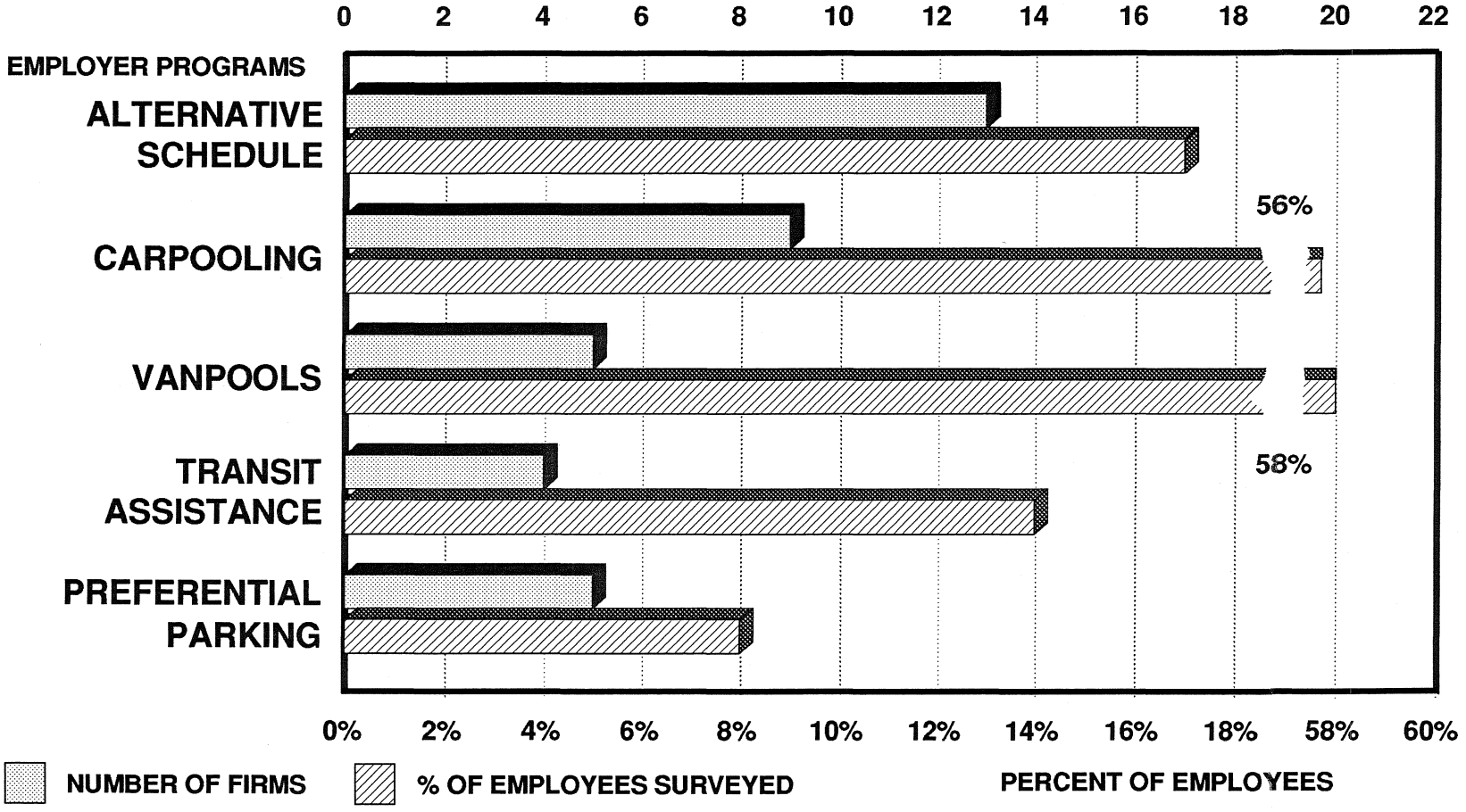

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FIGURE IX

GREATER VALLEY FORGE TRANSPORTATION NEEDS ASSESSMENT

TRANSPORTATION PROBLEMS

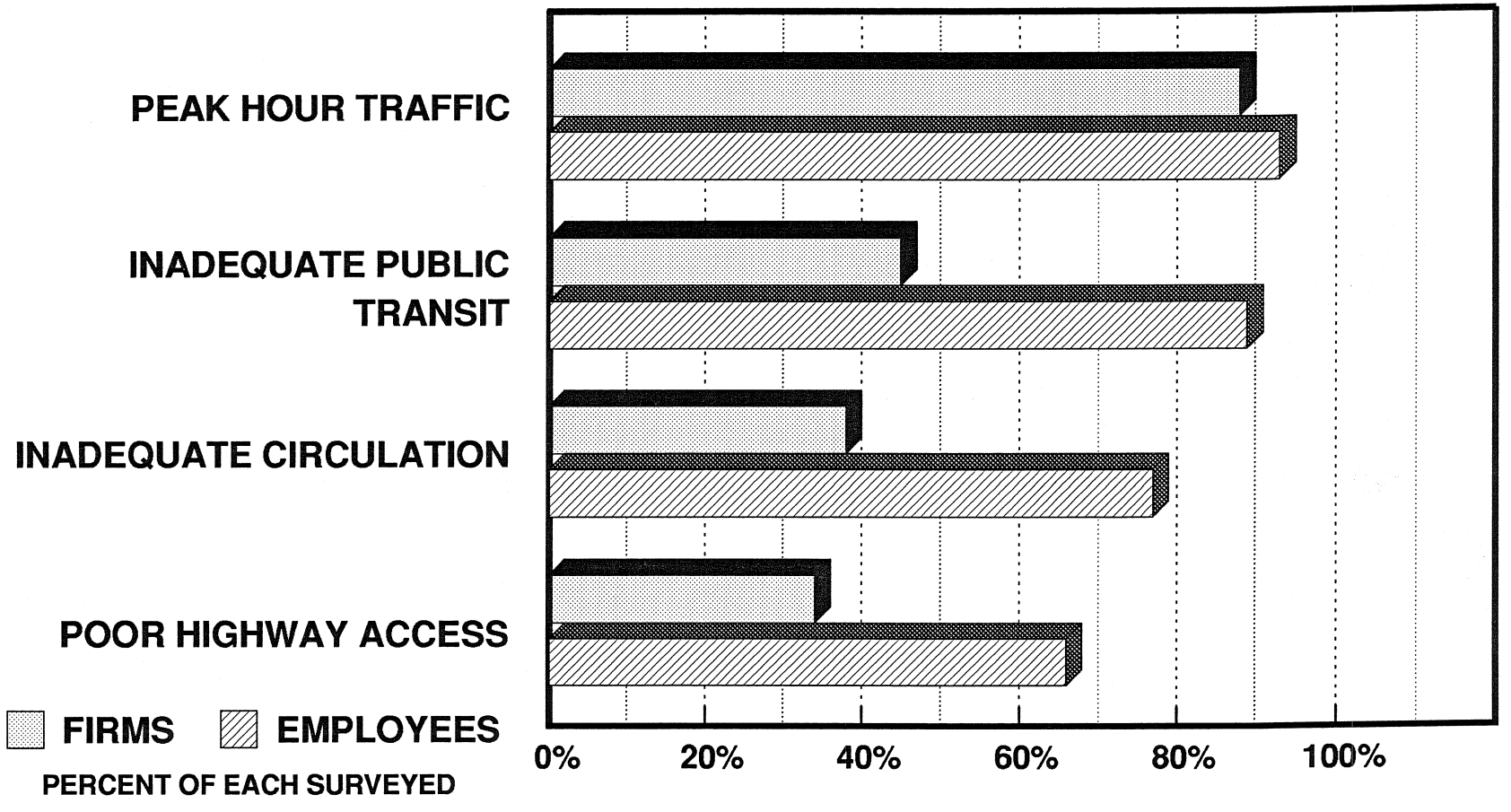

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FIGURE X

GREATER VALLEY FORGE TRANSPORTATION NEEDS ASSESSMENT

TRANSIT ADEQUACY

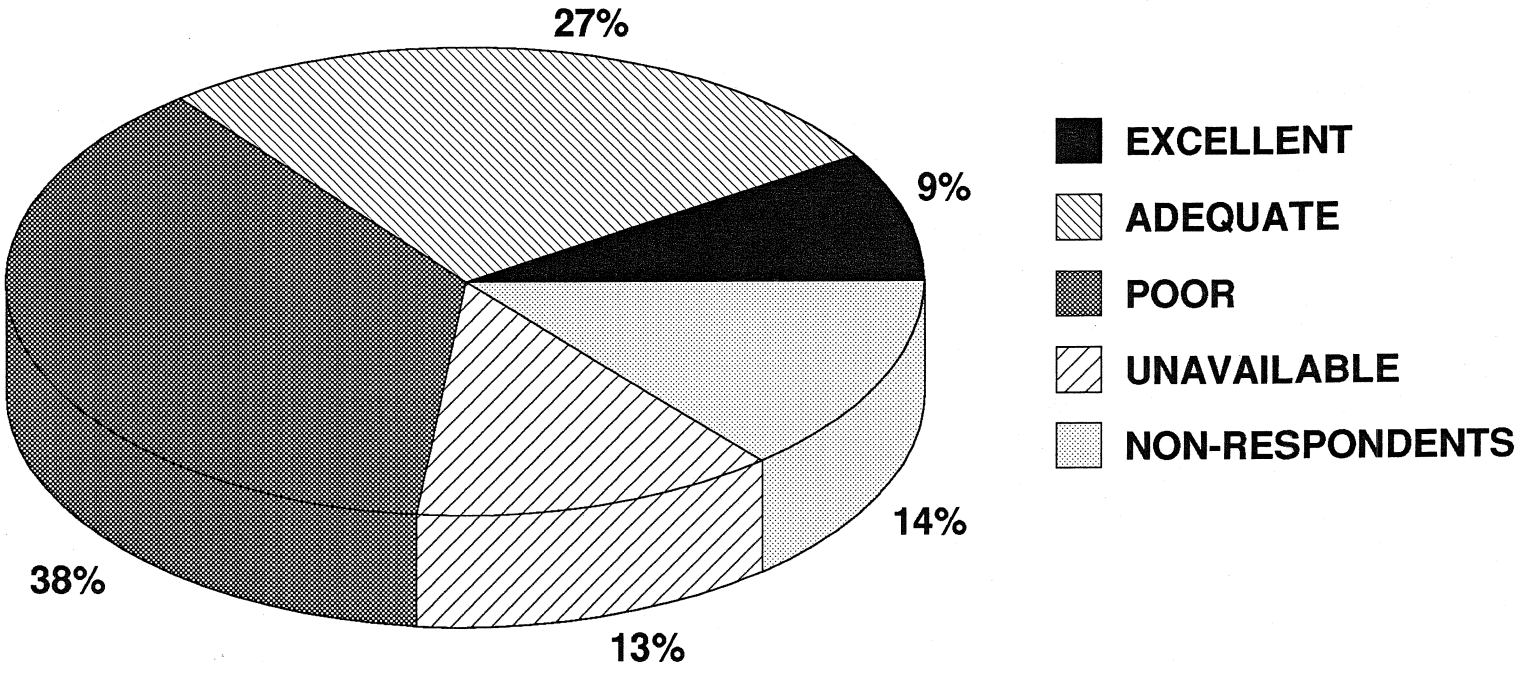

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FIGURE XI

GREATER VALLEY FORGE TRANSPORTATION NEEDS ASSESSMENT

TRANSIT EFFECTS ON EMPLOYERS

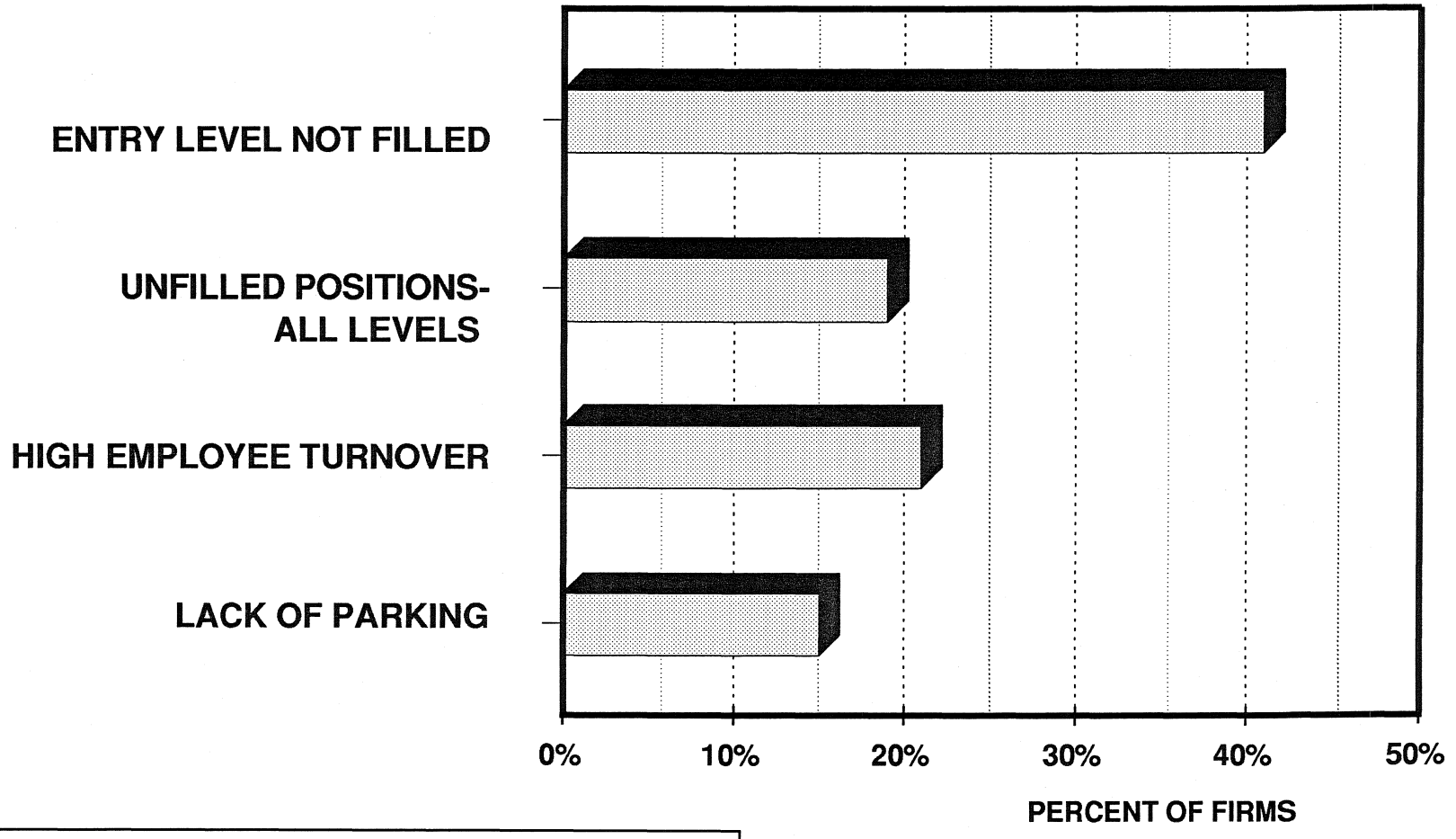

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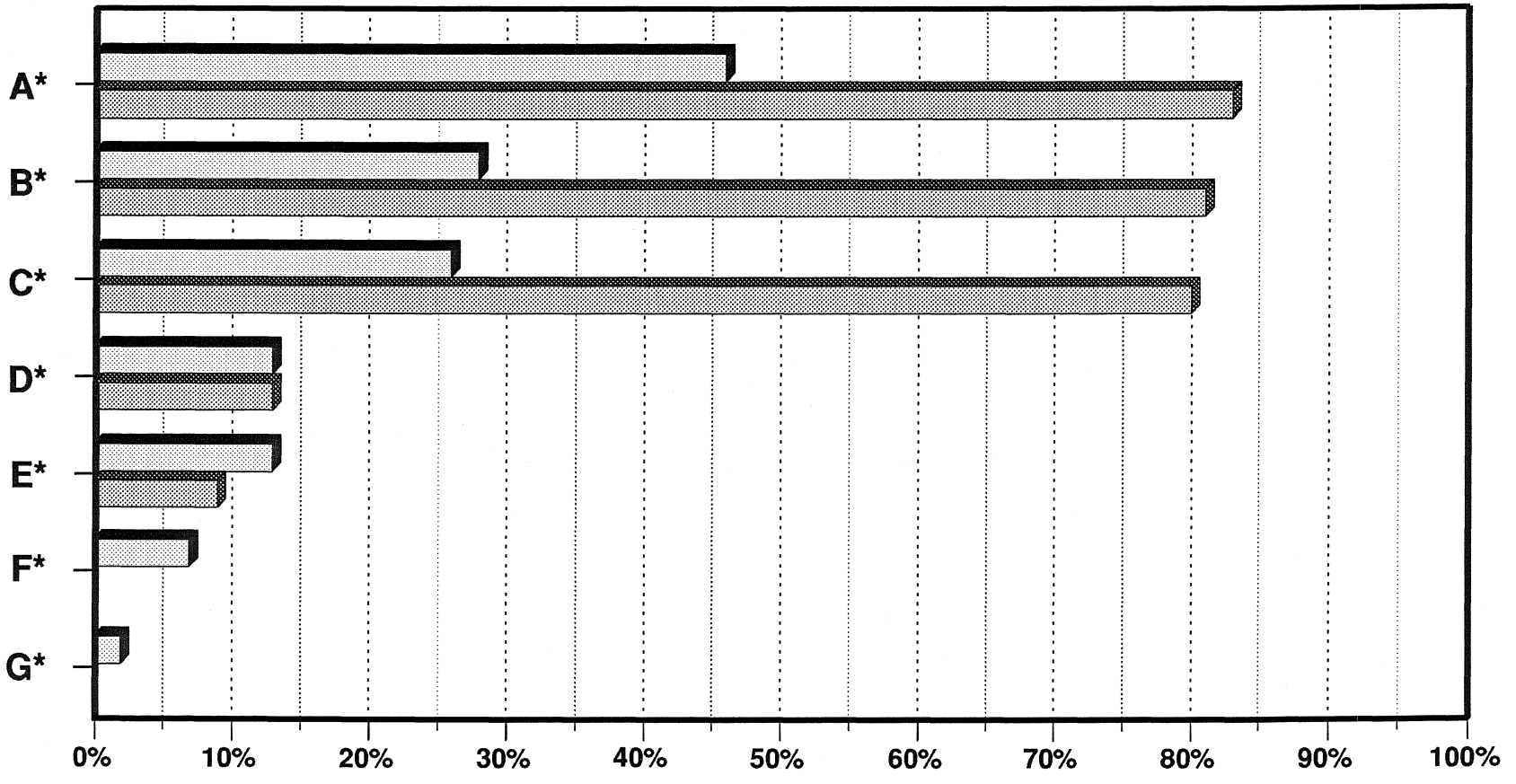
FIGURE XII

GREATER VALLEY FORGE TRANSPORTATION NEEDS ASSESSMENT

TYPES OF PROGRAMS FIRMS WOULD CONSIDER



* SEE REPORT TEXT

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work force. Thirteen percent (E) indicated a willingness to partially subsidize their employees' transportation; this represents 9% of the surveyed work force. Seven percent (F) would reserve parking spaces for van pools or car pools; and 2% (G) would consider remote parking for their employees.

Sixty-two percent of all companies responded that they would participate in some form of transportation programming (an areawide commuter assistance program, planning of programs, or being placed on the steering committee mailing list) organized for the King of Prussia area. These firms represent close to 98% of all employees covered by the survey.

Several insightful comments were provided on the questionnaires. Regarding highway congestion, comments mentioned the need for better designed interchanges, more road work, no more signals, and the serious congestion during peak hours. Clients of one firm are unwilling to visit the office during certain hours. Customers of another firm face major delays to and from the airport during commuting hours.

Regarding mass transit, several people mentioned the need for extended service hours on weeknights and Sundays for employees who work then. At least a dozen retaurants have employee shortages due to inadequate transportation. Janitorial services have had the most problems hiring cleaners for evening hours. Also, improved mobility is needed for companies which have more than one location and for motel guests.

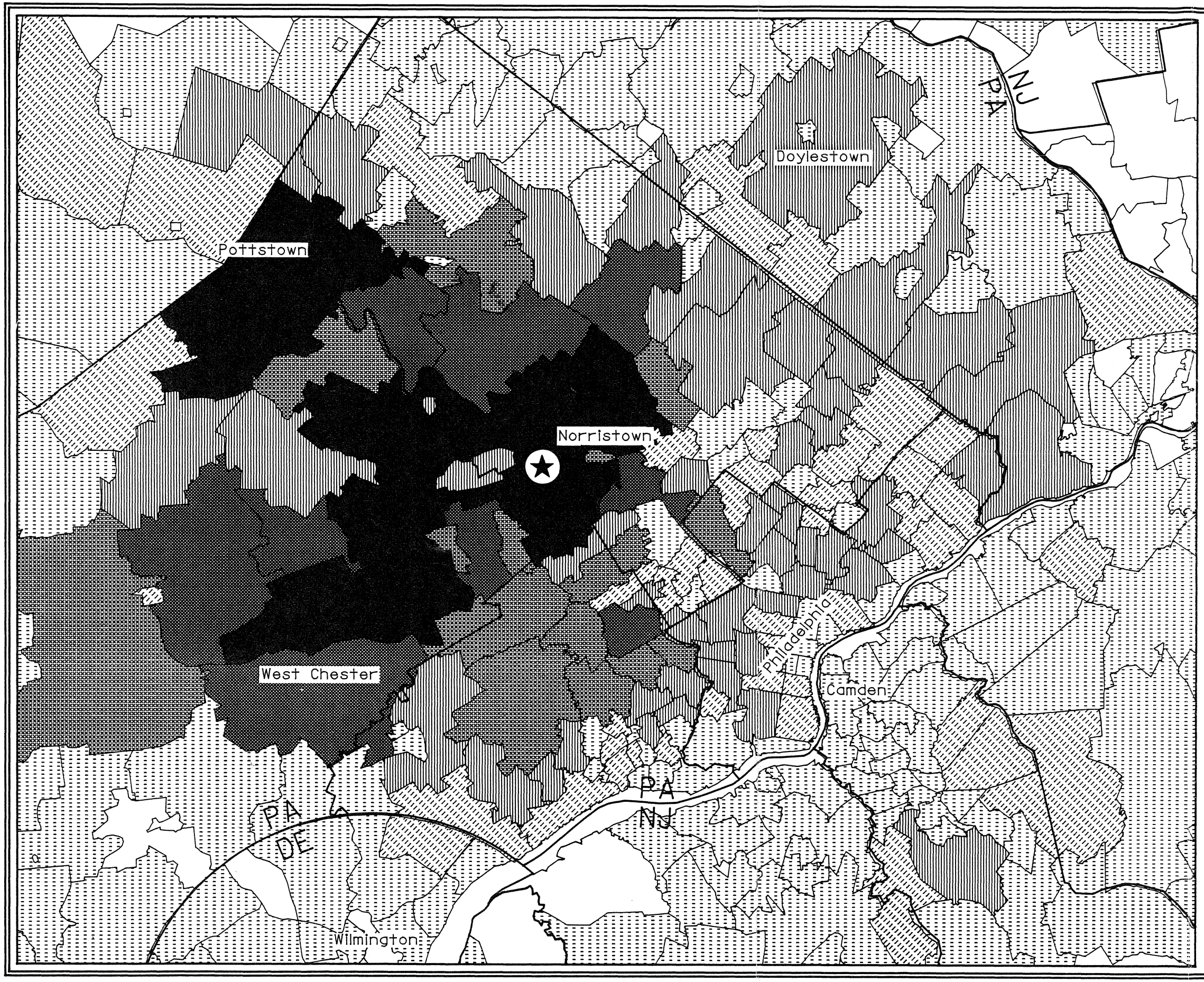
Employee's Residence Locations as a Tool for Planning New Services

The employer survey requested the zip codes of employees' residences. DVRPC received zip codes for close to 90% of the employees who were reported. The purpose of asking for this information was to determine the location and concentration of residences of King of Prussia employees. Computer maps were generated to illustrate these "origins" of employees' work trips. Zip code boundaries and density of residences are shown.

Having this data and the maps will enable the TMA to plan transit, car pooling, and van pooling services. For zip code areas in which more than 1,000 King of Prussia employees live (Pottstown, Phoenixville, and West Chester, for example), express buses could be established. In areas of 50 or less employees, car pools could be formed. In areas with densities in between those two extemes, a whole range of options could be used, such as buses, van pools, paratransit, and car pools. The maps serve as a tool to plan commuting services for TMA employees. Figure XIII is the map for all employees in the TMA study area. Also available are maps for each of the four subareas, showing where employees in each of those subareas live.

Figure XIII

GREATER VALLEY FORGE TMA LABOR MARKET



LEGEND

\# of TMA employees residing in zone

- OVER 1000
- 501 - 1000
- 251 - 500
- 101 - 250
- 51 - 100
- 1 - 50

★ Greater Valley Forge TMA

0 2 4 6 MILES

PREPARED BY
DELAWARE VALLEY REGIONAL PLANNING COMMISSION

PTA TMA ISSUE IDENTIFICATION

INTRODUCTION

The Regional Perspective

While the entire region has seen serious increases in traffic over the past two decades, the Partnership for Transportation Action (PTA) area in Montgomery and Bucks Counties within Abington, Horsham, Upper Dublin, Upper Moreland, Upper Southampton, and Warminster Townships and Bryn Athyn, Ivyland, and Hatboro Boroughs has grown from a bedroom community of Philadelphia to one of the region's major employment centers. Roadways which were once adequate to serve the needs of these residential communities are now experiencing severe congestion during most of the day.

The source of all this traffic generation in the PTA area is healthy employment growth, development, and investment. To meet this growth in travel demand by expanding highway capacity is not really possible. Economic growth of the sort experienced in the PTA area occurs much more quickly than corresponding roadway capacity expansion can occur. Therefore, in order to maintain a vigorous business climate, the capability to manage congestion and improve labor market access must be improved. Travel demand management through a Transportation Management Association (TMA) is being done.

Needs Assessment Process

In order to determine the transportation needs of the PTA area, the Delaware Valley Regional Planning Commission (DVRPC) staff performed an in-depth analysis of the existing transportation system and employers' needs. This analysis had three parts: (1) existing transportation conditions, (2) interviews with Willow Grove area employers, and (3) an employer survey.

A. EXISTING TRANSPORTATION CONDITIONS

TMA Area Growth Analysis

Traffic volumes in the PTA area will almost certainly increase in the future. According to DVRPC estimates, population by 2015 in Montgomery and Bucks counties is expected to grow by almost 22%, employment by 25%, and car ownership by 34% from 1987. Without changes to the roadway network and changes in travel habits, vehicle trips resulting from this growth will negatively affect growth and expansion in the PTA area.

In 1987, DVRPC published a report entitled "Arterial Deficiency Analysis". This report examined a number of roadways throughout the region with the purpose of identifying the corridors with the highest congestion levels. The Route 611 corridor which bisects the PTA area, was designated in this report as one of the most deficient regional arterial corridors in the Delaware Valley. This status was determined after traffic volume on segments of selected roadways was measured and compared to the amount of traffic that

each segment was designed to carry without congestion (its capacity). Segments were considered deficient if the resulting volume-to-capacity ratio was greater than 1.0. Almost all of the segments analyzed on Route 611 throughout the area had ratios of greater than 1.0. In addition, this regional analysis showed the PTA area to be located in county planning areas experiencing heavy to severe roadway congestion.

Residential population in the PTA area has remained fairly stable over the past decade, growing only 6% from about 182,100 in 1980 to about 193,000 in 1988 (source: Bucks County Planning Commission and township managers). The largest increases in residential population occurred in Horsham Township (+31%) and Uppper Southampton Township (+17%). Table III, below, shows the population growth of the individual municipalities in the study area.

Table III

PTA STUDY AREA POPULATION

Municipality	1980 Population	1988 Population	% Change
Abington Township	59,000	60,000	+ 2%
Horsham Township	16,000	21,000	+ 31%
Hatboro Borough	7,600	7,600	---
Upper Dublin Township	22,300	23,000	+ 3%
Upper Moreland Township	25,900	25,900	---
Upper Southampton Township	15,800	18,500	+ 17%
Warminster Township	35,000	37,000	+ 6%
TOTAL	182,000	193,000	+ 6%

In contrast, employment in the PTA area has experienced significant growth in the same period of time. While some municipalities have seen a small overall decrease in their numbers of employees (Table IV), others, such as Horsham Township (+100%) and Hatboro Borough (+43%) show overall TMA area growth (Source: Bucks County Planning Commission and DVRPC). Substantial commercial development of parcels along the Pennsylvania Turnpike throughout the PTA area and office campus developments in Horsham Township and Upper Dublin Township, combined with limited transit availability, has increased traffic on the PTA area roadways by more than 12,000 trips per day.

Table IV

PTA STUDY AREA EMPLOYMENT

Municipality	1980 Employment	1988 Employment	% Change
Abington Township	23,000	21,000	+ 9%
Horsham Township	9,500	19,000	+100%
Hatboro Borough	4,900	7,000	+ 43%
Upper Dublin Township	21,000	19,000	- 10%
Upper Moreland Township	12,500	13,500	+ 12%
Upper Southampton Township	6,000	7,000	+ 17%
Warminster Township	16,100	18,000	+ 12%
TOTAL	92,500	105,300	+ 14%

Traffic Analysis

A number of sources were consulted to determine the most heavily congested areas in the PTA area. DVRPC staff, Montgomery County and Bucks County planning commission staffs, traffic engineering consultant McMahon Associates, and township managers were asked to identify the most heavily traveled roads and most heavily congested intersections in the PTA area. A total of 26 congested intersections were identifed (Table V), and comments indicated that most of the area's major roadways are congested (Table VI).

As part of its work program, DVRPC operates the Urban Transportation Planning System to estimate the effects of localized growth on the regional roadway network. this computer simulation uses existing traffic counts and adds traffic to be generated by proposed developments to project the impacts of regional growth on a specific area. Using these projections, nine sites within the study area were chosen to illustrate traffic volume growth over the twenty-year period from 1980 to 2000.

These sites include:

1. Street Road (Route 132) west of York Road (Route 263)
2. York Road (Route 263) south of Street Road (Route 132)
3. Easton Road (Route 611) at County Line Road
4. York Road (Route 263) north of PA Turnpike
5. Easton Road (Route 611) at PA Turnpike Interchange
6. Limekiln Pike (Route 152) at PA Turnpike overpass
7. Welsh Road (Route 63) north of PA Turnpike overpass
8. Old York Road (Route 611) south of Welsh Road (Route 63)
9. Limekiln Pike (Route 152) north of Butler Pike

All of the sites with the execption of one have experienced growth since 1980, and all are expected to see more growth as the year 2000 approaches. It should also be noted that traffic will not grow at the same rate across all roadways. Other factors, such as lack

Table V

CONGESTED INTERSECTIONS - PTA STUDY AREA

Ref. No.		Township(s)+
1	Norristown Road and Horsham Road (463)	H
2	Meetinghouse Road and Easton Road (611)*	H
3	Dresher Road and Horsham Road (463)	H
4	Horsham Road (463) and Easton Road (611)	H
5	Blair Mill Road and County Line Road	H/WM/UM
6	Louis Drive and Street Road	WM
7	Davisville Road and Bristol Road	WM/US/N
8	Limekiln Pike (152) and Dreshertown/Susquehanna Roads	UD
9	Twining Road and Susquehanna Road	UD
10	Blair Mill Road and Welsh Road (63)	UD/UM/H
11	Computer Drive and Welsh Road (63)	UD/UM
12	Twining Road and Welsh Road (63)	US/UM
13	Blair Mill Road/New Road and Easton Road (611)*	H/UM
14	Sycamore Road/Mill Road and Easton Road (611)*	UM
15	Byberry Road and Davisville Road*	UM
16	Terwood Road and Davisville Road*	UM
17	Susquehanna Road and Easton Road	A
18	Susquehanna Road and Old York Road (611)	A
19	Susquehanna Road and Washington Lane	A
20	Susquehanna Road and Meetinghouse Lane	A
21	Mill Road and Moredon Road	A
22	Meetinghouse Road and Jenkintown Road*	A
23	Easton Road (611) and County Line Road*	H/WR
24	Fitzwatertown Road and Easton Road (611)*	UM
25	Center Avenue and Easton Road (611)*	UM
26	Woodland Road and Easton Road*	A

*Intersection Labeled "Most Congested" by Township Managers

+Township Code

A	Abington
H	Horsham
WM	Warminster
UD	Upper Dublin
UM	Upper Moreland
N	Northampton
US	Upper Southampton
WR	Warrington

Sources: Bucks County Planning Commission/Montgomery Planning Commission

Table VI

MOST HEAVILY CONGESTED CORRIDORS PARTNERSHIP FOR TRANSPORTATION ACTION STUDY AREA

Ref. No.	North-South Roads	Township(s) +
1	Norristown Road	Horsham, Upper Dublin
2	Dresher Road/Meetinghouse Road	Horsham
3	Blair Mill Road	Horsham/Upper Moreland
4	Norristown Road	Warminster
5	Jacksonville Road	Warminster
6	Louis Drive	Warminster
7	Old York Road	Warminster/Hatboro Borough/ Upper Moreland/Abington
8	Easton Road	Horsham/Upper Moreland/Abington
	East-West Roads	
9	Street Road	Warminster/Upper Southampton
10	County Line Road	Horsham/Warminster/Hatboro/ Upper Moreland/Upper Southampton
11	Horsham Road	Horsham
12	Welsh Road	Upper Dublin/Horsham/Upper Moreland/ Abington

Source: Township Managers and Delaware Valley Regional Planning Commission

of additional roadway capacity and the presence of newly available alternative routes will affect the growth rates on some roadways into the next decade (Table VII). According to the simulation, the highest percentage growth is expected to occur on Route 263 (Old York Road).

Twenty-four roadway improvements are programmed for construction throughout the PTA area under the Pennsylvania Department of Transportation's (PennDOT) Twelve Year Program. These projects include both intersection, bridge, and corridor improvements. Funding sources have not as yet been found for all of the planned projects.

Public Transit Availability

Current SEPTA service to the PTA area includes five scheduled bus routes and three regional rail lines. These routes are primarily the traditional city-to- suburb trips which were originally designed to provide suburban workers with the means to travel to jobs in the city, although many of them are now providing service to city workers traveling to jobs in the suburban PTA area. The bus routes are as follows:

Route 22 - Service from the Broad Street Olney Avenue Terminal in Philadelphia to Willow Grove Park Mall, with limited service to Warminster, via Easton Road and Old York Road. Weekday northbound service operates about every 15-20 minutes during peak commuting times. About every other bus continues the trip from the mall to Warminster. Southbound service operates at about the same frequency, with about every other bus orginating its trip in Warminster. This route offers regional rail connections at Glenside R5/R2, Ardsley R2, and Crestmont R2 stations, and connects with the Broad Street Subway at the Olney Avenue Terminal.

Route 55 - Service from the Broad Street Olney Avenue Terminal to Willow Grove Park Mall and Doylestown via Old York Road and Easton Road (PA Route 611). Northbound service to the mall operates about every 10 minutes during the peak commuting hours and every half hour at other times. Trips continuing to Doylestown from the mall leave about every 70 minutes.

Southbound service between the mall and Olney Avenue operates with the same frequency as nrothbound service. Buses making this southbound trip from Doylestown depart there about every 75 minutes. Saturday and Sunday service are available on this route, which connects with regional rail service at the Doylestown R5, Noble R3, and Willow Grove R2 stations.

Route 98 - Service between the Willow Grove Park Mall and the Plymouth Meeting Mall, with morning and afternoon service from Plymouth Meeting to Audubon. The Route 98 bus travels through the PTA area via Fitzwatertown Road, Pennsylvania Avenue, Bethlehem Pike, and Butler Pike. Both northbound and southbound weekday and Saturday service operate hourly, and regional rail connection is available at the

Table VII

TRAFFIC GROWTH
PARTNERSHIP FOR TRANSPORTATION ACTION STUDY AREA

Ref. No.	Road Name/Location	1980 2-Way Volume*	1987 2-Way Volume	2000 2-Way Volume**	% Growth 1980-2000
1	Street Road (PA 132) Warminster Township	17,500	22,800	31,600	+ 81%
2	Old York Road (PA 263) Warminster Township	17,300	22,800	39,100	+ 126%
3	Easton Road (PA 611) Horsham Township	20,000	23,400	27,300	+ 37%
4	Old York Road (PA 263) Hatboro Borough	12,900	16,700	25,200	+ 95%
5	Old York Road (PA 611) Abington Township	26,500	27,200	47,700	+ 80%
6	Limekiln Pike (PA 152) Upper Dublin Township	17,500	14,300	18,300	+ 5%
7	Welsh Road (PA 63) Upper Dublin, Horsham Townships	19,600	20,800	33,700	+ 75%
8	Easton Road (PA 611) Upper Moreland Township	21,500	22,800	37,600	+ 75%
9	Limekiln Pike (PA 152)	5,300	8,200	9,300	+ 75%

*Average Daily Vehicles
**Derived from DVRPC Simulation

Source: Township Managers and Delaware Valley Regional Planning Commission

Ambler R5 station.

Route 201 - Service between Fort Washington R5 regional rail station and employer sites within the Fort Washington Industrial Park. This innovative "200 Series" bus operates as an extension of the train service; an immediate transfer is available between the Route 201 bus and arriving and departing trains. Although this route was orginally funded by Fort Washington Industrial Park employers, fares collected are now sufficient to cover operating expenses.

Route 211 - Service between the R2 Warminster train station and Northampton, Jacksonville, Gingko, Cherokee, Street Road, and Warminster industrial parks via Jacksonville Road, Louis Road, and Ivyland Borough. Service will be similar to Route 201, using the bus as a rubber-tire extension of the train service.

This area is also served by three regional rail lines which carry passengers between Center City Philadelphia and a number of stations. A few of the stations on each rail line are also served by bus routes mentioned above. Service on these lines is primarily for suburban residents' trips to Philadelphia, and has maintained fairly stable ridership. The R5 Lansdale-Doylestown line, however, experienced significant growth in reverse-commuter ridership at the Fort Washington station after implementing the Route 201 bus. Rail service to the area includes the following lines:

R5 Lansdale/Doylestown - Service to 6 stops in the study area: Jenkintown and Glenside (common with R2), North Hill, Oreland, Fellwick, and Fort Washington. Southbound service during the peak morning commuter hours operates about every 30 minutes. Northbound trains from Philadelphia and Downingtown serve the area during afternoon commuter hours about every 30 minutes, while southbound trains offer service about every 25-30 minutes. The Route 201 bus, mentioned above, provides a timed transfer for riders arriving at the Fort Washington Station who are headed for the Fort Washington Industrial Park.

R2 Warminster - Rail service between Philadelphia/Wilmington to the terminus of the line in Warminster. This train stops at 9 stations serving the study area: Jenkintown and Glenside (common with R5), Ardsley, Roslyn, Crestmont, Willow Grove, Fulmor, Hatboro, and Warminster. Reverse commuters account for only a small percentage of the ridership on this line, as there is currently no convenient bus service to employment centers from most of these stations.

Southbound morning peak R2 trains operate about every 30 minutes, while northbound service operates hourly. Northbound service from Philadelphia during the afternoon peak time operates about every 30 minutes, and southbound service at the same time operates hourly.

R3 West Trenton (formerly R1) - Service between West Trenton, New Jersey and Philadelphia and Elwyn. This route serves the study area at the following stations:

Jenkintown, Noble, Rydal, Meadowbrook and Bethayres. Southbound service operates half-hourly during the morning peak time and about hourly at all other times. Northbound service from center city operates hourly during the day and late evening, and about every 20 minutes during the afternoon peak travel time. Bus service to Willow Grove Park Mall is available via Route 55 from the Noble station.

It should be noted that all three rail lines which serve the study area share the common station of Jenkintown, located in Jenkintown Borough at the border of Abington Township.

Additional SEPTA service is currently being considered for the PTA area in the form of "200 Series" bus service. If implemented, the proposed Route 209 and 210 serve the Prudential Business Campus as a timed transfer route from the Willow Grove (R2) regional rail station. As this service is in its initial planning stages, exact routing has not yet been identified.

Private Transit Availability

The Montgomery County Paratransit Association, Inc. (MCPA) is investigating the possibility of initiating shuttle service from the Willow Grove R2 station and the mall to the Prudential eastern Headquarters and the Prudential Business Park (bounded by Blair Mill, Gilbraltar, Dresher, and Welsh Roads). MCPA received an Federal Transit Administration (FTA) grant in 1988 to conduct a feasibility study for this service. Current plans are to provide the service if a market is available.

The study area is also served by more than forty private transportation companies. These carriers provide fixed route, taxi, limousine, airport, paratransit, feeder, shuttle, and van pool services in the PTA area. See DVRPC's Directory of Transportation Service Providers in the Delaware Valley Region for information on the services these companies provide.

B. INTERVIEWS WITH PTA EMPLOYERS

Another key component of the issue identification phase was a series of interviews with those most directly affected by congestion. DVRPC staff met personally with chief executive officers or high-level staff of twenty employers, developers, and public sector agencies in the PTA area between December 1988 and February 1989. It was important to become acquainted with key area developers, employers, business organizations, and municipal managers. They are, in essense, the clients of the TMA program who must be consulted about areawide transportation needs. The interviews drew participants into the TMA process; at the same time, a degree of information was conveyed that a survey alone could not accomplish. It is implicit in the issue identification task that the TMA program be developed to meet the identified needs of the area. The continued participation of those interviewed was sought to ensure that the program emerging from this process is accepted and supported.

In meetings with private sector management staff, DVRPC staff not only explained the TMA concept but also gained firsthand knowledge about the operation of each company and the transportation issues affecting its management and employees. These discussions helped to prioritize the programs the TMA can implement.

Several aspects of the transportation system were discussed. Inquiries were made about the transportation-related problems their companies were facing, such as traffic congestion, public transit availability, or inability to fill vacancies because of the company's location. Second, each company was asked about the potential solutions to those problems. Third, we asked their potential participation in programs that help to solve those problems.

The major transportation issues identified in this process were categorized into the following major areas:

(1) Highway Construction
(2) Bus Transit/Ridesharing
(3) Commuter Rail
(4) Commuter Information/Signage
(5) Areawide Coordination
(6) Economic Development
(7) Highway Financing
(8) Private Role in Highway Improvements
(9) Parking Problems

The interviews touched on many aspects of transportation in the PTA area. The presence of congestion was cited by virtually everyone interviewed; problems at specific locations ranged from bottlenecks and intersection delays to lack of additional lanes to carry traffic at capacity. A general lack of highway improvements stemming from delays in PennDOT programming was also mentioned.

Highway access was also mentioned as problematic. Circulation internal to the area is also difficult for some industries. Insufficient transit circulating within the PTA area forces many employees to drive their own cars for errands, lunch, and company business. Highway signage leaves a lot to be desired as well, according to many.

Labor access was a main topic in many interviews. Difficulty in recruiting, high employee turnover, and many unfilled positions were mentioned by almost every industry, but especially by light manufacturing and hospitality representatives, and usually at lower level jobs, such as clerical. There appears to be much inefficient transportation provided by individual companies that pick up passengers in Philadelphia and at area train stations. Many interviewed perceived a negative mobility image which stemmed from poor access to the PTA area.

Developers mentioned that they would like more input into decision-making about road

construction or other improvements which affect their developments. They also said more coordination was needed between members of similar industries, as well as more interface between PTA area employers or developers and between state offices and utilities. Many interviewees were amenable to negotiated traffic reduction strategies; they decried the lack of better communication between the public and private sectors. Better coordination among jurisdictions -- municipal, county, and state -- was often mentioned by public sector representatives.

Two matrices were prepared to summarize the interview results. Table VIII, "Initial Findings from Interviews by Client Group," lists the major issues from the private and public sector viewpoints. Table IX, "Initial Findings from Interviews by Geographic Area," lists the major issues by company site, business park, and TMA area.

One issue was named unanimously by employers, developers, associations, municipalities, counties, and the state: highway congestion. Areawide coordination of emergency travel was named by five of these six groups. Five key issues were named by four of those six groups: highway accessibility, labor access, commuter rail links to activity areas, commuter information/signage, and growth management. Labor access is vital to the PTA area to continue healthy economic development. These results were presented to Steering Committee members who agreed with many of these viewpoints.

C. EMPLOYER SURVEY

DVRPC staff conducted an extensive survey of employers in the PTA area. The purposes of the survey were to (1) gather basic information about the firms, (2) determine opinions about what transportation problems exist, (3) determine opinions about what transportation programs are needed, (4) gather zip code lists of employees' residences, and (5) determine which employers wish to participate in developing the TMA.

With this information, the TMA will be able to successfully implement a program in which employers will participate. Employers would be more willing to take part in programs they feel would solve transportation problems. The zip code information can be used to develop transit and car/van pooling services for employees.

Identification of Employers to be Surveyed

DVRPC staff determined the employee population to be approximately 111,000. DVRPC employment estimates and forecasts were used to develop that estimate.

Staff attempted to survey as many employers as possible, with the goal of surveying all firms with more than 25 employees. The major source of information was the Dun & Bradstreet Employer Directory. This source of information provided the company name, address, telephone number, and contact person. The contact person was usually the chief executive officer, president, or general manager.

Table VIII

INITIAL FINDINGS FROM INTERVIEWS BY CLIENT GROUP
PARTNERSHIP FOR TRANSPORTATION ACTION
TRANSPORTATION MANAGEMENT ASSOCIATION
Issue Identification Matrix

Issues Raised as of January 1989	Private Sector			Public Sector		
	Emp.	Devel.	Assn.	MCD	Co.	State.
Highways						
Congestion	X	X	X	X	X	X
Accessibility	X	X	X	X		
Financing		X		X	X	
Traffic Flow Improvements				X	X	X
Lack of Construction		X	X		X	
Private Role in Hwy. Improvements						
Prioritizing		X				X
Financing		X			X	X
Building		X			X	X
Parking Problems		X		X		X
Bus Transit/Ridesharing						
Lack of Transit	X			X		X
Lack of Paratransit	X			X		X
Frequency	X		X			
Routing		X	X			
Rail Linkage	X			X		
Financing					X	X
Amentities					X	
Commuter Rail						
Frequency	X					
Links to Activity Areas		X	X	X		X
Commuter Information/Signage	X			X	X	X
Areawide Coordination	X					
Emergency Travel	X		X	X	X	X
Intermodal					X	
Municipal Approval Process		X		X		
Lack of Public/Private Forum		X				
Economic Development						
Growth Management		X	X	X	X	
Labor Access	X	X	X	X		

Table IX

INITIAL FINDINGS FROM INTERVIEWS BY GEOGRAPHIC AREA
PARTNERSHIP FOR TRANSPORTATION ACTION
TRANSPORTATION MANAGEMENT ASSOCIATION
Issue Identification Matrix

Issues Raised as of January 1989	Site	Park	Area
Highways			
Congestion	X	X	X
Accessibility	X	X	X
Financing	X	X	X
Traffic Flow Improvements		X	X
Lack of Construction			X
Private Role in Hwy. Improvements			
Prioritizing	X	X	
Financing	X		X
Building	X	X	
Parking Problems		X	X
Bus Transit/Ridesharing			
Lack of Transit	X	X	X
Lack of Paratransit			
Frequency		X	
Routing		X	
Circulation			X
Links to Airports	X		X
Commuter Rail			
Frequency		X	
Links to Activity Areas	X		
Commuter Information/Signage	X		
Areawide Coordination	X		
Emergency Travel		X	X
Intermodal		X	
Municipal Approval Process	X		X
Lack of Public/Private Forum			
Economic Development			
Growth Management		X	X
Labor Access	X		X

Staff developed a questionnaire cover letter to explain the TMA and ask employers to answer the questions. The municipal manager signed the letter, except for Warminster Township, where the Chamber of Commerce president signed it. We felt that employers would prefer to respond to the questionnaire if it came from the township or the chamber of commerce (people they knew) as opposed to DVRPC.

Survey Package

The survey package contained three items: (1) the cover letter which introduced the employers to the TMA concept and asked them to fill out the questionnaire, (2) the questionnaire, and (3) a postage paid return envelope. Employers were requested to mail the completed survey form to DVRPC.

Survey Mailing

DVRPC staff began mailing the questionnaires in April 1989. In May, Upper Southampton Township was added to the study area; surveys were mailed to those employers at that time. As surveys were mailed and completed ones returned, staff kept track by computer file of to whom and when they were mailed. A follow-up letter and survey was mailed to those employers with more than 100 employees who did not respond to the survey.

Survey Results

As of June 30, 1989, questionnaires were mailed to 612 employers who employed approximately 60,000 persons (see Figure XIV). One hundred and fifty-two questionnaires were returned, representing 33,000 employees. The response rate was 25 percent. The returned questionnaires represent 30 percent of the total PTA area employment.

Figures XV and XVI show the distribution of respondents by company size and type of firm.

Thirty-four percent of survey respondents were from the manufacturing sector. Twenty-five percent were from the service sector and 8 percent from the wholesale trade sector. The remaining companies were distributed over the combined categories of developer, construction, retail trade, government, institutional, and professional.

Fifty percent of all employers responding to the survey use staggered shift work schedules; 42% use a fixed schedule, and 6% use flextime scheduling (see Figure XVII). Figure XVIII shows the percentage of employees in these companies who have each type of schedule.

FIGURE XIV

PARTNERSHIP FOR TRANSPORTATION ACTION (PTA)

EMPLOYER SURVEY STATISTICS

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TRANSPORTATION MANAGEMENT ASSN. Implementation

FIGURE XV

PARTNERSHIP FOR TRANSPORTATION ACTION
SURVEY RETURNS BY FIRM SIZE

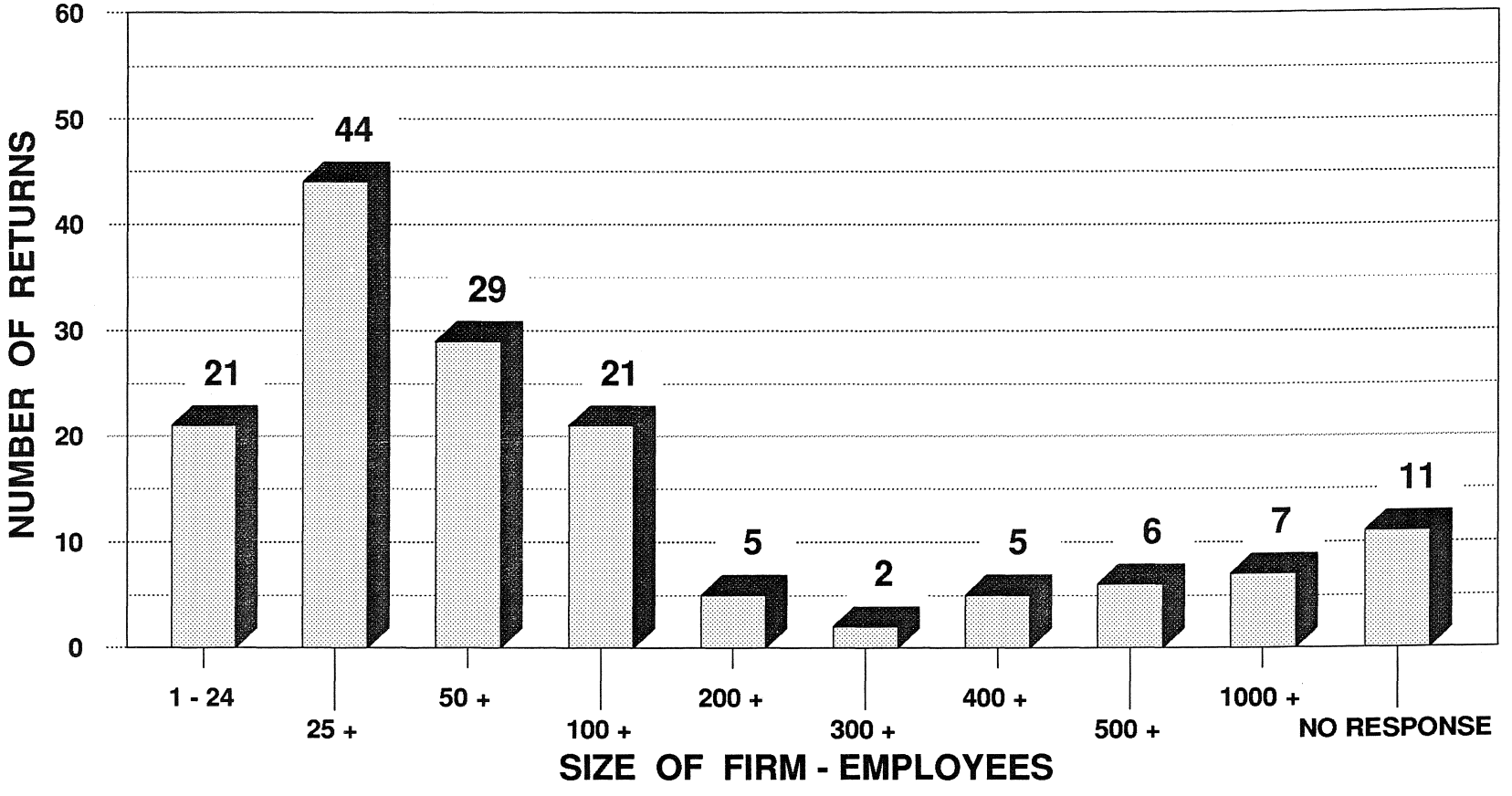

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FIGURE XVI

PARTNERSHIP FOR TRANSPORTATION ACTION
TYPES OF FIRMS SURVEYED

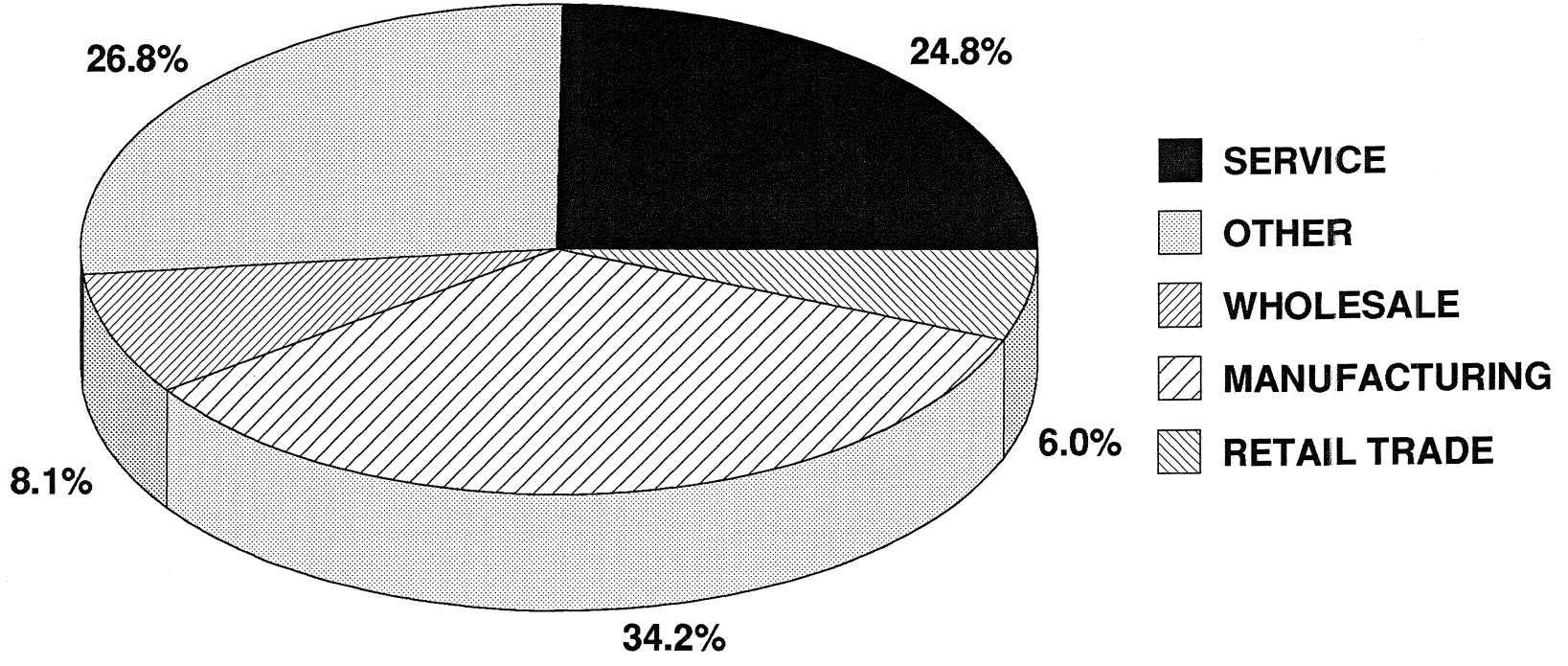

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FIGURE XVII

PARTNERSHIP FOR TRANSPORTATION ACTION
EMPLOYER WORK SCHEDULE (% OF FIRMS)

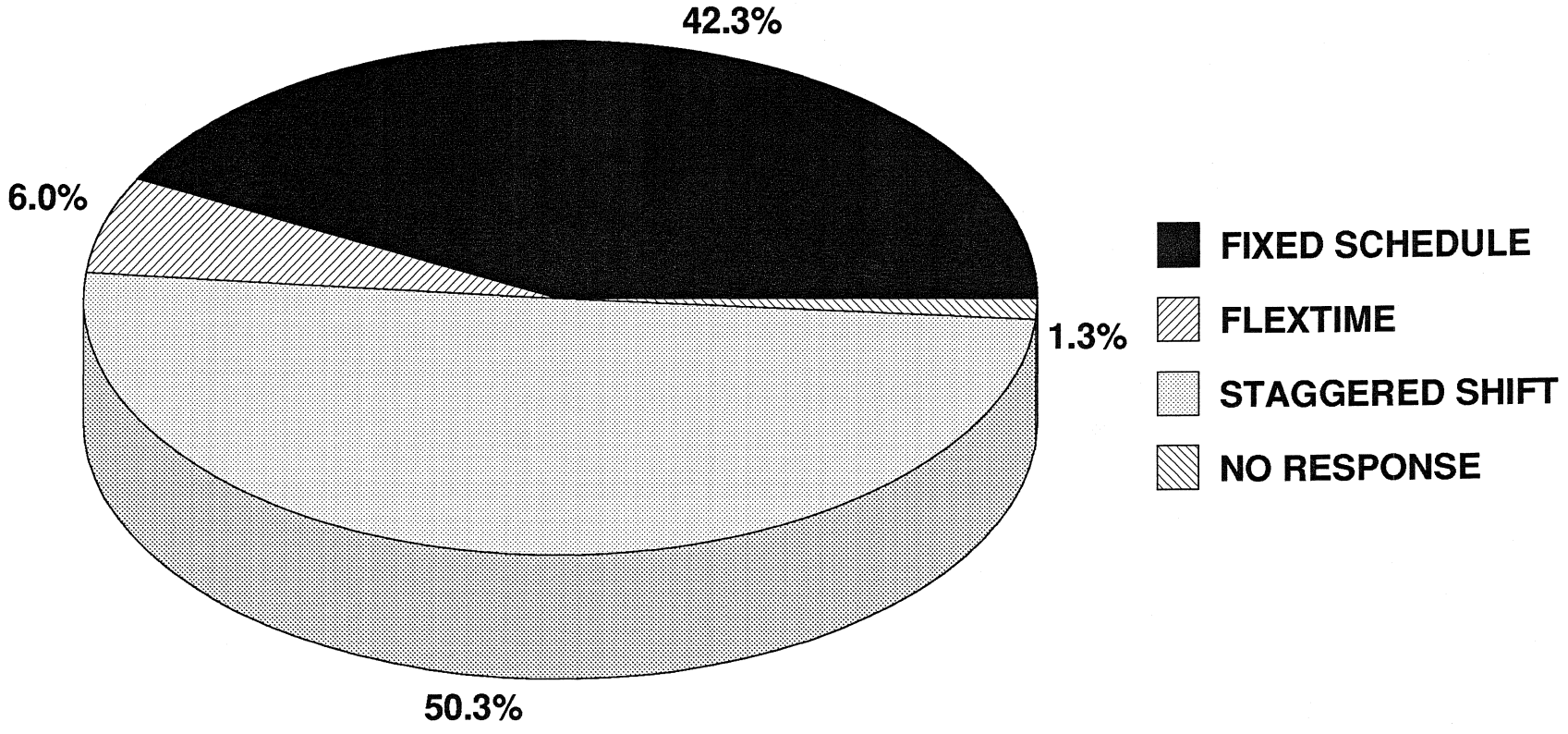

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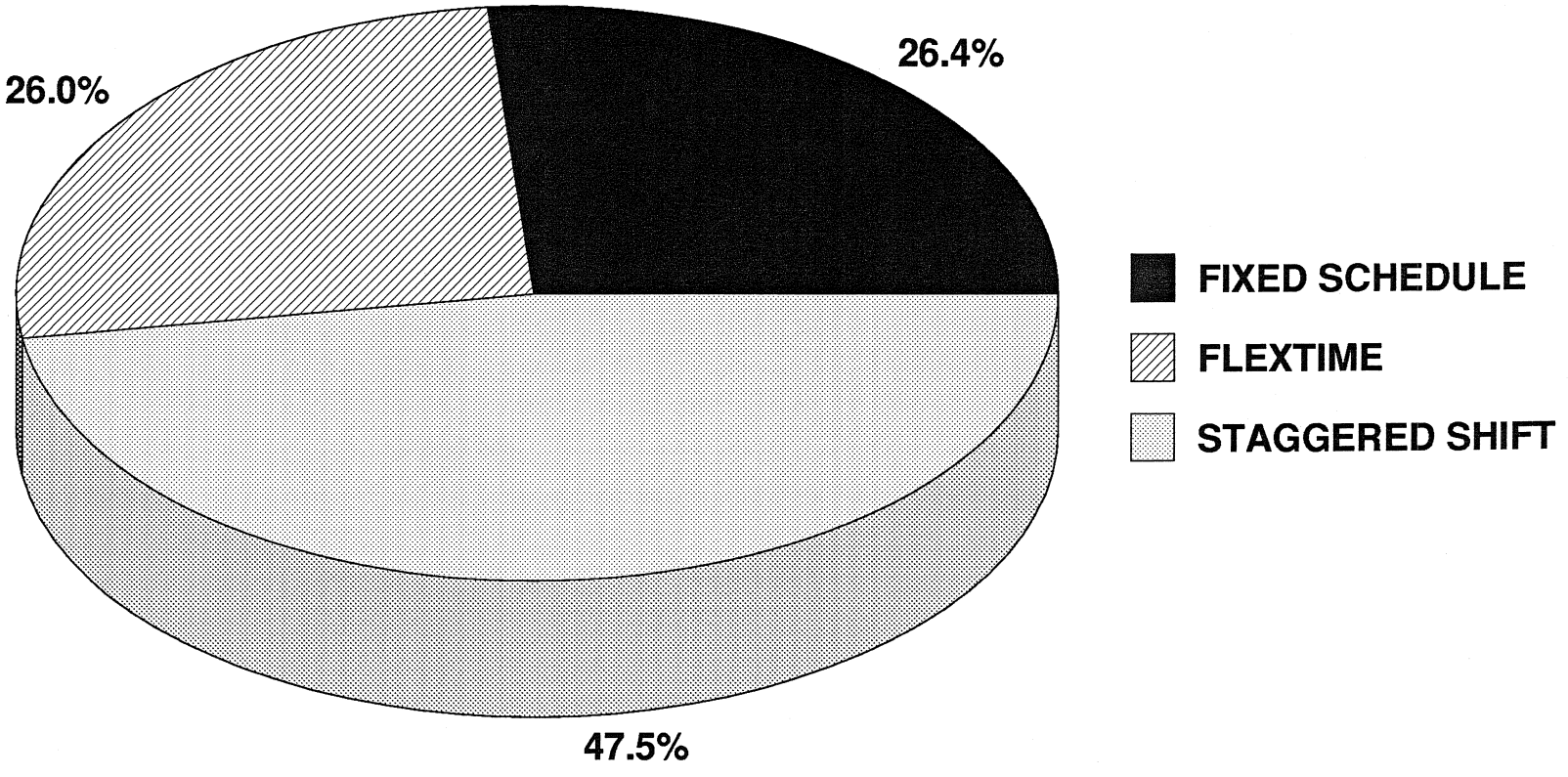
FIGURE XVIII

PARTNERSHIP FOR TRANSPORTATION ACTION

EMPLOYEES COVERED BY WORK SCHEDULE (% OF FIRMS)



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The most prevalent transportation program offered is car pooling which 16 companies mentioned (11%) (see Figure XIX). Fourteen companies have preferential parking (9%). Relatively few companies mentioned the availability of van pools, flexible work schedules, transit assistance, or shuttle services. Figure XIX indicates the percentage of employees in the companies surveyed who potentially can participate in these programs.

Peak hour traffic congestion and inadequate transit are the most serious transportation problems in the PTA area (see Figure XX). These were mentioned by most of the firms. Almost all respondents felt that these problems would remain the same, if not get worse, in the next five to ten years.

Transit quality was felt to be poor on unavailable by 57% and excellent or adequate by 43% of all firms (see Figure XXI). Figure XXII shows that over 50% of the respondents are unable to attract entry level employees because of the lack of transit. About 40% of the firms believe that vacant positions cannot be filled for the same reason. Over 30% blame inadequate transit for high employee turnover.

Forty-eight percent of all firms responding indicated they would encourage their employees to use transit services or shuttles (D in Figure XXIII). Thirty-six percent of all firms said they would participate in an areawide highway needs evaluation (F). Thirty-four percent said they would participate in the planning of commuter-related transportation improvements (H); twenty percent would participate in an areawide commuter assistance center (G); twenty percent indicated a willingness to reserve parking spaces for car and van pools (C); fourteen percent would adopt a variable work schedule (A); 8% would subsidize employees' use of transit (E); and 3% would consider remote parking for their employees (B). Overall, about 80% of the firms would participate in some way.

Figure XXIII also shows the types of programs firms would consider providing, based on percentage of employees in those firms. These percentages mirror the percentage of firms with the following exceptions: 20% of the employees have the potential to vary their hours (A); 11% can use remote parking (B); 42% can use parking spaces reserved for car or van pools (C); and 21% work for employers who subsidize the use of transit (E).

Several insightful comments were provided on the questionnaires. Regarding highway congestion, comments mentioned the need for wider roads and increased left turn access to highways from industrial parks. Regarding mass transit, comments included the need for better transit access, more shuttles to and from rail stations, and increased bus service to industrial parks.

FIGURE XIX

PARTNERSHIP FOR TRANSPORTATION ACTION
EMPLOYER TRANSPORTATION PROGRAMS

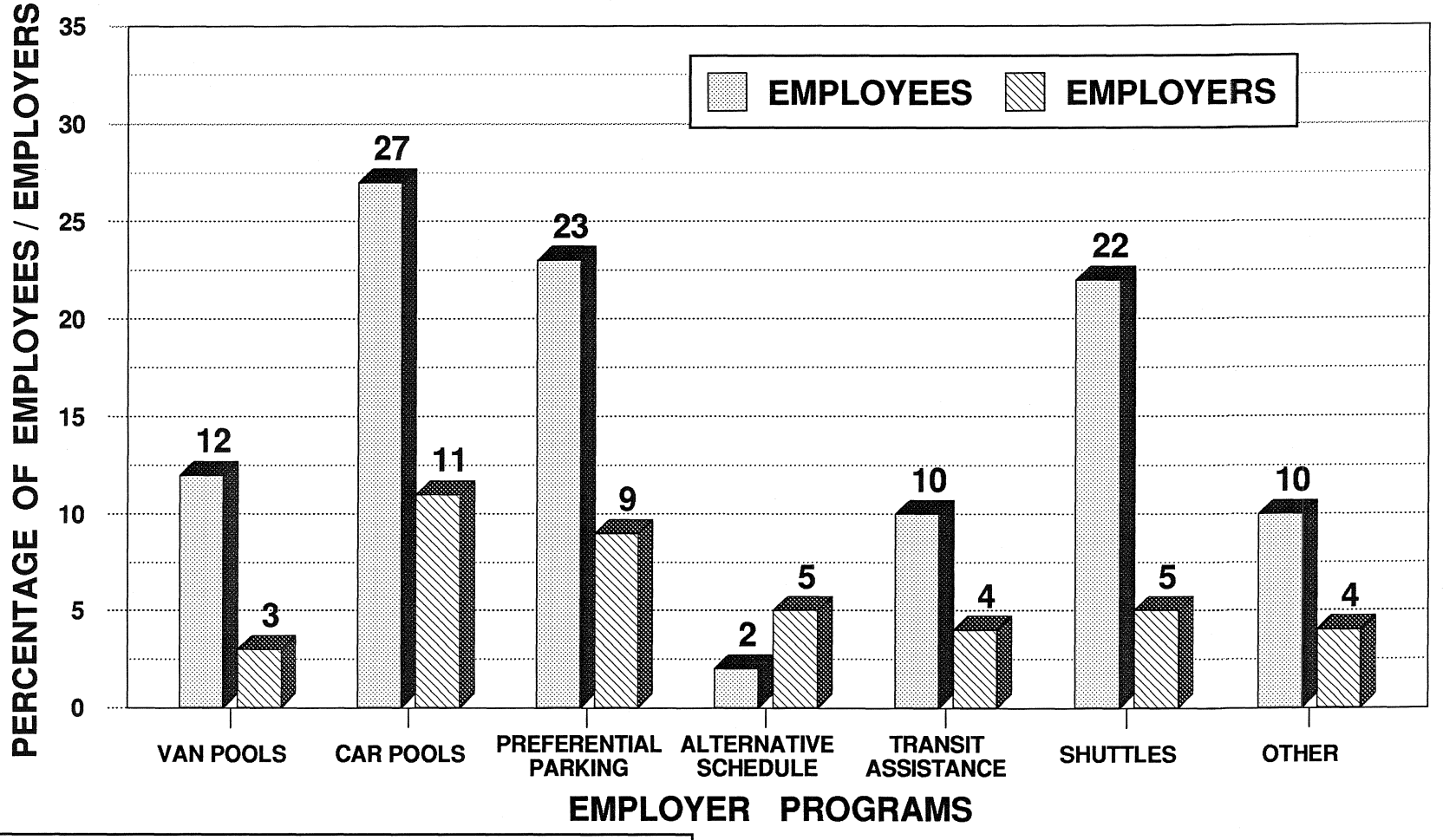

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FIGURE XX

PARTNERSHIP FOR TRANSPORTATION ACTION

TRANSPORTATION PROBLEMS

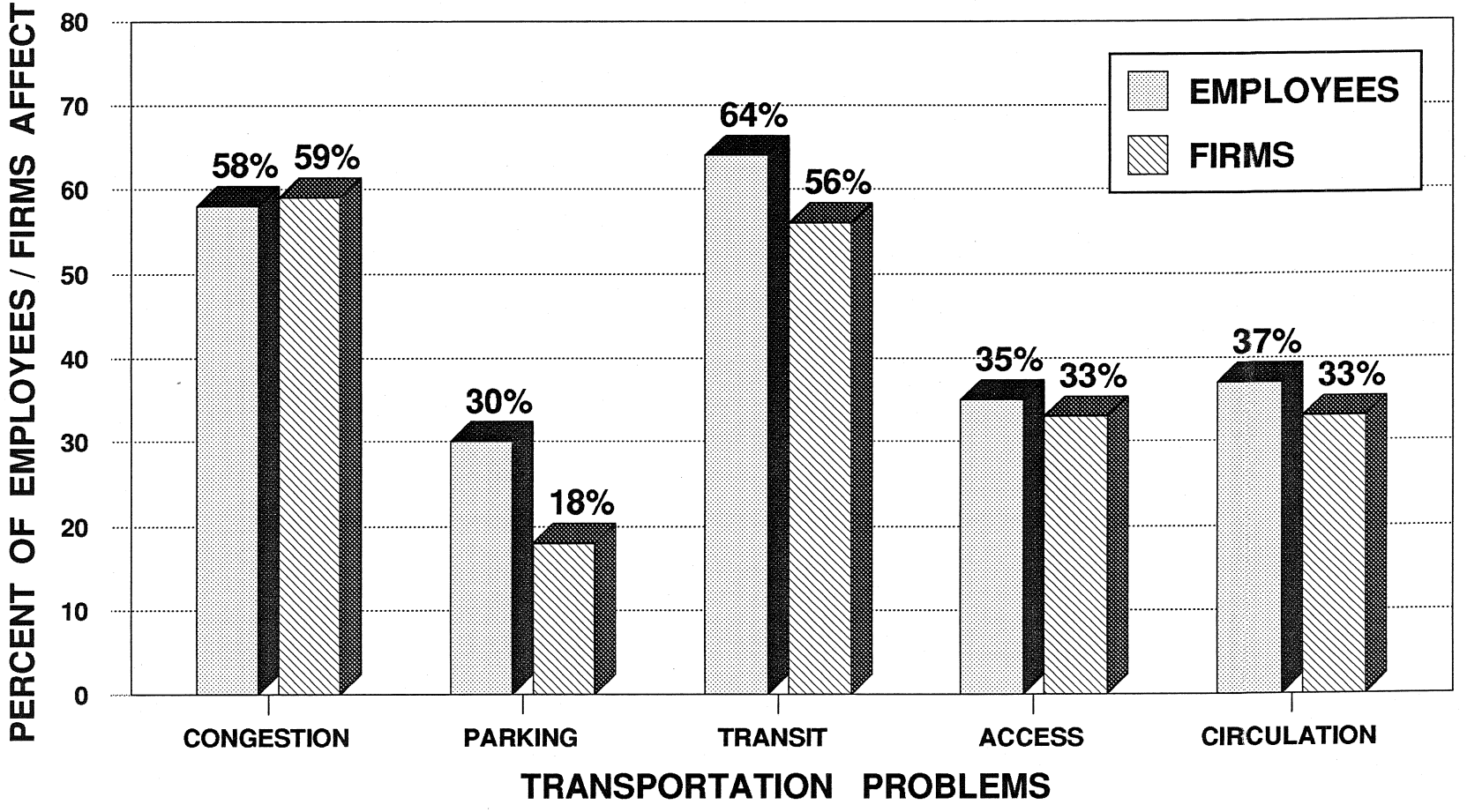

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FIGURE XXI

PARTNERSHIP FOR TRANSPORTATION ACTION
TRANSIT ADEQUACY

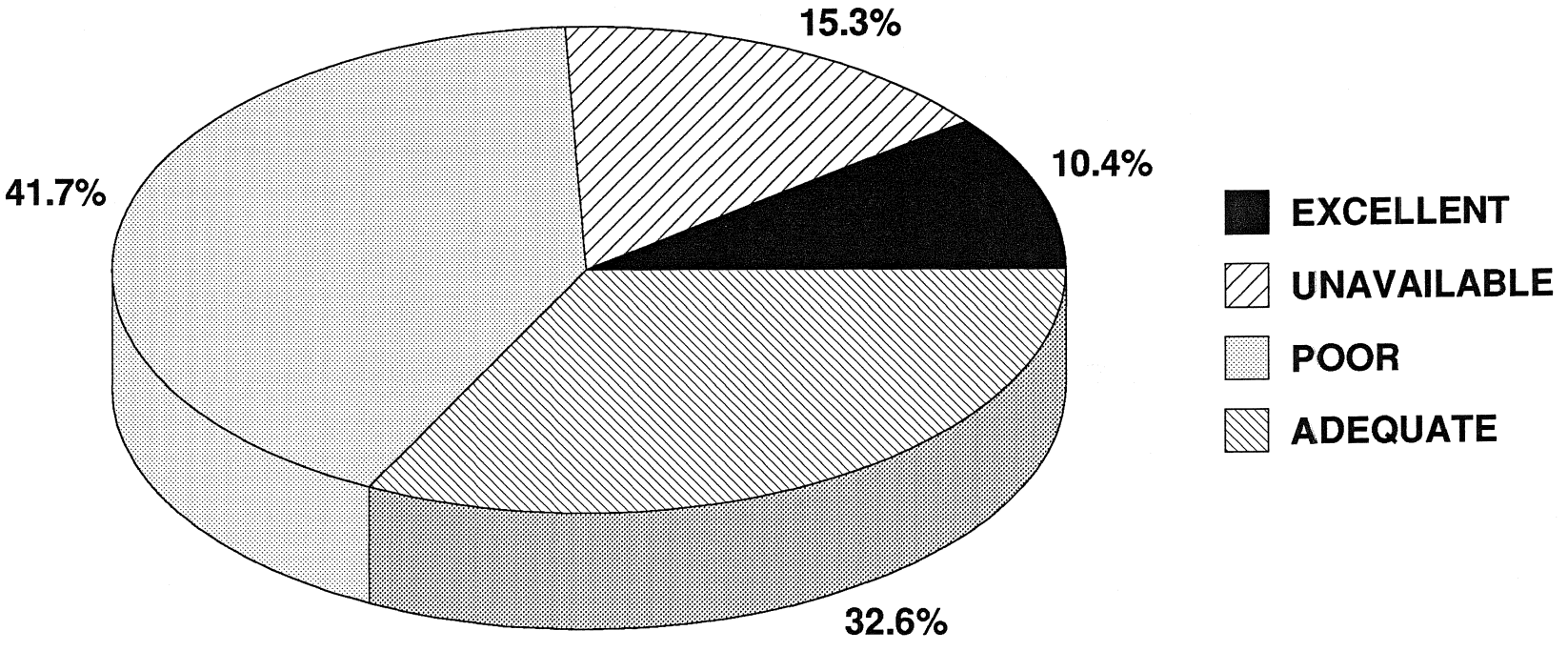

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FIGURE XXII

PARTNERSHIP FOR TRANSPORTATION ACTION
TRANSIT EFFECTS ON EMPLOYERS

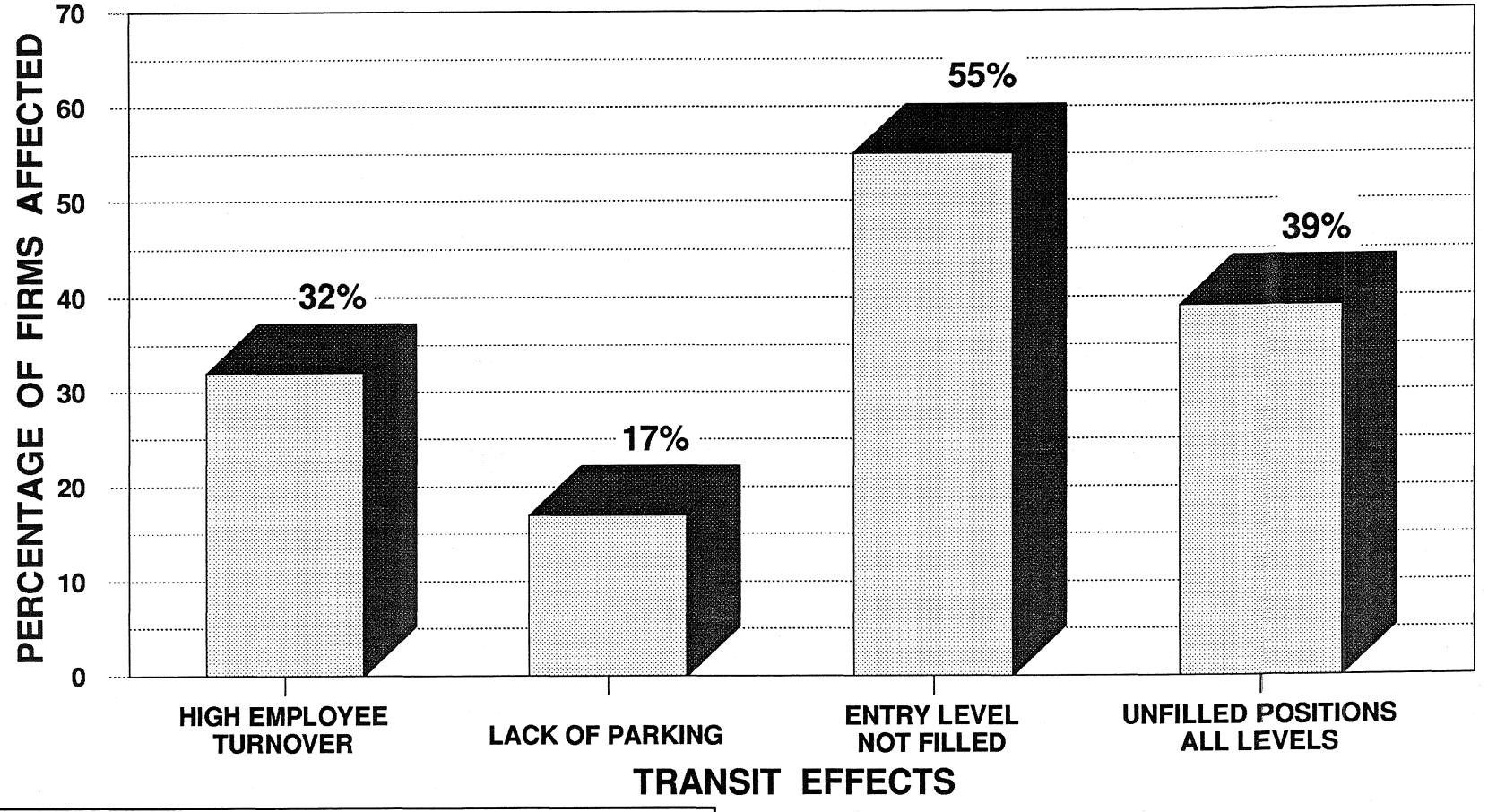

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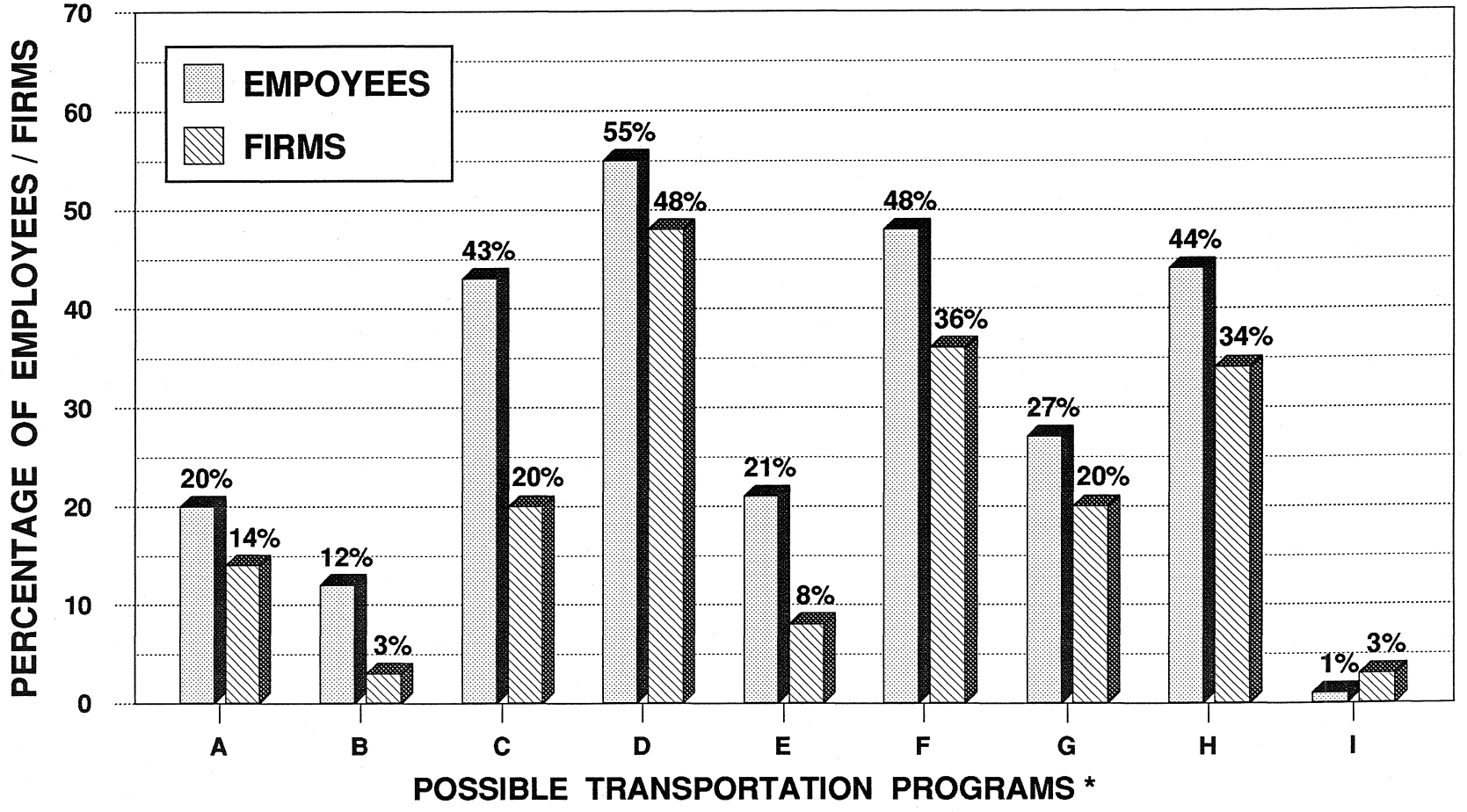
FIGURE XXIII

PARTNERSHIP FOR TRANSPORTATION ACTION
PROGRAMS FIRMS WOULD CONSIDER



* SEE REPORT TEXT

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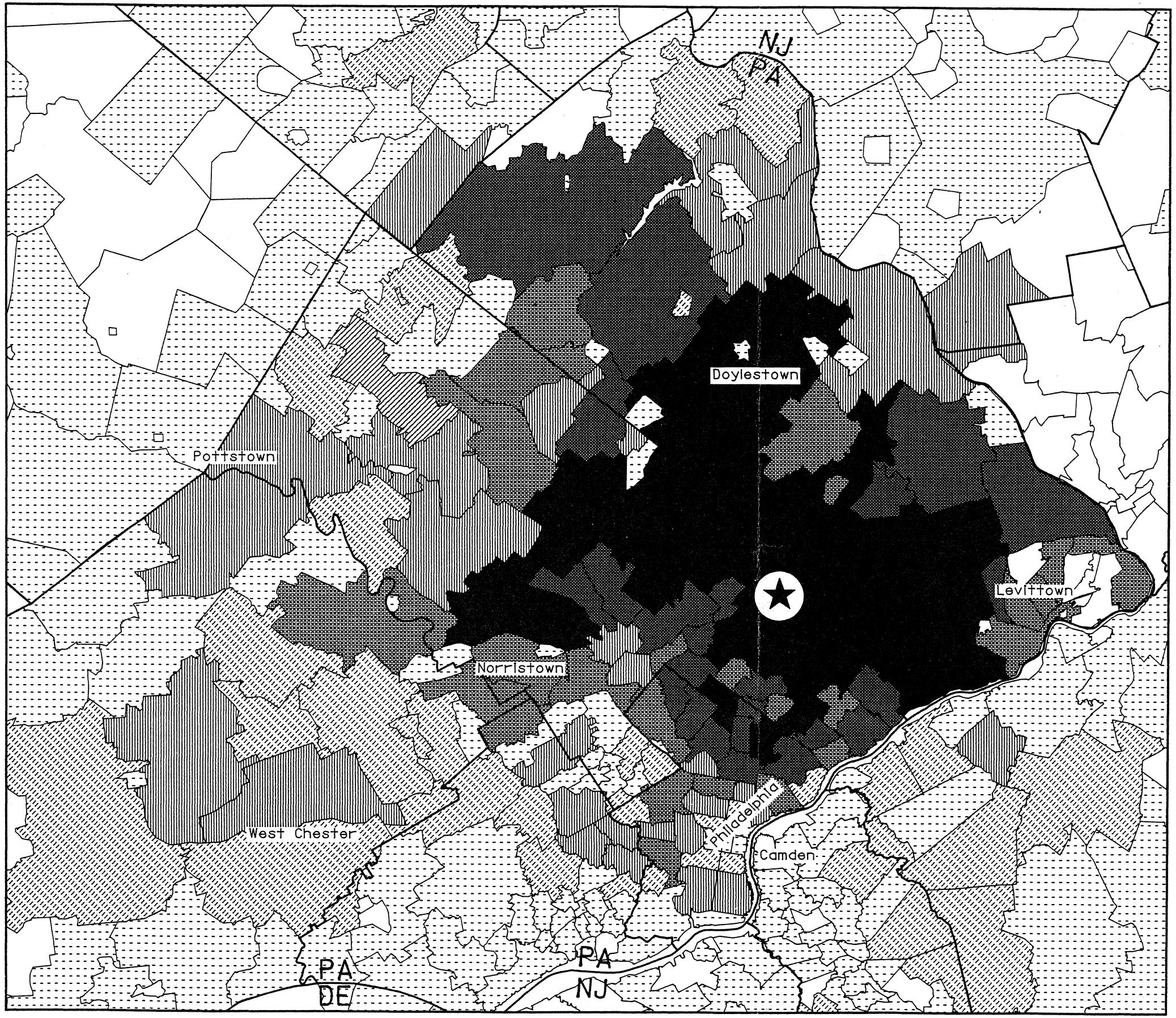
Employees' Residence Locations as a
Tool for Planning New Services

The employer survey requested the zip codes of employees' residences. Zip codes were received for close to 90% of the employees who were reported. The purpose of requesting this information was to determine the location and concentration of residences of PTA employees. Computer maps were generated to illustrate these "origins" of employees' work trips. Zip code boundaries and density of residences are shown.

Having this data and the maps will enable the TMA to plan transit, car pooling, and van pooling services. For zip codes areas in which more than 1,000 employees live (Doylestown, Norristown, Bensalem, and Philadelphia, for example), express buses could be established. In areas of 50 or less employees, car pools could be formed. In areas with densities in between those two extremes, a whole range of options could be used, such as buses, van pools, paratransit, and car pools. The maps serve as a tool to plan commuting services for TMA employees. Figure XXIV is the map for all employees in the TMA study area. Also available are maps for each of the four subareas, showing where employees live in each of those subareas.

Figure XXIV

PARTNERSHIP FOR TRANSPORTATION ACTION TMA LABOR MARKET



LEGEND

\# of TMA employees residing in zone

- OVER 1000
- 501 - 1000
- 251 - 500
- 101 - 250
- 51 - 100
- 1 - 50

★ Partnership for Transportation Action TMA

0 2 4 6 MILES

PREPARED BY
DELAWARE VALLEY REGIONAL PLANNING COMMISSION

CHAPTER III

PROGRAM IDENTIFICATION

Based on the needs assessments, DVRPC identified transportation demand management (TDM) programs for the GVFTMA and PTATMA. These "menus" of programs were meant to address the transportation needs and problems of the area.

GVFTMA PROGRAM IDENTIFICATION

This chapter describes the many programs that a TMA could implement. They include mass transit, ridesharing, paratransit, bicycling, alternative work hours, parking management, and administrative techniques. No one program by itself will have a significant impact on mobility. But a range of programs which support each other can start to make a difference. Table X indicates how the various strategies can affect major transportation-related issues. Table XI shows which client type can get involved in each program.

A. PARKING MANAGEMENT

The most effective way to reduce single-occupant automobile use is to limit parking or increase its cost to the commuter. The reason that most people drive to work alone is that their employer provides free parking.

Chicago increased parking rates at downtown meters and municipal garages, with larger increases falling on longer-term parkers. Commuter parking feel substantially (some shifting to non-municipal facilities occurred), while shorter-term parking increased. Eliminating free parking at a Los Angeles firm resulted in solo occupant commuting falling from 42 to 9 percent of all employees. Doing the same for government employees in Ottawa resulted in 20 percent fewer employees driving to work and a 16 percent increase in bus use. At a San Francisco hospital, free parking was withdrawn for all but van pools and three-person car pools, and 55 new car/van pools resulted. Car pools that use reserved municipal spaces save $35 in monthly parking charges in Seattle and $15 a month in Houston.

The important concept that must be implemented is having a combination of programs that complement each other. An employer which promotes car pooling at the same time encourages its employees to drive alone if parking is free and abundant and right outside the office door. Some type of parking management, whether pricing or limiting supply, is essential to a successful traffic reduction program. In addition, to be fully effective, parking pricing changes must address commercial, municipal and privately-provided spaces.

There are four types of parking management techniques: (1) prividing preferential parking, (2) restricting parking, (3) charging a parking fee, and (4) reducing parking costs for car and van pools. These are primarily meant for large non-retail employers.

TABLE X
GREATER VALLEY FORGE TRANSPORTATION MANAGEMENT ASSOCIATION
Program Identification Matrix

TRANSIT & PARATRANSIT STRATEGIES

Issues	Ride-sharing	Alternate Work Hours	Parking Management	Transit Development	Transit Shuttle to Rail	Subscription/ Express Bus	Internal Circulation	Park & Ride Lots
Highways								
Congestion	X	X	X	X	X	X	X	X
Accessibility	X		X		X	X	X	X
Financing								
Traffic Flow Improvements	X	X	X	X	X	X	X	X
Lack of Construction								
Private Role in Hwy. Improvements								
Prioritizing								
Financing								
Building								
Parking Problems	X	X	X	X	X	X	X	X
Bus Transit/Ridesharing								
Lack of Transit	X		X	X	X	X	X	X
Lack of Ridesharing	X		X	X			X	
Frequency			X		X	X	X	
Routing			X		X	X	X	
Circulation			X		X		X	
Transport to Airports			X		X			
Commuter Rail								
Frequency			X					
Rail Links to Activity Areas	X		X		X		X	X
Commuter Information/Signage			X		X	X	X	X
Areawide Coordination								
Emergency Travel								
Intermodal		X			X		X	
Municipal Approval Process	X		X		X		X	X
Lack of Public/Private Forum	X	X	X	X	X	X	X	X
Economic Development								
Growth Management			X	X	X	X	X	X
Labor Access	X		X		X	X	X	
"Marketing of King of Prussia Area"	X	X	X	X	X	X	X	X

TABLE X (cont'd)
GREATER VALLEY FORGE TRANSPORTATION MANAGEMENT ASSOCIATION
Program Identification Matrix

PUBLIC OR PRIVATE INSTITUTIONAL STRATEGIES

Issues	Negotiated Traffic Mitigation Agreement	Trip Reduction Ordinances	Negotiated Highway Improvements
Highways			
Congestion	X	X	X
Accessibility	X	X	X
Financing	X		X
Traffic Flow Improvements	X	X	X
Lack of Construction			X
Private Role in Hwy. Improvements			
Prioritizing	X		
Financing			X
Building			X
Parking Problems	X	X	
Bus Transit/Ridesharing			
Lack of Transit		X	
Lack of Ridesharing	X	X	
Frequency			
Routing			
Circulation	X	X	
Transport to Airports			
Commuter Rail			
Frequency		X	
Rail Links to Activity Areas	X		
Commuter Information/Signage			X
Areawide Coordination			
Emergency Travel			
Intermodal			
Municipal Approval Process	X	X	X
Lack of Public/Private Forum	X	X	
Economic Development			
Growth Management	X	X	
Labor Access			
"Marketing of King of Prussia Area"	X	X	

TABLE X (cont'd)
GREATER VALLEY FORGE TRANSPORTATION MANAGEMENT ASSOCIATION
Program Identification Matrix

	IMPROVING HIGHWAY CAPACITY			
Issues	Innovative Financing of Highways	HOV Lanes	Traffic Engineering Improvements	Pedestrian/ Bicycle Improvements
Highways				
Congestion	X	X	X	X
Accessibility	X	X	X	X
Financing	X			X
Traffic Flow Improvements	X	X	X	X
Lack of Construction	X			
Private Role in Hwy. Improvements				
Prioritizing	X			
Financing	X		X	
Building	X		X	
Parking Problems		X		X
Bus Transit/Ridesharing				
Lack of Transit		X		
Lack of Ridesharing		X		
Frequency				
Routing				
Circulation				
Transport to Airports				
Commuter Rail				
Frequency				
Rail Links to Activity Areas				
Commuter Information/Signage	X	X		
Areawide Coordination				
Emergency Travel				
Intermodal			X	X
Municipal Approval Process				
Lack of Public/Private Forum				
Economic Development				
Growth Management	X	X		
Labor Access				
"Marketing of King of Prussia Area"	X	X	X	

TABLE XI
GREATER VALLEY FORGE TRANSPORTATION MANAGEMENT ASSOCIATION
Program Identification Matrix
By Client Type

Programs	Retail	Manufacturing	Office	Service	Motels	Restaurants	Developers	Government
Ridesharing	X	X	X	X	X	X	X	
Alternate Work Hours		X	X	X	X	X	X	
Parking Management	X	X	X	X	X		X	X
Transit Development	X	X	X	X	X	X	X	
Transit Shuttle to Rail	X	X	X	X	X	X	X	
Subscription/Express Bus	X	X	X	X	X	X	X	
Internal Circulation	X	X	X	X	X	X	X	
Park and Ride Lots							X	X
Innovative Financing of Highways	X	X	X	X	X		X	X
HOV Lanes							X	X
Traffic Engineering Improvements	X	X	X	X	X	X	X	X
Pedestrian/Bicycle Improvements	X	X	X	X	X	X	X	X
Negotiated Traffic Mitigation Agreements	X	X	X	X	X	X	X	X
Trip Reduction Ordinances	X	X	X	X	X		X	X
Negotiated Highway Improvements	X	X	X	X	X		X	X

Preferential Parking - A preferential parking program for car and van pools is one of the least expensive techniques to reduce traffic. However, unless other steps are taken as well, it may not be very effective. Simply providing preferential spaces for some people will not encourage many people to change their habits. Reducing the number of spaces available or charging those who ride alone a fee is also needed to actually achieve the goal of reducing traffic. Preferential parking is a responsibility of employers.

The Hacienda Business Park (California) design guidelines specify that five percent of parking spaces be designated for car pool and van pool parking. These spaces are located near building entrances. In a recent survey of large employers in the San Francisco Bay area, nearly one in three firms reported providing preferential parking. Typically, a minimum of ten percent of available spaces are designated for car pools. The McRides TMA (New Jersey) provides technical assistance to employers to help manage parking demand at the work site.

Restricting Parking - Restricting the amount of parking, on the other hand, is primarily the developer's avenue of supporting high occupancy vehicles (or the employer's if it builds the building). By aggressively promoting transit, car pooling, van pooling, bicycling, and other strategies, the amount of parking can easily be reduced and a significant amount of money saved. The average cost of building a parking lot space is about $5,000; a parking garage space costs $8,000; these figures do not include maintenance costs. An employer can pay for many transit passes, provide many secure bicycle lockers or parking devices, and sign many spaces as preferential car or van pool spaces for that amount of money.

Charging a Parking Fee - Charging a fee for parking is an extremely effective way of reducing single occupant driving, as long as other free parking is not available nearby. As discussed above, several locations have eliminated free parking with the result that single occupant travel dropped significantly and transit use and ridesharing increased greatly. Once people have to pay at least some of the full costs of driving alone, many of them will change their behavior.

Reducing Parking Costs for Car and Van Pools - Providing reduced parking costs for car and van pools is the final parking management technique that can be used. As noted above, several places offer this as an incentive. This technique would appear to be a last resort type of program. Car and van pools reduce the individual's parking and other commuting costs significantly, even before a special parking fee reduction is added on. The best form of this technique from the employer's perspective would be an "incentive" subsidy for the first few months which would gradually be eliminated. By that time, the car or van pool would be established.

Providing preferential parking and restricting parking are low cost programs for employers and developers. In fact, building less parking actually pays the employer/developer. Parking charges and reducing parking costs for car and van poolers are medium cost programs.

Parking Management Program Elements Recommended for Detailed Evaluation and Design

1. Preferential Parking - Each parking lot will have reserved at least 10% of its spaces for car and van pools adjacent to the building doors.

2. Restricting Parking Supply - Each employer developer/landlord builds less parking than would normally be required. The townships should amend their ordinances to reduce parking space requirements for the TMA area.

3. Subsidies for Car and Van Pools - These subsidies would futher encourage ridesharing, using money saved on parking facilities.

B. TRANSIT

Transit is a transportation service which carries groups of passengers, usually for a fare. It includes both bus and rail transportation and public and private service. Transit development is a typical TMA support function for public and private transit carriers. To achieve the maximum travel demand management through the use of transit in the Greater Valley Forge TMA, an integrated transit system with a well-balanced combination of transit provision and promotion programs needs to be implemented. The following transit programs should be considered for incorporation into the Greater Valley Forge TMA program.

1. Transit Services

Shuttle Bus Service - The largest percentage of TMA area employees living in a single area resides within a 7-mile radius of the TMA. Likewise, a number of bus (Routes 45, 92, and 99) and rail (Route 100, R6 and R5) routes originate or terminate within that same 7-mile radius. Consequently, a suggested program for further study is a shuttle bus system that would circualte within the TMA area linking together residential and employment centers and new and existing transit routes.

Ideally, such a system could enlarge the TMA's available transit sources to include SEPTA's R5, R6 and Route 100 rail lines. A shuttle bus system could also provide a level of local circulation that would allow SEPTA to streamline its bus routes in the area, making them operate more efficiently. Further study is needed to determine the exact routing, timing and locations of transfer points.

Subscription or Express Bus Service - The survey of employees' residences identified corridors outside of the immediate TMA area with concentrations of employees that are high enough to support the operation of limited stop bus service. This bus service could be either traditional or subscription. Traditional fixed-route bus service operates along a specified route, usually for a fare, and is available for use by the general public. Subscription bus service is usually privately funded and designed to serve a specific clientele. The corridors which warrant further study are Route 422 to Pottstown and Reading, Route 202 to West Chester, Lansdale, Hatfield and North Wales, Route 23 to

Phoenixville, I-76 and I-476 to Conshohocken and Delaware County, and Route 30 to Downingtown. Public and private carriers are already examining these corridors.

Existing SEPTA bus Routes 45, 92 and 99 need to be reassessed. It may be possible to streamline or retime these routes to provide more efficient, faster service to King of Prussia and coordinate with the shuttle bus service.

Rail Service - Existing rail service can be better utilized and the need for new rail service can be lessened with a well-planned shuttle system. Private carriers can be contracted to provide this service. The Greater Princeton TMA operates this type of service.

Paratransit Service - Paratransit services are demand-responsive transit services that generally operate on a flexible schedule. They typically run door-to-door using small buses, vans or taxis, usually during weeknights, weekends and off-peak hours when higher capacity is not required. This strategy is also commonly used to provide service for elderly and handicapped persons.

Paratransit service is an important program to consider because it operates as a back-up when a ridesharing or transit commuter cannot keep his or her regular commuting schedule. Through this type of service, employees can be guaranteed a ride home; thus they are more likely to use car pooling, van pooling and transit alternatives. The Seattle area has a very successful "guaranteed ride home" program.

Transit and paratransit services are very cost effective when compared to the cost of parking facilities and the opportunity cost a developer incurs when parking occupies a valuable potential building site.

The cost of any of these programs could be shared by individual employers and developers or the TMA as a whole. Likewise, they can also be funded through special assessment or tax programs such as the business improvement district. The potential benefits of these programs are high. When these services are coordinated properly, they can remove a large number of single-occupancy vehicles from the road. For example, a shuttle bus carries 26 passenger, a full-size bus carries 50 passengers, and one car of a train carries approximately 80 passengers. All of these transit programs are currently being used successfully in TMAs in New Jersey, California and Maryland.

Transit Service Program Elements Recommended
for Detailed Evaluation and Design

(1) Shuttle bus system contracted to private carriers connecting employment centers, motels, rail and bus stations, and shopping centers.

(2) Competitively-bid subscription or express bus service on high-density corridors such as Routes 422, 202, and 30, and the PA Turnpike.
(3) Paratransit service during lower demand hours, including a "guaranteed ride home" program.

2. Transit Promotions

Transit services will be less than totally successful without promotion. These programs keep employees well-informed of transit opportunities, encourage employees to ride transit, and facilitate the acquisition of transit tickets. They are fairly easy to implement, usually requiring time and space from the employers, and they are low to moderate in cost. All of the following programs could be started or developed further in the Greater Valley Forge TMA.

Employer Subsidy - Employers can currently subsidize up to $15 per month of an employee's transit costs without tax liability to the employee, while the employer's cost is deductible as a business expense. The program lowers the employee's commutation costs, making the use of transit more desirable. Pending federal legislation may increase the monthly allowance to $60. SEPTA's Compass Program makes passes and tokens available to employees at their workplace, at a cost savings of at least 5% off the cost of monthly passes.

On-Site Ticket Sales - By providing the personnel, time, and space to sell transit passes at the work site, an employer, developer, building manager or TMA can make transit more convenient for employees. With transit more convenient, it is also more desirable and more likely to be used.

On-Site Information and Marketing - Employers, developers, building managers, or the TMA can encourage employees to use transit services by dedicating time and space to the promotion of transit. Route and schedule information, including information about service changes and ticketing options, can be distributed. Employees can gain a better understanding of how the transit system works, thereby relieving some of their uncertainties.

Passenger Amenities - Passenger amenities include bus shelters, bus stop signs, sidewalks, and lighting. Improving these amenities can assure employees of a safe, easily identifiable, and comfortable means of accessing buses and trains. The immediate impact of these improvements may be minimal, but they will contribute to the overall effort of trying to make employees more comfortable with using transit services.

Transit Promotion Elements Recommended
for Detailed Evaluation and Design

(1) Employer subsidy
(2) On-site ticket/pass/token sales
(3) On-site information and marketing
(4) Passenger amenities

C. PEDESTRIAN ACCESS

The employer survey showed that a large number of employees live within a close enough radius of the TMA to be able to encourage walking and bicycling. Pedestrian

access includes sidewalks and footbridges that provide employees with access to work sites from residential areas, remote parking lots and transit stops. Most of the employment centers in the TMA have sidewalks from parking areas to the front door, but because of the suburban nature of the area, sidewalks along the highway are lacking. Site-specific investigation is required to determine where improvements are needed. The cost of pedestrian access improvements would be moderate and could be shared by employers, developers and the TMA.

Pedestrian Access Program Recommended for Detailed Evaluation and Design

(1) Sidewalks from nearby residential or commercial areas
(2) Sidewalks within employment area

D. BICYCLE ACCESS

Bicycling is the most efficient form of transportation and would be more popular if the bicycling environment were safer and more accommodating. Heavily traveled roads can be made safer for bicycling by paving shoulders or widening curb lanes. Paved paths in employment centers can be established and secure bicycle storage devices at doors in buildings can be installed. Only one bike path currently exists in the Greater Valley Forge TMA area. The potential exists for the development of other paths. Like pedestrian access, improvements to bicycle access would be moderate in cost and could be funded by the state, municipalities, employers, developers and the TMA. Both programs have potential for mitigating traffic and would contribute to the overall travel demand management effort of the TMA.

Bicycle Access Program Recommended for Detailed Evaluation and Design

(1) Paving shoulders or widening curb lanes on heavily traveled roads
(2) Building paved paths to eliminate long circuitous routes on road system
(3) Providing storage devices at building doors

E. RIDESHARING

Ridesharing occurs when two or more people ride in the same vehicle. It is the cheapest and most effective means of access improvement and congestion reduction. In the broadest sense, mass transit, van pooling, and car pooling are the principal forms of ridesharing. However, ridesharing more commonly refers to car pooling and van pooling. We will use the latter definition.

In suburban settings such as King of Prussia where transit is not dominant, promotion of ridesharing is essential to securing employer support of traffic reduction efforts. The integration of transit and ridesharing has also been found essential to passage of state legislation that offers tax incentives for employer support of traffic reduction programs.

F. CAR POOLING

A car pool consists of two or more people who commute together in a car on a regular basis. There are several different ways that a TMA can have employees car pool.

1. By area:

    a. the TMA sets up a car pool matching service for all employers in the TMA area
    b. each business park or large group of employers establishes a program
    c. each major employer (over 1,000 employees) -- or several employers -- sets up a program

2. By method:

    a. promotion of the DVRPC Philadelphia regional car pool matching referral service (227-POOL)
    b. establishment of a TMA area/subarea business park phone line and car pool matching referral service
    c. creation of individual employer car pool matching services with an assigned coordinator
    d. publishing of a weekly/biweekly/monthly newspaper which would list free ads from people who are looking for rides or riders
    e. promotion of car pooling through notices or events
    f. subsidizing employees to encourage them to car pool
    g. preferential parking for car pools

Car pools are probably the most common and least costly programs that TMAs use to reduce traffic congestion. They are being used at virtually every TMA in the country.

The Greater Princeton (New Jersey) TMA provides free classified ad space in the local, biweekly newspaper for car pool ads. It also serves as the central information service on ridesharing and it markets and promotes ridesharing.

The Meadowlink (New Jersey) TMA has a car pool matching service. The Hacienda Business Park TMA coordinator facilitates car pools by distributing matchlists to employees.

For these car pooling programs, employers would be devoting resources of staff, time, and money. In order to minimize and pool resources, as well as to enlarge the number of employees who could potentially car pool, it makes sense to include as many employers as practical.

As with other demand management strategies, car pooling alters employee behavior, but most impacts are positive. The most obvious impact is cost savings to the employee.

In a car pool with only two people, each person's commuting cost is slashed by 50 percent. Persons in larger car pools save more. Other positive impacts are a closer parking space at work for those employers who provide preferential parking for car pools, and less traffic congestion, air pollution, and energy use.

About the only negative impact to the employee is less personal freedom. But if the car pool arrangement is set up in a way to have occasional days for individuals in the car pool to drive alone to run personal errands, this impact can be ameliorated. If the TMA contracts with a paratransit company, emergency or unexpected trips can also be provided through a "guaranteed ride home" program.

The employers' cost to implement car pool programs is either low or medium. However, when all costs are considered (as they should be), such as construction and maintenance of parking facilities and their land costs, time spent in traffic, air pollution and energy use, the costs are low and justifiable.

One possible incentive program to consider is a subsidy of Turnpike tolls for those TMA employees who car pool or van pool. They would not have to pay a toll, and the TMA would reimburse the Turnpike Commission for the amount.

Car Pool Program Elements Recommended
for Detailed Evaluation and Design

(1) A TMA car pool matching service. The transportation coordinator at each employer/office building would distribute forms to gather information on employees' commutes. The TMA service would then match commuters.

(2) Promotions of both the TMA matching service for current and prospective employers and employees and the DVRPC regional matching referral service (227-POOL)

(3) Subsidies to car poolers to further encourage ridesharing, using money saved on parking facilities

(4) Employer based coordinator for large employers

(5) A "guaranteed ride home" program

(6) Subsidy of car poolers' Turnpike tolls

G. VAN POOLING

An employer who sponsors van pools is involved in practically every aspect of its van pools. The employer matches people who want to share a ride, purchases/finances the

van, pays for insurance, and provides preferential parking.

An employer who subsidizes van pools is involved to a lesser degree. An employee owns a van which he or she wishes to use for a van pool. In order to encourage a group of employees to form a van pool, the employer may subsidize its operating cost.

TMAs that have van pool programs are Princeton, McRides, Meadowlink, and Rides. Several major employers across the country (e.g., Westinghouse, Prudential, Bechtel, and 3M) have started their own van pool programs as well.

Van pool impacts on employers and employees are similar to car pool impacts. However, the benefits to both employers and employees are greater. A person who drives to work alone can slash commuting costs by over 90 percent in a van pool. Parking facility construction costs can be substantially reduced as well. Van pool program costs are medium to high.

Van Pool Program Elements Recommended for Detailed Evaluation and Design

(1) A TMA van pool matching service. This would be the same service as the car pool service, except van pools would be recommended for longer distance (over 15 miles) commuters where sufficient numbers of people live in the same area.

(2) Promotions of both the TMA matching service for current and prospective employers and employees and the DVRPC regional matching referral service (227-POOL).

(3) Small subsidies to van poolers to further encourage ridesharing, using money saved on parking facilities. There is a good chance that van pool subidies would be federal tax deductible if pending legislation is approved this year.

(4) Subsidy of van poolers' Turnpike tolls.

H. PARK AND RIDE LOTS

Park and ride lots are parking lots for automobiles which also serve as starting points for car pool, van pool, or transit trips. A commuter's trip begins with an automobile trip to a park and ride lot, which serves as a conveniently located meeting point and staging area for car pools, van pools, and transit.

There are two types of park and ride lots: large lots for long-distance travel and smaller lots for more localized trips. The construction of the first type of park and ride lots is usually beyond most TMAs' capabilities, however. Since the area from which a lot

obtains its users is over several municipalities, several counties, or a whole region, employees from more than one TMA will use it. A county, regional, or state entity is best suited for constructing these lots.

However, a TMA can be greatly involved in establishing the smaller, more informal lots. Arrangements can be made with shopping centers, churches, and other businesses to use any part of their lots not being totally utilized. The state, county, and townships should evaluate the means to create a lease-purchase park and ride lot program.

A TMA can and should be involved in the planning and promotion of park and ride lots. A TMA will know -- through periodic surveys of employees -- residence locations, mode of travel, and other information which could be used to plan park and ride lots. The formation of TMAs throughout a region should increase ridesharing and the demand for park and ride lots.

The cost of park and ride lots is in the medium category. They could be financed by all development or be built on land donated by a developer.

Park and Ride Lot Program Elements Recommended for Detailed Evaluation and Design

(1) Because King of Prussia is one of the region's major employment centers, the labor market maps produced from the employer needs assessment are a good tool for a regional park and ride lot plan. Lots built in areas where large numbers of King of Prussia employees could park would complement and reinforce the other ridesharing strategies, such as car and van pools and express buses.

(2) Conversely, King of Prussia is a key location for a park and ride lot or lots for commuters to Philadelphia or New Jersey via the Schuylkill Expressway or to other parts of the region. The TMA should be a key player in these planning efforts. The state, county, and townships should evaluate the means to create a lease-purchase park and ride lot program.

I. HIGH OCCUPANCY VEHICLE (HOV) LANES

HOV lanes' use is restricted to buses, van pools, and car pools. HOV lanes are generally built in corridors with very high traffic volumes, such as Shirley Highway in northern Virginia. These highways usually limit access and the lanes are several miles long. As with park and ride lots, HOV lanes are usually built by a county, regional or state agency. However, a TMA in the corridor should certainly be involved in planning efforts. The high cost of HOV lanes could be financed by all development.

HOV Lane Elements Recommended
for Detailed Evaluation and Design

In King of Prussia, HOV lanes should be seriously considered for any new lanes added to Routes 76, 202 and 422. By making any new lanes HOV lanes, traffic volumes will be reduced as more people rideshare. The need for further road expansions on those roads could be reduced if HOV programs were implemented. These are far more cost effective means of increasing capacity when compared to adding regular lanes to highways.

J. ADMINISTRATIVE ACTIONS

There are several ways that trip reduction strategies can be implemented at the legislative level. Usually, these programs are necessary only when area employers have little interest in participating in other types of trip reduction programs. However, they are occasionally used where the TMA covers a multi-municipal area, or where there are few "major" employers. Legislative strategies include the following:

Trip Reduction Ordinances - These ordinances often target a number or percentage of trips which must be eliminated by each employer, based on square footage or the number of employees. Ordinances can also specify penalties for non-compliance and can be used as TMA enabling legislation. These ordinances are the most effective way to reduce single occupant automobile commuting.

Negotiated Highway Improvements - A popular trend among rapidly developing municipalities is to adopt legislation requiring a fee per square foot or per residential unit for all new construction. Often a devleoper is permitted the option of providing a roadway or other improvement of equal or greater value instead of paying that fee. Terms are negotiated between the developer (or the TMA acting on behalf of the development community) and the municipality.

Traffic Engineering Improvements - Municipalities can reduce traffic congestion by making engineering improvements to their roadway system. These improvements may include adding lanes to congested roadways, adjusting traffic signal timings, widening intersections, or constructing new roads.

Financing Highway Improvements - Many municipalities have the authority to enact public-private financing partnerships with developers or employers who might request specific highway improvements to benefit their sites. Partnerships enable this type of project to be financed proportionally according to who will receive the maximum benefit.

The above-mentioned strategies can also be applied in combinations where the situation merits. The following demonstrates the impacts of various legislative trip reduction strategies.

Program	Employer Impact	Employee Impact	Cost	Comments
Ordinance	Personal time, TMA fee	Personal auto discouraged	Low	Extremely effective; may not be widely accepted; also depends on transit availability
Negotiated improvements	None	None	Depends on size	Impact on developer, although cost is passed on to tenants
Engineering improvements	May increase taxes	Temporary traffic jams	High	Funded by municipality, short-term solution only
Financing improvements	Voluntary	Reduces congestion	High	Improvements have a major impact on system.

Although popular in many high growth communities in California, trip reduction ordinances have not been widely implemented in the eastern United States. There are currently none in effect in the DVRPC region. North Brunswick Township, Middlesex County, New Jersey has one. Negotiating for improvements is a practice used by most municipalities in the region. Upper Merion Township and Plymouth Township, in Montgomery County, have enacted a development impact fee structure which is used as a basis for these negotiations. Many other municipalities prefer a less structured system.

With the high cost of roadway improvements, most municipalities have moved away from major reconstruction projects, opting instead to provide part of the costs for improvements to state-owned roads, or to make minor, short-term improvements to township roads. Under the Pennsylvania Public-Private Partnership Act (PA Act 47 of 1986), private funding sources may be used in conjunction with public monies to construct major roadway improvements. Private sector funds can be raised either from a single company or developer or by enacting a Transportation Development District and levying an assessment to all property owners within that district. The recently constructed new Route 29 interchange with Route 202 in the Great Valley area was financed through a public-private partnership among Tredyffrin and East Whiteland townships, Rouse and Associates developers, and all of the property owners within the Transportation Development District, the properties most benefited by that project.

Act 47 Partnerships also allow the agency which collects the district's revenues to issue bonds to pay for improvements and then use the assessments to pay off the bonds.

In addition to creating Transportation Development Districts, there are other legislative actions available to municipalities for financing transportation improvements. Tax Increment financing is one of these. This method also utilizes legislation to set up a district; however, revenue collection methods differ. Rather than an across-the-board

assessment to pay off bonds, this type of district utilizes publicly-issued bonds to build infrastructure improvements and create a more attractive environment for development. In turn, this development raises the values of existing properties and the additional revenue collected from this increased value at the same millage rate (the tax increment) can be used to pay off the bonds and invest in future improvements. Although this type of district is usually applicable in blighted or underutilized areas, this method has been used with some success in Prince George's County, Maryland (east of Washington, DC), a suburban area expecting extensive development.

Other sources of revenue include toll roads, donations of cash or land for roadway improvements from private sources, local gasoline taxes, and other "user fees" in the form of licencing fees, various truck fees, and penalties.

It is possible to set up transportation districts so that revenues may be used for either transit or roadway improvements. Many TMAs have effectively channeled some of these types of revenues into contracting for or operating local transit service. The Greater Princeton TMA operates a shuttle bus from local developments to the Princeton Junction rail station.

In the King of Prussia area, it is recommended that legislative actions be taken only if voluntary programs are ineffective in reducing traffic congestion. Although the legislative actions are efficient methods for revenue collection, successfully implementing traffic reduction programs mentioned earlier may lessen the need for extensive roadway improvements. In circumstances where legislation is needed, the TMA has the opportunity to represent its constituency in choosing the most appropriate course of legislative actions.

Adminsitrative Program Elements
Recommended for Detailed Evaluation
and Design

All the above administrative actions should be evaluated, and broadening the use of Act 47 should be explored.

K. ALTERNATE WORK HOURS

The adoption of alternate work hours shifts the traffic load to a longer period of time -- it does not reduce traffic volume. It can reduce volumes during peak periods. There are three types of alternate work hours: staggered, flextime, and compressed.

Staggered Hours - With staggered hours, different work groups are assigned to begin work at different times. Spacing arrivals at specified intervals before and after conventional work hours allow workers to travel at times when traffic moves more freely and more seats are available on transit. Staggered hours work well for assembly-line operations and back office operations where commencement and termination or work shifts can be easily controlled by the employer.

Flex-Time - Flex-time is a scheduling practice that allows individual employees to choose their own schedules within company-set guidelines. Most flex-time arrangements allow employees to begin work as early as 7:00 am or as late as 9:30 am and many allow workers to vary their arrival times from day to day. Flex-time works well for office workers who work independently and can exercise a certain amount of discretion over the scheduling of their work.

Compressed Work Week - Four-day work weeks allow employees to complete 40 hours of work in four 10-hour days. The system is often call 4-40. Four-forty systems have a double impact on travel to work: one day of commuting is eliminated each week; and the early arrivals and late departures built into the ten-hour days mean employees travel before and after the rush hour peaks.

Alternate Work Hour Program Elements Recommended for Detailed Evaluation and Design

Alternate work hours should be utilized as much as possible. The TMA can develop a plan to coordinate work hours among all the major employers.

L. LAND USE POLICIES/SITE DESIGN

Land use policies which encourage transit use can be implemented by muncipalities, business parks, and major employers. In this way, business parks and major employers can locate adjacent to existing bus or rail routes so riders can walk on sidewalks to their places of employment. In developing areas, encouraging a high density employment center at the same time as providing a new transit route would also reduce automobile use. Also, housing and employment centers should be located close to each other to encourage walking and bicycling and reduce trip lengths.

Standard site design criteria should be applied. These include short walking distances to transit stops, buildings oriented to the street with parking in the back rather than the front, and provision of sidewalks, bus stops, and bus turnouts.

Land Use/Site Design Program Elements Recommended for Detailed Evaluation and Design

The townships could evaluate revising their land use plans and zoning ordinances, if necessary, to direct high density business developments to areas adjacent to bus and rail lines. The townships could also adopt site design standards like the ones described above.

M. SIGNS

Internal and external directional signs are a low cost method of reducing traffic congestion. Through traffic can be reduced by designating other, less congested routes,

and local traffic can be assisted by clearer marking of street and place names. Clearly signing points of interest and popular attractions on both roadways leading to the municipality and again inside the municipality can also help those unfamilar with the area find their destinations with ease. The importance of clear, accurate signs cannot be overestimated in areas where divided highways are experiencing significant amounts of congestion, as these signs can help traffic flow more efficiently.

In the King of Prussia area, directional signing could be an effective method of congestion reduction along congested corridors. Clearer signs along the Schuylkill Expressway for specific destinations which could be reached via the Goddard Road exit could help reduce the congestion and weaving actions at the Route 202 interchange, for example. Clear signs to popular attractions, highways, and to other municipalities, well in advance of a needed turning movement, could help to channel traffic along congested routes.

Although signing is a traditional government responsibility, the TMA could play a key role in planning, prioritizing, funding, and maintaining signs in the area.

Signing Program Elements Recommended for Detailed Evaluation and Design

Participation in planning, prioritizing, funding, and maintaining signs.

N. COMMUNICATIONS

Communications and publicity tools such as a newsletter are essential to a TMA's success. A newsletter for the TMA's members (employers, developers, governments, and service providers) is necessary to inform them of policy, programs, and funding matters. A communications device for commuters, which may include rideshare matching services, transit information, highway advisories, and other activities, is also a necessity.

Communications Program Elements Recommended for Detailed Evaluation and Design

(1) A newsletter for TMA members
(2) A communications device for commuters

O. EMERGENCY/INCLEMENT WEATHER PLANNING

The TMA will be a good forum to plan for emergencies, such as snowstorms and hazardous spills. The TMA's municipalities and employers will be able to develop a plan for clearing roads and releasing of employees when an emergency occurs.

Emergency/Inclement Weather Planning Element Recommended for Detailed Evaluation and Design

A TMA emergency/inclement weather plan.

PTA TMA PROGRAM IDENTIFICATION

This chapter describes the many programs that a TMA could implement. They include mass transit, ridesharing, paratransit, bicycling, alternative work hours, parking management, and administrative techniques. No one program by itself will have a significant impact on mobility. But a range of programs which support each other can start to make a difference. Table XII indicates how the various strategies can affect major transportation-related issues. Table XIII shows which client type can get involved in each program.

A. PARKING MANAGEMENT

The most effective way to reduce single-occupant automobile use is to limit parking or increase its cost to the commuter. The reason that most people drive to work alone is that their employer provides free parking.

Chicago increased parking rates at downtown meters and municipal garages, with larger increases falling on longer-term parkers. Commuter parking fell substantially (some shifting to non-municipal facilities occurred), while shorter-term parking increased. Eliminating free parking at a Los Angeles firm resulted in solo occupant commuting falling from 42 to 9 percent of all employees. Doing the same for government employees in Ottawa resulted in 20 percent fewer employees driving to work and a 16 percent increase in bus use. At a San Francisco hospital, free parking was withdrawn for all but van pools and three-person car pools, and 55 new car/van pools resulted. Car pools that use reserved municipal spaces save $35 in monthly parking charges in Seattle and $15 a month in Houston.

The important concept that must be implemented is having a combination of programs that complement each other. An employer which promotes car pooling at the same time encourages its employees to drive alone if parking is free and abundant and right outside the office door. Some type of parking management, whether pricing or limiting supply, is essential to a successful traffic reduction program. In addition, to be fully effective, parking pricing changes must address commercial, municipal and privately-provided spaces.

There are four types of parking management techniques: (1) providing preferential parking, (2) restricting parking, (3) charging a parking fee, and (4) reducing parking costs for car and van pools. These are primarily meant for large non-retail employers.

Preferential Parking - A preferential parking program is one of the least expensive techniques to reduce traffic. However, unless other steps are taken as well, it may not be very effective. Simply providing preferential spaces for some people will not encourage many people to change their habits. Reducing the number of spaces available or charging those who ride alone a fee is also needed to actually achieve the goal of reducing traffic. Preferential parking is a responsibility of employers.

Table XII

PARTNERSHIP FOR TRANSPORTATION ACTION
TRANSPORTATION MANAGEMENT ASSOCATION

Program Identification Matrix

TRANSIT & PARATRANSIT STRATEGIES

ISSUES	Rides-haring	Alternate Work Hours	Parking Manage-ment	Transit Develop-ment	Transit Shuttle To Rail	Subscription/ Express Bus	Internal Circula-tion	Park & Ride Lots
Highways								
Congestion	x	x	x	x	x	x	x	x
Accessibility	x		x		x	x	x	x
Financing								
Traffic Flow Improvements	x	x	x	x	x	x	x	x
Lack of Construction								
Private Role in Hwy Improvements								
Prioritizing								
Financing								
Building								
Parking Problems	x	x	x	x	x	x	x	x
Bus Transit/Ridesharing								
Lack of Transit	x		x	x	x	x	x	x
Lack of Ridesharing	x		x	x			x	
Frequency			x		x	x	x	
Routing			x		x	x	x	
Circulation			x		x		x	
Transport to Airports			x					
Commuter Rail								
Frequency			x					
Rail Links to Activity Areas	x		x		x		x	x
Commuter Information/Signage			x		x	x	x	x
Areawide Coordination								
Emergency Travel								
Intermodal		x			x		x	
Municipal Approval Process	x		x		x		x	x
Lack of Public/Private Forum	x	x	x	x	x	x	x	x
Economic Development								
Growth Management			x	x	x	x	x	x
Labor Access	x		x		x	x	x	
"Marketing of King of Prussia Area"	x	x	x	x	x	x	x	x

Table XII (Cont'd.)

PARTNERSHIP FOR TRANSPORTATION ACTION TRANSPORTATION MANAGEMENT ASSOCATION
Program Identification Matrix

IMPROVING HIGHWAY CAPACITY

ISSUES	Innovative Financing of Highways	HOV Lanes	Traffic Engineering Improvements	Pedestrian/Bicycle Improvements
Highway				
Congestion	x	x	x	x
Accessibility	x	x	x	x
Financing	x			x
Traffic Flow Improvements	x	x	x	x
Lack of Construction	x			
Private Role in Hwy Improvements	x			
Prioritizing	x		x	
Financing	x		x	
Building				
Parking Problems		x		x
Bus Transit/Ridesharing		x		
Lack of Transit		x		
Lack of Ridesharing				
Frequency				
Routing				
Circulation				
Transport to Airports				
Commuter Rail				
Frequency				
Rail Links to Activity Areas				
Commuter Information/Signage	x	x		
Areawide Coordination				
Emergency Travel				
Intermodal			x	x
Municipal Approval Process				
Lack of Public/Private Forum				
Economic Development				
Growth Management	x	x		
Labor Access				
"Marketing of King of Prussia Area"	x	x	x	

Table XII (Cont'd.)

PARTNERSHIP FOR TRANSPORTATION ACTION TRANSPORTATION MANAGEMENT ASSOCATION
Program Identification Matrix

PUBLIC OR PRIVATE INSTITUTIONAL STRATEGIES

ISSUES	Negotiated Traffic Mitigation Agreement	Trip Reduction Ordinances	Negotiated Highway Improvements
Highway			
Congestion	x	x	x
Accessibility	x	x	x
Financing	x		x
Traffic Flow Improvements	x	x	x
Lack of Construction			x
Private Role in Hwy Improvements			
Prioritizing	x		
Financing			x
Building			x
Parking Problems	x	x	
Bus Transit/Ridesharing			
Lack of Transit		x	
Lack of Ridesharing	x	x	
Frequency			
Routing			
Circulation	x	x	
Transport to Airports			
Commuter Rail			
Frequency		x	
Rail Links to Activity Areas	x		
Commuter Information/Signage			x
Areawide Coordination			
Emergency Travel			
Intermodal			
Municipal Approval Process	x	x	x
Lack of Public/Private Forum	x	x	
Economic Development			
Growth Management	x	x	
Labor Access			
"Marketing of King of Prussia Area"	x	x	

Table XIII

PARTNERSHIP FOR TRANSPORTATION ACTION TRANSPORTATION MANAGEMENT ASSOCATION
Program Identification Matrix
By Client Type

PROGRAMS	Retail	Manufacturing	Office	Service	Motels	Restaurants	Developers	Government
Ridesharing	x	x	x	x	x	x	x	
Alternate Work Hours		x	x	x	x	x	x	
Parking Management	x	x	x	x	x		x	x
Transit Development	x	x	x	x	x	x	x	
Transit Shuttle to Rail	x	x	x	x	x	x	x	
Subscription/Express Bus	x	x	x	x	x	x	x	
Internal Circulation	x	x	x	x	x	x	x	
Park and Ride Lots							x	x
Innovative Financing of Highways	x	x	x	x	x		x	x
HOV Lanes							x	x
Traffic Engineering Improvements	x	x	x	x	x	x	x	x
Pedestrian/Bicycle Improvements	x	x	x	x	x	x	x	x
Negotiated Traffic Mitigation Agreements	x	x	x	x	x	x	x	x
Trip Reduction Ordinances	x	x	x	x	x		x	x
Negotiated Highway Improvements	x	x	x	x	x		x	x

The Hacienda Business Park (California) design guidelines specify that five percent of parking spaces be designated for car pool and van pool parking. These spaces are located near building entrances. In a recent survey of large employers in the San Francisco Bay area, nearly one in three firms reported providing preferential parking. Typically, a minimum of ten percent of available spaces are designated for car pools. The McRides TMA (New Jersey) provides technical assistance to employers to help manage parking demand at the work site.

Restricting Parking - Restricting the amount of parking, on the other hand, is primarily the developer's responsibility (or the employer's if it builds the building). By aggressively promoting transit, car pooling, van pooling, bicycling, and other strategies, the amount of parking can easily be reduced and a significant amount of money saved. The average cost of building and operating a parking lot space is about $9,000; a parking garage space costs $32,000. An employer can pay for many transit passes, provide many secure bicycle lockers or parking devices, and sign many spaces as preferential car or van pool spaces for that amount of money.

Charging a Parking Fee - Charging a fee for parking is an extremely effective way of reducing single occupant driving, as long as other free parking is not available nearby. As discussed above, several locations have eliminated free parking with the result that single occupant travel dropped significantly and transit use and ridesharing increased greatly. Once people have to pay at least some of the full costs of driving alone, many of them will change their behavior.

Reducing Parking Costs for Car and Van Pools - Providing reduced parking costs for car and van pools is the final parking management technique that can be used. As noted above, several places offer this as an incentive. This technique would appear to be a last resort type of program. Car and van pools reduce the individual's parking and other commuting costs significantly, even before a special parking fee reduction is added on. The best form of this technique from the employer's perspective would be an "incentive" subsidy for the first few months which would gradually be eliminated. By that time, the car or van pool would be established.

Providing preferential parking and restricting parking are low cost programs for employers and developers. In fact, building less parking actually pays the employer/ developer. Parking charges and reducing parking costs for car and van poolers are medium cost programs.

Parking Management Program Elements Recommended for Detailed Evaluation and Design

(1) Preferential Parking: Each parking lot will have reserved at least 10% of its spaces for car and van pools adjacent to the building doors.

(2) Restricting Parking Supply: Each employer/developer/landlord builds less parking than would normally be required. The townships should amend their ordinances to reduce parking space requirements for the TMA area.

(3) Charging a Fee for Parking: Employers should charge each employee the true cost of his/her parking space, if that individual drives alone. This charge should be made by pay check deduction. A parking fee would not be charged car or van poolers, bicyclists, or motorcyclists.

(4) Subsidies for Car and Van Pools - These subsidies would further encourage ridesharing, using money saved on parking facilities and collected from those who drive alone.

B. TRANSIT

Transit is a transportation service which carries groups of passengers, usually for a fare. It includes both bus and rail transportation and public and private service. Transit development is a typical TMA support function for public and private transit carriers. To achieve the maximum travel demand management through the use of transit in the PTA TMa, an integrated transit system with a well-balanced combination of transit provision and promotion programs needs to be implemented. The following transit programs should be considered for incorporation into the PTA TMA program.

1. Transit Services

Shuttle Bus Service - A shuttle bus system operates by providing local circulation between transit (bus and rail) stations, employment centers and residential clusters. The largest percentage of TMA area employees living in a single area resides within a 7-mile radius of the TMA. Likewise, a number of bus (Routes 55, 22, 94, 28, 88 and 24) and rail (Routes R2, R3, and R5) routes originate or terminate within that same 7-mile radius. Consequently, a shuttle bus system can connect the TMA area to residential and employment centers, central business districts, and new and existing transit routes. The Greater Princeton (New Jersey) TMA operates a shuttle bus to a nearby train station.

Ideally, such a system could enlarge the TMA's available transit resources to include SEPTA's R8 rail line. A shuttle bus system could also provide a level of local circulation that would allow SEPTA to streamline its bus routes in the area, making them operate more efficiently. Further study is needed to determine the exact routing, timing and locations of transfer points.

Subscription or Express Bus Service - The survey of employees' residences identified corridors outside of the immediate TMA area with concentrations of employees that are high enough to support the operation of express bus service. This bus service could be either traditional or subscription. Traditional fixed-route bus service operates along a

specified route, usually for a fare, and is available for use by the general public. Subscription bus service is usually privately funded and designed to serve a specific clientele. The corridors to the PTA TMA which warrant further study for new bus service include Routes 63 and 463 to Lansdale, Route 611 to Doylestown and Upper Bucks County, and Route 309 to Quakertown.

Further examination of the corridors served by SEPTA's Routes 55, 22, 94, 28, 88 and 24 is needed to determine whether they can be streamlined to offer more efficient service to TMA area employees or if new service needs to be initiated to supplement them.

Rail Service - The PTA TMA is currently served by three SEPTA rail lines that, if efficiently linked to employment centers, should provide added mobility to the area from center city Philadelphia. A corridor which may have the potential for new rail service is the Pennsylvania Turnpike. Traffic volumes along the highway plus the proximity of employment centers indicate that if right-of-way is available, that a viable rail line could exist there.

Paratransit Service - Paratransit services are demand-responsive transit services that generally operate on a flexible schedule. They typically run door-to-door using small buses, vans or taxis, usually during weeknights, weekends and off-peak hours when higher capacity is not required. This strategy is also commonly used to provide service for elderly and handicapped persons.

Paratransit service is an important program to consider because it operates as a back-up when a ridesharing or transit commuter cannot keep his or her regular commuting schedule. Through this type of service, employees can be guaranteed a ride home. Thus, they are more likely to use carpooling, vanpooling and transit alternatives. The Seattle area has a very successful "guaranteed ride home" program.

Transit and paratransit services are very cost-effective when compared to the cost of parking facilities and the opportunity cost a developer incurs when parking occupies a valuable potential building site.

The cost of implementing any of these programs could be shared by individual employers and developers or the TMAs as a whole. Likewise, they can also be funded through special assessment or tax programs such as the business improvement district. The potential benefits of these programs are high. When these services are coordinated properly, they can remove a large number of single-occupancy vehicles from the road. For example, a shuttle bus carries 26 passengers, a full-size bus carries 50 passengers, and one car of a train carries approximately 80 passengers. All of these transit programs are currently being used successfully in TMAs in New Jersey, California and Maryland.

Transit Service Program Elements Recommended
for Detailed Evaluation and Design

(1) Shuttle bus system contracted to private carriers connecting employment centers, motels, rail and bus stations, and shopping centers.

(2) Competitively-bid subscription or express bus service on high-density corridors such as Routes 63, 463, 611 and 309, and the Pennsylvania Turnpike.

(3) Paratransit service during lower demand hours, including a "guaranteed ride home" program.

2. Transit Promotions

Transit services will be less than marginally successful if they are not promoted. These programs serve to keep employees well-informed of transit opportunities, encourage employees to ride transit, and facilitate the acquisition of transit tickets. They are fairly easy to implement, usually requiring time and space from the employers, and they are low to moderate in cost. All of the following programs could be started or developed further in the PTA TMA.

Employer Subsidy - Employers can currently subsidize up to $15 per month of an employee's transit costs without tax liability to the employee, while the employer's cost is deductible as a business expense. The program lowers the employee's commutation costs, making the use of transit more desirable. Pending federal legislation may increase the monthly allowance to $60. SEPTA's Compass Program makes passes and tokens available to employees at their workplace, at a cost savings of at least 5% off the cost of monthly passes.

On-Site Ticket Sales - By providing the personnel, time, and space to sell transit passes at the work site, an employer, developer, building manager or TMA can make transit more convenient for employees. With transit more convenient, it is also more desirable and more likely to be used.

On-site Information and Marketing - Employers, developers, building managers, or the TMA can encourage employees to use transit services by dedicating time and space to the promotion of transit. Route and schedule information, including information about service changes and ticketing options, can be distributed. Employees can gain a better understanding of how the transit system works, thereby relieving some of their uncertainties.

Passenger Amenities - Passenger amenities include bus shelters, bus stop signs, sidewalks and lighting. Improving these amenities can assure employees of a safe, easily identifiable, and comfortable means of accessing buses and trains. The immediate impact

of these improvements may be minimal, but they will contribute to the overall effort of trying to make employees more comfortable with using transit services.

Transit Promotion Elements Recommended for Detailed Evaluation and Design

(1) Employer subsidy
(2) On-site ticket/pass/token sales
(3) On-site information and marketing
(4) Passenger amenities

C. PEDESTRIAN ACCESS

The employer survey showed that a large number of employees live within a close enough radius of the TMA to be able to encourage walking and bicycling. Pedestrian access includes sidewalks and footbridges that provide employees with access to work sites from residential areas, remote parking lots and transit stops. Most of the employment centers in the TMA have sidewalks from parking areas to the front door, but because of the suburban nature of the area, sidewalks along the highway are lacking. Site-specific investigation needs to be conducted to determine where improvements need to be made. The cost of pedestrian access improvements would be moderate and could be shared by employers, developers and the TMA.

Pedestrian Access Program Recommended for Detailed Evaluation and Design

(1) Sidewalks from nearby residential or commercial areas
(2) Sidewalks within employment area

D. BICYCLE ACCESS

Bicycling is the most efficient form of transportation and would be more popular if the bicycling environment were safer and more accommodating. Heavily traveled roads can be made safer for bicycling by paving shoulders or widening curb lanes. Paved paths in employment centers can be established and secure bicycle storage devices at doors to buildings can be installed. The potential exists for the development of a few paths. Like pedestrian access, improvements to bicycle access would be moderate in cost and could be funded by the state, municipalities, employers, developers and the TMA. Both programs have potential for mitigating traffic, and would contribute to the overall travel demand management effort of the TMA.

Bicycle Access Program Recommended
for Detailed Evaluation and Design

(1) Paving shoulders or widening curb lanes on heavily traveled roads
(2) Building paved paths to eliminate long circuitous routes on road system
(3) Providing storage devices at building doors

E. RIDESHARING

Ridesharing is when two or more people ride in the same vehicle. In the broadest sense, mass transit, van pooling, and car pooling are the principal forms of ridesharing. However, ridesharing more commonly refers to only car pooling and van pooling. We will use the latter definition.

In suburban settings such as the PTA TMA area where transit is not dominant, promotion of ridesharing is essential to securing employer support of traffic reduction efforts. The integration of transit and ridesharing has also been found essential to passage of state legislation that offers tax incentives for employer support of traffic reduction programs.

F. CAR POOLING

A car pool consists of two or more people who commute together in a car on a regular basis. There are several different ways that a TMA can have employees car pool.

1. By area:

    a. the TMA sets up a car pool matching service for all employers in the TMA area
    b. each business park or large group of employers establishes a program
    c. each major employer (over 1,000 employees) -- or several employers -- sets up a program

2. By method:

    a. promotion of the DVRPC Philadelphia regional car pool matching referral service (227-POOL)
    b. establishment of a PTA area/subarea business park phone line and car pool matching referral service
    c. creation of individual employer car pool matching services with an assigned coordinator
    d. publishing of a weekly/biweekly/monthly newspaper which would list free ad from people who are looking for rides or riders
    e. promotion of car pooling through notices or events
    f. subsidizing employees to encourage them to car pool

g. preferential parking for car pools

Car pool programs are probably the most common and least costly programs that TMAs use to reduce traffic congestion. They are being used at virtually every TMA in the country.

The Greater Princeton TMA provides free classified ad space in the local, biweekly newspaper for car pool ads. It also serves as the central information service on ride-sharing and it markets and promotes ridesharing.

The Meadowlink (New Jersey) TMA has a car pool matching service. The Hacienda Business Park TMA coordinator facilitates car pools by distributing matchlists to employees.

For these car pooling programs, employers would be devoting resources of staff, time, and money. In order to minimize and pool resources, as well as to enlarge the number of employees who could potentially car pool, it makes sense to include as many employers as practical.

As with other demand management strategies, car pooling alters employee behavior, but most impacts are positive. The most obvious impact is cost savings to the employee. In a car pool with only two people, each person's commuting cost is slashed by 50 percent. Persons in larger car pools save more. Other positive impacts are a closer parking space at work for those employers who provide preferential parking for car pools, and less traffic congestion, air pollution, and energy use.

About the only negative impact to the employee is less personal freedom. But if the car pool arrangement is set up in a way to have occasional days for individuals in the car pool to drive alone to run personal errands, this impact can be ameliorated. If the TMA contracts with a paratransit company, emergency or unexpected trips can also be provided through a "guaranteed ride home" program.

The employer's cost to implement car pool programs is either low or medium. However, when all costs are considered (as they should be), such as construction and maintenance of parking facilities and their land costs, time spent in traffic, air pollution and energy use, the costs are low and justifiable.

One possible incentive program to consider is a subsidy of Turnpike tolls for those employees who car pool or van pool. Under this plan, the tolls paid would be reimbursed to drivers in registered carpools/vanpools. The higher the vehicle occupancy, the greater the level of subsidization. Funds to cover these costs could come from a combination of public/private sources. One such device could be an areawide Act 47 Partnership or Special Benefit Assessment District. Funds raised through this device could be used to support a wide variety of programs, depending on the level of revenue available. A high occupancy vehicle (HOV) program such as described above would not necessarily cost

a great deal. The level of cost can be controlled by setting higher minimum levels of vehicle occupancy and/or subsidizing anywhere from 0-100% of the cost of the toll.

Car Pool Program Elements Recommended
for Detailed Evaluation and Design

(1) TMA car pool matching service. The transportation coordinator at each employer/office building would distribute forms to gather information on employees' commutes. The TMA service would then match commuters.

(2) Promotions of both the TMA matching service for current and prospective employers and employees and the DVRPC regional matching referral service (227-POOL).

(3) Subsidies to car poolers to further encourage ridesharing, using money saved on parking facilities.

(4) Employer based coordinator for large employers.

(5) A "guaranteed ride home" program.
(6) Subsidy of car poolers' turnpike tolls.

G. VAN POOLING

A van pool is approximately eight to fifteen people who share a ride in a van on a regular basis. Employers can either subsidize or sponsor van pools. In either case, an employer or TMA rideshare matching program will match people for a van pool.

An employer who sponsors van pools is involved in practically every aspect of its van pools. The employer matches people who want to share a ride, purchases/finances the van, pays for insurance, and provides preferential parking.

An employer who subsidizes van pools is involved to a lesser degree. An employee owns a van which he or she wishes to use for a van pool. In order to encourage a group of employees to form a van pool, the employer may subsidize its operating cost.

TMAs that have van pool programs are Princeton, McRides (New Jersey), Meadowlink, and Rides. Several major employers across the country (e. g. Westinghouse, Prudential, Bechtel, and 3M) have started their own van pool programs as well.

Van pool impacts on employers and employees are similar to car pool impacts. However, the benefits to both employers and employees are greater. A person who drives to work alone can slash commuting costs by over 90 percent in a van pool. Parking facility construction costs can be substantially reduced as well. Van pool

program costs are medium to high.

Van Pool Program Elements Recommended for Detailed Evaluation and Design

(1) A TMA van pool matching service. This would be the same service as the car pool service, except van pools would be recommended for longer distance (over 15 miles) commuters where sufficient numbers of people live in the same area.

(2) Promotions of both the TMA matching service for current and prospective employers and employees and the DVRPC regional matching referral service (227-POOL).

(3) Small subsidies to van poolers to further encourage ridesharing, using money saved on parking facilities. There is a good chance that van pool subsidies would be federal tax deductible if pending legislation is approved this year.

(4) Subsidy of van poolers' turnpike tolls.

H. PARK AND RIDE LOTS

Park and ride lots are parking lots for automobiles which also serve as starting points for car pool, van pool, or transit trips. A commuter's trip begins with an automobile trip to a park and ride lot, which serves as a conveniently located meeting point and staging area for car pools, van pools, and transit.

There are two types of park and ride lots: large lots for long-distance travel and smaller lots for more localized trips. The construction of the first type of park and ride lots is usually beyond most TMAs' capabilities, however. Since the area from which a lot obtains its users is over several municipalities, several counties, or a whole region, employees from more than one TMA will use it. A county, regional, or state entity is best suited for constructing these lots.

However, a TMA can be greatly involved in establishing the smaller, more informal lots. Arrangements can be made with shopping centers, churches, and other businesses to use any part of their lots not being totally utilized. The state, county, and municipalities should evaluate the means to create a lease-purchase park and ride lot program.

A TMA can and should be involved in the planning of park and ride lots. A TMA will know -- through periodic surveys of employees -- residence locations, mode of travel, and other information which could be used to plan park and ride lots. The formation of TMAs throughout a region should increase ridesharing and the demand for park and ride lots.

The cost of park and ride lots is in the medium category. They could be financed by all development or be built on land donated by a developer.

Park and Ride Lot Program Elements Recommended
for Detailed Evaluation and Design

(1) Because the PTA area is one of the region's major employment centers, the labor market maps produced from the employer needs assessment are a good tool for a regional park and ride lot plan. Lots built in areas where large numbers of PTA employees could park would complement and reinforce the other ridesharing strategies, such as car and van pools and express buses.

(2) Conversely, the PTA area is a key location for a park and ride lot or lots for commuters to Philadelphia, suburban areas such as King of Prussia, or New Jersey via the Pennsylvania Turnpike, Routes 611 and 309, and other highways. The TMA should be a key player in these planning efforts. The state, county, and municipalities should evaluate the means to create a lease-purchase park and ride lot program.

I. HIGH OCCUPANCY VEHICLE (HOV) LANES

HOV lanes' use is restricted to buses, van pools, and car pools. HOV lanes are generally built in corridors with very high traffic volumes. These highways usually limit access and the lanes are several miles long. As with park and ride lots, HOV lanes are usually built by a county, regional or state agency. However, a TMA in the corridor should certainly be involved in planning efforts. The high cost of HOV lanes could be financed by all development.

HOV Lane Elements Recommended
for Detailed Evaluation and Design

In the PTA area, HOV lanes should be seriously considered for any new lanes added to Routes 276, 309, 611, 263, and 132. By making any new lanes HOV lanes, traffic volumes will be reduced as more people rideshare. The need for further expansions on those roads should be reduced if HOV programs were implemented. These are far more cost-effective means of increasing capacity when compared to adding regular lanes to highways.

J. ADMINISTRATIVE ACTIONS

There are several ways that trip reduction strategies can be implemented at the legislative level. Usually, these programs are necessary only when area employers have little interest in participating in other types of trip reduction programs. However, they are occasionally used where the TMA covers a multi-municipal area, or where there are few

"major" employers. Legislative strategies include the following:

Trip Reduction Ordinances - These ordinances often target a number or percentage of trips which must be eliminated by each employer, based on square footage or the number of employees. Ordinances can also specify penalties for non-compliance and can be used as TMA enabling legislation. These ordinances are the most effective way to reduce single occupant automobile commuting.

Negotiated Highway Improvements: A popular trend among rapidly developing municipalities is to adopt legislation requiring a fee per square foot or per residential unit for all new construction. Often, a developer is permitted the option of providing a roadway or other improvement of equal or greater value instead of paying that fee. Terms are negotiated between the developer (or the TMA acting on behalf of the development community) and the municipality.

Traffic Engineering Improvements: Municipalities can reduce traffic congestion by making engineering improvements to their roadway systems. These improvements may include adding lanes to congested roadways, adjusting traffic signal timings, widening intersections, or constructing new roads.

Financing Highway Improvements: Many municipalities have the authority to enact public-private partnerships with developers or employers who might request specific highway improvements to benefit their sites. Partnerships enable this type of project to be financed proportionally according to who will receive the maximum benefit.

The above-mentioned strategies can also be applied in combinations where the situation merits. The following demonstrates the impacts of various legislative trip reduction strategies.

Program	Employer Impact	Employee Impact	Cost	Comments
Ordinance	Personal time, TMA fee	Personal auto discouraged	Low	Most effective; may not be widely accepted; also depends on transit availability
Negotiated improvements	None	None	Depends on size	Impact on developer, although cost is passed on to tenants
Engineering improvements	May increase taxes	Temporary traffic jams	High	Funded by municipality, short-term solution only
Financing improvements	Voluntary	Reduces congestion	High	Improvements have a major impact on system.

Although popular in many high growth communities in California, trip reduction ordinances have not been widely implemented in the eastern United States. There are currently none in effect in the DVRPC region; North Brunswick Township, Middlesex County, New Jersey, has one. Negotiating for improvements is a practice used by most municipalities in the region. Upper Merion Township and Plymouth Township, in Montgomery County, have enacted a development impact fee structure which is used as a basis for these negotiations. Many other municipalities prefer a less structured system.

With the high cost of roadway improvements, most municipalities have moved away from major reconstruction projects, opting instead to provide part of the costs for improvements to state-owned roads or to make minor, short-term improvements to township roads. Under the Pennsylvania Public-Private Partnership Act (PA Act 47 of 1986), private funding sources may be used in conjunction with public monies to construct major roadway improvements. Private sector funds can be raised either from a single company or developer or by enacting a Transportation Development District and levying an assessment on all property owners within that district.

The recently constructed new Route 29 interchange with Route 202 in the Great Valley area was financed through a public-private partnership among Tredyffrin and East Whiteland townships, Rouse and Associates developers, and all of the property owners within the Transportation Development District, the properties most benefited by that project. Also, Upper Dublin Township has created an Act 47 district encompassing the Fort Washington Industrial Park. Numerous congestion-reducing roadway improvements, to be funded through a bond issue, are planned in the vicinity of the park.

Act 47 partnerships allow the agency which collects the district's revenues to issue bonds to pay for improvements and then use the assessments to pay off the bonds.

In addition to creating Transportation Development Districts, there are other legislative actions available to municipalities for financing transportation improvements. Tax increment financing is one of these. This method also utilizes legislation to set up a district; however, revenue collection methods differ. Rather than an across-the-board assessment to pay off bonds, this type of district utilizes publicly-issued bonds to build infrastructure improvements and create a more attractive development climate. In turn, this development raises the values of existing properties and the additional revenue collected from this increased value at the same millage rate (the tax increment) can be used to pay off the bonds and invest in future improvements. Although this type of district is usually applicable in blighted or underutilized areas, this method has been used with some success in Prince George's County, Maryland (east of Washington, DC), a suburban area expecting extensive development.

Other sources of revenue include toll roads, donations of cash or land for roadway improvements from private sources, local gasoline taxes, and other "user fees" in the from of licencing fees, various truck fees, and penalties.

It is possible to set up transportation districts so that revenues may be used for either transit or roadway improvements. Many TMA's have effectively channeled some of these types of revenues into contracting for or operating local transit service. The Greater Princeton TMA operates a shuttle bus from local developments to the Princeton Junction rail station.

In the PTA area, it is recommended that legislative actions be taken only if voluntary programs are ineffective in reducing traffic congestion. Although some of these actions are efficient methods for revenue collection, successfully implementing voluntary traffic reduction programs mentioned earlier may lessen the need for extensive roadway improvements and legislation. In circumstances where legislation is needed, the TMA has the opportunity to represent its constituency in choosing the most appropriate course of legislative actions.

Administrative Program Elements Recommended for Detailed Evaluation and Design

All the above administrative actions should be evaluated, and broadening the use of Act 47 should be explored.

K. ALTERNATE WORK HOURS

The adoption of alternate work hours shifts the traffic load to a longer period of time -- it does not reduce traffic volume. It can reduce volumes during peak periods. There are three types of alternate work hours: staggered, flextime, and compressed.

Staggered Hours - With staggered hours, different work groups are assigned to begin work at different times. Spacing arrivals at specified intervals before and after conventional work hours allows workers to travel at times when traffic moves more freely and more seats are available on transit. Staggered hours work well for assembly-line and back office operations where commencement and termination of work shifts can be easily controlled by the employer.

Flex-time - Flex-time is a scheduling practice that allows individual employees to choose their own schedules within company-set guidelines. Most flex-time arrangements allow employees to begin work as early as 7:00 AM or as late as 9:30 AM and many allow workers to vary their arrival times from day to day. Flex-time works well for office workers who work independently and can exercise a certain amount of discretion over the scheduling of their work.

Compressed Work Week - Four-day work weeks allow employees to complete 40 hours of work in four 10-hour days. The system is often called 4-40. Four-forty systems have a double impact on travel to work: one day of commuting is eliminated each week; and the early arrivals and late departures built into the ten-hour days mean employees

travel before and after the rush hour peaks.

Alternate Work Hour Program Recommended for Detailed Evaluation and Design

Alternate work hours should be utilized as much as possible. The TMA can develop a plan to coordinate work hours among all the major employers.

L. LAND USE POLICIES/SITE DESIGN

Land use policies which encourage transit use can be implemented by municipalities, business parks, and major employers. In this way, business parks and major employers can locate adjacent to existing bus or rail routes so riders can walk on sidewalks to their places of employment. In developing areas, encouraging a high density employment center at the same time as providing a new transit route would also reduce automobile use. Also, housing and employment centers should be located close to each other to encourage walking and bicycling and reduce trip lengths.

Standard site design criteria should be applied. These include short walking distances to transit stops, buildings oriented to the street with parking in the back rather than the front, and provision of sidewalks, bus stops, and bus turnouts.

Land Use/Site Design Program Elements Recommended for Detailed Evaluation and Design

The municipalities should revise their land use plans and zoning ordinances, if necessary, to direct high density business developments to areas adjacent to bus and rail lines. The townships should also adopt site design standards like the ones described above.

M. SIGNS

Internal and external directional signs are a low cost method of reducing traffic congestion. Through traffic can be reduced by designating other, less congested routes, and local traffic can be assisted by clearer marking of street and place names. Clearly signing points of interest and popular attractions on both roadways leading to the TMA area and again inside the TMA area can also help those unfamiliar with the area find their destinations with ease. The importance of clear, accurate signs cannot be overestimated in areas where divided highways are experiencing significant amounts of congestion, as these signs can help traffic flow more efficiently.

In the PTA area, directional signing could be an effective method of congestion reduction along congested corridors. Large, readable signs along the Turnpike and other regional through routes for specific destinations, highways, major employment centers,

and to other municipalities, well in advance of a needed turning movement, could help to channel traffic along congested routes. Clearly marked street names, building names and addresses, and state route markers also reduce traffic congestion by allowing drivers to maintain speed when in an unknown area.

Although signing is a traditional government responsibility, the TMA could play a key role in planning, prioritizing, funding, and maintaining signs in the area.

Signing Program Elements Recommended for Detailed Evaluation and Design

Participation in planning, prioritizing, funding, and maintaining signs.

N. EMERGENCY/INCLEMENT WEATHER PLANNING

The TMA will be a good forum to plan for emergencies, such as snowstorms and hazardous spills. The TMA's municipalities and employers will be able to develop a plan for clearing roads and releasing of employees when an emergency occurs.

Emergency/Inclement Weather Planning Element Recommended for Detailed Evaluation and Design

A TMA emergency/inclement weather plan.

O. COMMUNICATIONS

Communications and publicity tools, such as a newsletter, are essential to a TMA's success. A newsletter for the TMA's members (employers, developers, governments, and service providers) is necessary to inform them of policy, programs, and funding matters. A communications device for commuters, which may include rideshare matching services, transit information, highway advisories, and other activities, is also a necessity.

Communications Program Elements Recommended for Detailed Evaluation and Design

(1) A newsletter for TMA members
(2) A communications device for commuters

CHAPTER IV

PROGRAM DESIGN

The next step in the process was to design a transportation management plan (TMP) for each area. Specific TDM programs were selected from the program identification "menu" and custom-designed for the TMA; they were different for each area. For example, Conshohocken's TMP differs from the other two areas in that a key strategy for Conshohocken is to provide adequate pedestrian facilities; since it is a very small area surrounding a train station and downtown shopping area, walking should be encouraged. The King of Prussia TMP is unique from the other two TMPs in that it encourages bicycling and recommends a survey to determine whether customized transit services, such as improved taxi and airport service, are needed. These were completed by consultants, which were selected through a competitive process. The evaluation of the consultant proposals was done by subcommittees of the TMAs' boards of directors.

TRANSPORTATION MANAGEMENT PLAN FOR THE GREATER VALLEY FORGE TRANSPORTATION MANAGEMENT ASSOCIATION[1]

On February 1, 1990 Urban Mobility Corporation was awarded a contract by the Delaware Valley Regional Planning Commission to design a comprehensive Travel Demand Management Program for the Greater Valley Forge Transportation Management Association. This chapter documents the work performed under the contract and summarizes the conclusions and recommendations of the study.

The service area of the Greater Valley Forge TMA includes the Townships of Upper Merion, Upper Providence and Lower Providence in Montgomery County, and Tredyffrin Township in Chester County. This four township area houses 84,000 persons and employs 82,000 persons. The linchpin and centerpiece of this growth center is the King of Prussia Plaza and Court shopping complex, located at the confluence of the Pennsylvania Turnpike, the Schuylkill Expressway, U.S. Route 202 and U.S. Route 422 (Pottstown Expressway). First opened in 1963, the King of Prussia shopping complex is one of the largest shopping centers in the nation, occupying 127 acres of land and housing seven major department stores and more than 300 retail shops. The mall receives more than 12,000 daily customers.

The shopping mall, in turn, has stimulated a second generation of economic growth in the form of office and industrial parks, hotels, and a variety of service establishments. Major facilities include the King of Prussia Industrial Park, the Chesterbrook development. General Electric Space Center, and Smith Kline Beecham Laboratories. These and other corporate facilities attract 73,000 daily office workers within a 5 mile radius and 223,000 workers within a 10 mile radius of King of Prussia. At least 68 percent of these commuters drive to work alone. Only 16 percent use car pools and 7 percent use some form of public transit, according to DVRPC data.

[1] *This section is based mainly on A Transportation Management Plan for the Greater Valley Forge Transportation Management Association, prepared for DVRPC by Urban Mobility Corporation, July 1990.*

Local highway capacity has become severely strained by the sheer volume of traffic generated by this economic activity. A 1985 study by Booz-Allen-Hamilton identified 29 congested intersections in the King of Prussia area, and since then traffic volumes have increased substantially without a corresponding expansion of highway capacity. Twice each day, commuters experience traffic delays along U.S. 202, I-76 and U.S. 422. A third, midday "rush hour" occurs on secondary roads as employees leave their office at lunch time to eat, shop and run errands. These conditions may be expected to worsen in the years ahead. According to DVRPC estimates, population in Montgomery and Chester counties is expected to grow by nearly 16 percent between 1980 and 2000, and employment by almost 15 percent between 1987 and 2000. This growth will inevitably contribute to the already overburdened road network, and may result in even greater congestion and delays throughout the Valley Forge area, unless some form of traffic mitigation is adopted.

To be sure, plans are on the drawing board to improve the regional road network, particularly the Route 202 segment between Chesterbrook and Schuylkill Expressway, which bears the brunt of the traffic. However, funding requirements for this comprehensive improvement program far exceed the available PennDOT resources, necessitating a stretch-out of the proposed construction program well into the future.

Thus, in the short and medium term, relief from traffic congestion must come from two other strategies:

(1) traffic engineering improvements that increase the carrying capacity of existing highways; and
(2) management of transportation demand

The former - involving such measures as adding high-occupancy vehicle (HOV) lanes in existing corridors, left turn and turn out lanes at existing intersections, ramp metering,and incident management - are beyond the scope of this report. The latter strategy, one that aims to limit the growth of automobile usage, is the subject of this report.

Project Chronology

In August 1988 the Delaware Valley Regional Planning Commission prepared and submitted a grant application to the Urban Mass Transportation Administration to support technical studies and start-up activities leading to the establishing of a series of transportation management associations in the DVRPC region. The grant was awarded in the autumn of 1988, and DVRPC utilized a portion of these funds to carry out a series of interviews, surveys and workshops in the Greater Valley Forge area, setting a foundation for a transportation management association. In June 1989 an Executive Committee was organized to guide the planning for the Greater Valley Forge TMA and in January 1990 the TMA was formally incorporated. Shortly thereafter Urban Mobility Corporation was engaged to assist in designing a transportation demand management plan for the newly created TMA, based on the studies completed by DVRPC. The scope of work emphasized the need for a hands-on approach, with the consultant providing practical assistance and "on-the-job training" to the TMA Board and its executive director during the crucial start-up period.

On February 2, 1990 the Consultant met with the Executive Committee to present a detailed work plan based on the above considerations. The work plan was subsequently revised to reflect the Committee's comments, and was presented to the full Board for approval on February 21. The approved work plan is shown in Appendix A.

During the following three weeks (February 26 through March 12) the Consultant turned his attention to Task 2, development of a Transit Marketing Plan. This task involved the following:

(1) An examination of the newly implemented SEPTA bus routes in the King of Prussia area;

(2) Development of a Transit Marketing Program focused on employees in the TMA service area;

(3) Meeting with SEPTA officials to discuss SEPTA support for a target marketing effort to be conducted by the TMA;

(4) Discussions with the Montgomery County Paratransit Association and other private providers concerning a potential market for other transit and paratransit services.

Also during this period the Consultant assisted the Executive Committee in developing preliminary budget and financial plan estimates and a job description for the TMA Executive Director.

On March 15, the Consultant presented the proposed Transit Marketing Plan to the Executive Committee. Also on that day, the Consultant participated in a briefing for small businesses and civic associations on the activities of the TMA, sponsored by the King of Prussia Chamber of Commerce (Task 3).

During the period March 16 through April 25, the Consultant addressed Task 5, "Design of a Demand Management Program." This task involved:

(1) Identifying feasible demand management techniques and incentives
(2) Assessing the effectiveness of selected travel demand management (TDM) techniques
(3) Recommending an appropriate TMA role in the proposed demand management program
(4) Estimating implementation costs of the proposed TDM program.

During this period the Consultant also assisted the Executive Committee in a further refinement of the TMA budget estimates.

On April 26, the Consultant presented his recommendations concerning the Demand Management program to the Executive Committee. Also on April 26, the Consultant participated in a seminar for local officials organized and hosted by the TMA (Task 4). The TDM program design was further refined during the week of April 30, and presented to the full Board on May 9. An interim final report was also issued in May.

Finally, throughout the months of May and June the Consultant assisted the newly hired TMA Executive Director in a variety or organizational tasks, notably the preparation of a business plan and a funding strategy.

DEMAND MANAGEMENT STRATEGIES

This section sets forth a recommended transportation demand management (TDM) plan for the Greater Valley Forge Transportation Management Association. Priority objectives of the plan are to (1) relieve traffic congestion; and (2) improve accessibility to and internal circulation in the Greater Valley Forge area.

Employers Interest in Demand Management

Since implementation of demand management is largely in the hands of the private sector, it was important to ascertain the degree of employer support and cooperation. An employer survey was conducted by the Delaware Valley Regional Planning Commission (DVRPC) in April 1989. Surveys were sent to 330 employers and responses received form 117 employers representing 18,853 employees. The responses represented 44 percent of the total King of Prussia employment. Table XIV indicates the type of programs these firms said they were willing to consider. Forty-six employers (39% of those responding) indicated they would be willing to encourage and/or subsidize transit; fifteen (13%) said they would consider variable work schedule; and thirty-one (26%) said they would be willing to participate in planning commuter service improvements. Most importantly, over 90 percent of those firms that responded to the survey indicated a willingness and desire to participate in the activities of the proposed TMA.

Based on this evidence, and on discussions with members of the Greater Valley Forge TMA, it was concluded that there exists sufficient private sector interest and support to justify a TMA-sponsored demand management program. Such a program could take several forms. One strategy might be to encourage commuters to switch to alternative travel modes (transit and ridesharing) in order to reduce the total number of cars using area highway facilities during the peak hours. Another strategy might be to encourage workers to travel outside the normal commute hours and thus lessen the high traffic peaks that characterize the Route 202 and 422 corridors. A third strategy might be to allow employees to adopt flexible working arrangements (e.g., work at home part of the time, or work compressed work schedules) that would result in fewer work trips. Each of these approaches will be discussed below.

TABLE XIV

GREATER VALLEY FORGE
EMPLOYER SURVEY

"What types of transportation actions would your company consider if technical assistance were available?"

	No. of employers	No. of employees
a. Adopt a variable work schedule	15	1,908
b. Remote parking	2	14
c. Preferential parking	7	2,307
d. Encourage transit/shuttle use	33	12,589
e. Subsidize transit use	13	1,297
f. Participate in a highway needs evaluation	51	13,265
g. Support a Commuter Assistance Center	9	1,642
h. Assist in planning commuter service improvements	31	12,312
i. Other	3	512

Source: DVRPC Employer Survey, April 1989

ENCOURAGING COMMUTE ALTERNATIVES

Currently, the automobile is the preferred mode of travel of an overwhelming majority of commuters in the Greater Valley Forge area. For many employees, it is the only alternative available. A key objective of the Greater Valley Forge TMA should be to ensure the availability of other commute modes so that employees can choose an alternative that best fits their needs. Specifically, the TMA should encourage greater availability of public transit and ridesharing and promote incentives that would make their use feasible and attractive to a larger number of Greater Valley Forge area commuters.

A. Public Transit

During the last quarter of 1989 SEPTA implemented a series of bus service improvements intended to provide enhanced access to the employment centers in the King of Prussia/Chesterbrook area. These service improvements, introduced with the financial help of the local business community, are as follows:

Route 92: Between West Chester and King of Prussia service has been upgraded to hourly frequency with access to Chesterbrook Valley Forge Executive Mall, as well as extended service through King of Prussia Industrial Park.

Route 95: New service has been introduced from Plymouth Meeting Mall via King of Prussia to Paoli. The route serves Valley Forge Executive Mall and Gulph Mills as well as the Renaissance and SmithKline Beecham facilities along Swedeland Road.

Route 99: Existing service from Norristown to Royersford has been rerouted to better serve the King of Prussia shopping mall.

Routes 124/125: Route 125 (formerly 45) operates unchanged between center city and King of Prussia, via Gulph Mills. New Route 124 continues to the Valley Forge Executive Mall and Chesterbrook.

Route 205: New feeder bus service has been introduced between Wayne train station and King of Prussia.

In January 1990 SEPTA carried out a preliminary ridership survey to establish base line data. Further surveys were carried out in March, April, May and June. While these surveys show steady gains in bus ridership since the revised services went into effect (see Table XV), transit usage as a proportion of overall work trips into the Valley Forge area remains low. The causes of the low transit ridership may be largely a reflection of the demographics of the labor force, but experience from other jurisdiction suggests that transit ridership can be raised through sustained marketing. The TMA, in our judgment, is well positioned to assume this function because of its close and continuing presence in the community and its outreach to local employers. Specifically we recommend the following:

TABLE XV

RIDERSHIP ON SEPTA ROUTES

Route	Date of Survey	Avg. Daily Ridership Total	% Increase
92			
West Chester-Paoli-King of Prussia	1/12 *	**	
Plaza-King of Prussia Industrial Park	3/27	272	
	4/18	372	
	5/23	327	
	6/1	338	24%
95			
Plymouth Meeting Mall-	1/12 *	326	
Conshohocken-Renaissance Ctr-	3/27	270	
Gulph Mills RR station-	4/18	299	
King of Prussia Court/Plaza-	5/23	356	
Paoli RR station	6/1	347	6%
124			
Center City Philadelphia-	1/12 *	901	
Gulph Mills RR Station-	3/21	916	
Henderson Road-	3/23	1,042	
King of Prussia Court/Plaza-	5/23	969	
Chesterbrook	5/31	1,019	13%
125 (formerly 45)			
Center City Philadelphia-	1/12 *	1,271	
Gulph Mills RR station-	3/21	1,306	
South Gulph Road-	3/23	1,292	
King of Prussia Court/Plaza-	5/23	1,299	
GE-Valley Forge Park	5/31	1,253	-1%
205			
Wayne RR Station-King of Prussia	1/12 *	66	
	3/22	90	
	4/18	87	
	5/22	92	
	5/23	118	79%

* Average of counts done on 1/12/90 and 1/17/90
** Data not available

Source: SEPTA, Suburban Operations Department

Recommendations

(1) Transit Awareness Days

The TMA should sponsor a series of "Transit Awareness Days" to create greater visibility for transit among employees, shoppers and visitors to the Greater Valley Forge area. The function of these events would be to:

- provide information about transit routes and schedules
- sell fare media (Transpass, TrailPass, etc...)
- counsel individual employees on how transit can meet their special transportation needs
- solicit suggestions for service improvements
- identify unmet transportation needs

The marketing efforts should be targeted at individual corporate facilities, office parks and shopping malls. Major corporate facilities and office parks should be visited initially once a month, and a "Transit Awareness Day" should be held twice monthly at the King of Prussia Shopping Mall.

The following facilities should be targeted as a matter of priority:

- General Electric
- SmithKline
- Vanguard
- AMP Corporation
- Certainteed Corporation
- SKF Bearings
- Kravco Corporation
- Sterling Drug
- The Rorer Corporation
- Valley Forge Executive Mall
- Rennaissance Center
- King of Prussia Shopping Mall
- Chesterbrook Mall
- Philadelphia Newspapers Inc. (PNI)

(2) Monitoring of Transit Effectiveness

In addition to marketing existing transit service, the TMA should closely monitor ridership on the SEPTA bus routes serving the Valley Forge area and periodically re-evaluate their effectiveness, in consultation with local employers. Routes and schedules that are found not to meet local needs, or that are under-utilized, should be drawn to the attention of SEPTA with recommendations that they be modified or eliminated as not cost-effective.

(3) Implementation Plan

In advance of launching the transit marketing program, the TMA should secure SEPTA's support and cooperation of this initiative. Informal discussions by the Consultants with the staff and Executive Director of SEPTA would be prepared to assist financially in the marketing effort. The marketing program should be preceded by development of appropriate informational materials, such as a color coded route map, a "Guide to Transportation Services in the Greater Valley Forge Area", and a video tape on the new bus services to be used in public presentations (the video tape could be produced from an existing SEPTA slide presentation). Part-time marketing staff should be hired and trained and an appropriate announcement issued (for a suggested text, see Appendix B).

B. Other Transportation Services

While public transit may provide a meaningful commute mode to some Valley Forge employees, others may require more customized services. For example, some commuters may be unwilling to use the slower public transit buses, but might be prepared to use a subscription van service that would pick them up at their residences and deliver them directly to their places of employment. Other commuters might be interested in direct shuttles from suburban train stations (Gulph Mills, Paoli) to office parks and corporate facilities in the Route 202 and Route 422 corridors. Other unmet transportation needs may include improved access to the Philadelphia International Airport and midday circulation service to the King of Prussia shopping mall. Such specialized transportation needs are best met by private transportation carriers who have the ability to "customize" service to the needs of the customer.

The Greater Valley Forge area is served by several private transportation providers. They are: (1) the Montgomery County Paratransit Association, an association of 6 private taxi/paratransit companies which provide specialized services to elderly and handicapped persons and shuttle services to corporate clients throughout the county; (2) King Limousine, which provides on-demand service to corporate, hotel and private clients in the Valley Forge area; and (3) Capitol Trailways, which runs daily Reading-Pottstown-Philadelphia service with a stop at the Valley Forge Shopping Center. All three carriers constitute a valuable local transportation resource and should be considered by the TMA in future service planning decisions.

<u>Recommendations</u>

The TMA should conduct a survey to determine whether there exist unmet transportation requirements that cannot be satisfied with regular transit service and call for a customized approach. The survey should examine a wide range of potential transportation needs, including:

- Subscription van service from surrounding residential communities
- Reverse commute vans for service workers from Central Philadelphia

- Dedicated peak hour shuttles to/from the train stations
- Increased commuter bus service from Reading
- Scheduled service to/from Philadelphia International Airport
- Improved local taxi service
- Lunchtime circulator to the King of Prussia Mall

Special attention should be given to the feasibility of a community-based circulation system that would link residential areas with employment concentrations in the rush hours, and provide access to restaurants, shopping and services during lunch hour.

Any such customized transportation services should be contracted on a competitive basis, with private providers given full opportunity to bid on the contracts.

C. Ridesharing

While improvements in transit service deserve a high priority, their influence is likely to remain limited, because of the highly scattered pattern of home origins and work destinations of the Valley Forge employees and visitors. In these circumstances, a traffic mitigation strategy must also involve offering people the option of ridesharing, i.e., car pooling and van pooling.

Many suburban centers have embraced ridesharing as a key element of their demand management programs. By contrast, the Greater Valley Forge area has given ridesharing little attention. According to the DVRPC survey, only 9 companies facilitate car pooling and 5 companies facilitate van pooling. This suggests that the Greater Valley Forge TMA, in addition to encouraging transit, should also focus on ridesharing promotion.

Ridesharing is commonly promoted by providing personalized matching services and offering incentives designed to overcome the commuters' demonstrable preference for driving alone. Matching services can be operated by employer-based "transportation coordinators" or by Transportation Management Associations. However, the key to successful ridesharing lies in the provision of incentives. Commonly used incentives include:

- Monetary Subsidies
- Paid Parking
- Lunchtime transportation
- Guaranteed Ride Home Programs
- On-site convenience shopping and services
- Park and Ride Facilities
- HOV Facilities

Monetary Subsidies - Monetary subsidies have generally proven effective as a method of encouraging ridesharing. Subsidies may take the form of low interest loans to help finance the purchase of vans, or outright "ridesharing bonuses" to employees willing to discontinue driving alone. While travel allowances have been adopted only in jurisdictions which are under stringent legislative mandates and court orders to meet air quality standards, DVRPC and the transit operators in the region have instituted a major

marketing program to encourage employers to subsidize employee use of transit. The Greater Valley Forge TMA could associate itself with these efforts and thus help extend the outreach of this program.

Paid Parking - Charging employees for parking has been found to be another effective method of discouraging drive-alone commuting. Like travel allowances, paid parking has been embraced primarily in jurisdictions with stringent emission reduction mandates. However, interviews in the Greater Valley Forge area suggest that there may also be some willingness to charge for employee parking on the part of local employers and developers.

Provision of Emergency Transportation - An oft cited reason for bringing a car to work is the fear of "getting stuck" in the event of overtime work or a family emergency necessitating immediate return home. To allay this concern, employers offer "guaranteed ride home" to employees who find themselves at work without other means of transportation. This technique has been found to be an effective incentive for ridesharing and has been adopted widely across the country. There is every reason to believe that a Guaranteed Ride Home program would be equally effective among Valley Forge employees.

Provision of Midday Transportation or On-Site Shopping and Services - Another oft cited reason for solo driving is the need or convenience of shopping and running errands during lunchbreak and after work. Recent surveys indicate that nearly 80 percent of suburban office workers run midday errands and/or make regular stops on the way home from work. To encourage ridesharing, employees are often provided midday transportation to nearby retail and service facilities, if such services are not available within walking distance of the workplace. In the Valley Forge area, a midday shuttle of the King of Prussia shopping center might serve as an inducement to ridesharing.

Park and Ride Facilities - Car poolers and van poolers will often find it more convenient to assemble at a common staging point and proceed directly to the workplace, rather than follow a circuitous route picking up passengers on the way to work. This is why strategically located park and ride lots are found to facilitate and offer a significant incentive to ridesharing.

HOV Facilities - Surveys indicate that time savings are the single most important factor in the commuter's personal calculus of costs and benefits. Thus, HOV lanes and other HOV treatments that save travel time (such as priority at metered freeways ramps, priority at toll gates, etc...) are among the most powerful incentives to ridesharing, especially in highly congested highway corridors with stop-and-go rush hour traffic.

Recommendations

1. It is recommended that the Greater Valley Forge TMA undertake a program designed to promote greater awareness of ridesharing as a commute alternative, and that it make a concerted effort to enlist the cooperation of local employers in this effort. Such a program should involve the following actions:

   a. Develop a promotional "ridesharing kit" for employees that explains the benefits of ridesharing, sets forth the procedures for forming car pools and van pools, and describes employer-provided incentives.
   b. Assist individual major employers with setting up inhouse ridesharing promotion/marketing/incentive programs. Programs should be individually

tailored, but at a minimum should include (i) appointment of an inhouse transportation coordinator; (ii) an Emergency Ride Home program; and (iii) preferential parking for car pools and van pools - a low-cost incentive with proven attraction. The TMA's first year goal should be to assist five of the largest employers to establish inhouse ridesharing programs.

c. Establish a TMA-managed car pool matching referral service for small firms who cannot justify having an inhouse ridesharing program. Launch a "Ridesharing Exchange" in the TMA newsletter (see below).

2. In an effort to provide incentives to ridesharing, the TMA should, as a matter of some priority, enter into a dialogue with local governments, developers, and land owners and other property owners with a view to identifying potential park-and-ride locations that would facilitate ridesharing to the Valley Forge area.

3. To encourage the use of alternative commute modes, the TMA should explore the acceptability of paid employee parking coupled with a travel allowance. This approach rewards commuters who switch to transit or ridesharing, without penalizing those that elect to continue driving alone.

4. Finally, the TMA should participate in discussions with PennDOT concerning introduction of HOV facilities in the Greater Valley Forge area, especially incident to the planned program of improvements in the Route 202 corridor.

FLEXIBLE WORK SCHEDULES

Another way to reduce traffic congestion is to influence the timing of transportation demand. In most suburban employment centers traffic congestion tends to be highly peaked, occurring chiefly between the hours of 7-9am and 4-6pm. Even within these "rush hour" periods, there tend to be pronounced spikes, often lasting no more than 30 minutes. One way to flatten out these spikes is to stagger employee arrival and departure time. Even small shifts in starting and ending times can dramatically reduce congestion and delays at entrances and exits to large corporate facilities where the entire workforce begins and ends work at the same time.

Another method of reducing peak hour pressure on highway facilities is through flexible working hours programs that give employees the option of varying their starting and ending times each workday. Most flextime programs include a core period in the middle of the workday (usually defined as the period from 10am to 3pm) when all employees must be present, and flexible morning and afternoon hours when employees choose starting and ending times - provided they put in a full 8-hour day. Flextime is often the easiest and least costly method of reducing peak period commuter travel. At the same time it is considered a valued employee benefit. It is not surprising, therefore, that adoption of a flexible work schedules program often constitutes the first step in a demand management program.

Compressed work week schedules permit employees to finish their usual number of working hours in fewer days per week or per pay period. The most common variation

is the 4/40 schedule, meaning employees work four 10-hour days. The fifth day is off, eliminating 20 percent of the weekly commute trips. Another variation is the 9/80 schedule, allowing employees to work their usual number of hours over a two week pay period in 9 rather than 10 days. This reduces the number of weekly commute trips by 10 percent. Even if only a small percentage of employees who drive to work alone is shifted to a compressed work week schedule, a significant reduction in site congestion can be achieved.

Finally, "telecommuting," allows employees to work at locations other than the conventional office, such as the employee's home or a neighborhood work center. Telecommuting has been described as an arrangement that brings work to people instead of bringing people to work. Most telecommuting arrangements are on a part-time basis, allowing people the professional and social benefit of working with others during a portion of the work week. Telecommuting is a direct method of reducing work trips and could have a major impact on traffic congestion, if implemented on a large scale.

Flexible work schedules are already being practiced in the Greater Valley Forge area. According to the DVRPC survey, 24% of employers use staggered hours and 22% of employers use flextime. However, if applied in a coordinated manner and on a more extensive scale, this demand management technique could probably significantly reduce peak hour pressures on the highway facilities in the Valley Forge area, especially within the immediate vicinity of large traffic generators.

Recommendation

In order to promote greater employer awareness, the TMA should conduct periodic workshops on flexible work schedules. The workshops should explore all available options, including staggered arrivals/departures, flextime, compressed work weeks and telecommuting. The aim of the workshops would be to acquaint local employers with the mechanics of implementing flexible work schedules, their effect on employee productivity and morale, and their potential impact on traffic congestion. Local experience as well as experience from other jurisdictions should be carefully examined before deciding whether these demand management techniques should be recommended to Valley Forge employers for widespread adoption.

OTHER DEMAND MANAGEMENT TECHNIQUES

A comprehensive approach to transportation demand management might also involve a number of subordinate actions with a potential for mitigating traffic. Among them are:

Bicycle Facilitation - Only one bike path currently exists in the Greater Valley Forge area. Is there a need to develop a more extensive system of bikeways? A TMA survey of residents and employees in the Greater Valley Forge area could provide the answer.

Pedestrian Facility Improvements - The DVRPC employer survey showed that a significant number of employees live within walking distance of their workplace. Would improved pedestrian facilities (sidewalks, footbridges over highways, etc...) induce more people to walk to work? Where are the improvements most needed? A TMA study of pedestrian requirements could answer these questions and provide a planning guide for future pedestrian facility improvements.

Motorist Information System for Incident Management and Traffic Advisories - Several TMAs have instituted local AM frequency information systems that alert motorists of traffic conditions, detours due to construction, accidents, weather-caused problems and other travel-related problems specific to the TMA service area. Such a system might be particularly desirable when the Route 202 corridor improvement program gets underway, in order to alert motorists of detours and other disruptions caused by the construction.

Recommendation

The Greater Valley Forge TMA should, as part of its longer-range agenda, consider innovative ways of improving mobility in its service area. Specific suggestions include: Bicycle Facilitation, Pedestrian Facility Improvements, and a Motorist Information System.

MISSION, OBJECTIVES AND FUNCTIONS OF THE GREATER VALLEY FORGE TMA

Recommended Mission and Goals Statement

The mission of the Greater Valley Forge TMA is to offer a forum in which the local business community and municipal and county officials can cooperatively address and seek a resolution of traffic-related problems affecting the Greater Valley Forge area. By ensuring mobility, the TMA will help to promote the area's orderly growth, ensure its continued commercial vitality and enhance its livability. It is recommended that the TMA seek to fulfill this mission by pursuing the following goals:

- Building and sustaining a vigorous alliance of business, community leaders and local government, committed to improving personal mobility in the Greater Valley Forge area;

- Advocating solutions to the transportation needs and interests of the local business community and residents through involvement in the ongoing municipal, county, regional and state transportation planning processes;

- Promoting and coordinating travel demand management activities designed to reduce the growth of peak hour traffic; and helping member organizations comply with travel reductions required as part of any future individual development agreements;

- Facilitating access and internal circulation for those who live, work, shop and do business in the Greater Valley Forge area, through jointly funded transit services;

- Serving as an information clearinghouse and an advocate for innovative transportation improvements;

- Monitoring local transportation conditions in order to assess their impact on future highway and transit needs, and alerting public officials to opportunities for remedial action;

- Undertaking such other activities and programs as the Association's members may from time to time determine to be in the public interest and in the interest of the Association.

Recommended TMA Activities

While management of transportation demand should constitute a key focus of the Valley Forge TMA's activities, the Association should not ignore its broader purpose as an instrument of advocacy and education. In furtherance of these objectives, it is recommended that the TMA pursue the following additional activities:

- Newsletter - Publish a quarterly newsletter containing transportation news and events of general interest, news about TMA activities, "Rideshare Exchange", etc.

- Commuter Assistance Center ("Transportation Store") - Provide information about transit services, other transportation resources (taxis, limos, airport shuttles, paratransit); car pool/van pool matching; maps and schedules

- "Transportation Audits" - Assist newly relocated companies with advice and information on employee commute options

- Business Forums - Sponsor semi-annual open meetings to discuss current transportation needs and concerns, and to brief the membership on TMA activities. Guest speakers (senior county, PennDOT, DVRPC, and SEPTA officials, business leaders) would be a regular feature of each forum

- Transportation Surveys - Develop a capability to carry out transportation surveys for individual member companies (parking needs, shuttle services, etc.)

Recommended Organizational Structure and Governance

Membership in the Greater Valley Forge TMA should be open on a voluntary basis to employers, developers, commercial property owners and facility managers, merchants and institutions in the Greater Valley Forge area. Municipalities should also be full voting members. Other public bodies (e.g., Montgomery and Chester Counties, SEPTA, PennDOT, PenJerDel) can be granted non-voting membership status.

The TMA should be governed by a Board of Directors whose members are selected from among the Association's membership. An Executive Committee of the Board should be charged with conducting the TMA's business. The Executive Committee may appoint special committees (such as Membership, Finance, Program Development, etc.)

While TMAs may conduct their activities as fraternal organizations, most TMAs choose to incorporate as non-profit corporations. Subsequent to incorporation a TMA may seek an IRS tax-exempt status as a 501(c)(3) charitable organization or as a 501(c)(4) business association. A majority of TMAs (including Greater Valley Forge TMA) elect the latter, in order to have the freedom to engage in advocacy work and income-generating activities which are precluded under the more stringent IRS rules governing charitable organizations.

Strengthening Private Sector Participation in the TMA

Private sector participation in demand management activities can be secured in three ways:

- Through voluntary participation in TMAs
- Through contractual conditions in development agreements
- Through regulatory requirements imposed by local government

Implicit in the formation of the Greater Valley Forge TMA is the intent to involve the private sector on a voluntary basis. However, various means have been used to induce people to join. For example, several local governments have made membership in a local TMA a condition of development approval. Similarly, some developers have made TMA membership a condition of their "CC&Rs" (Covenants, Conditions, and Restrictions).

However, most TMAs rely on appeals to the prospective members' sense of enlightened self interest. It is recommended that the Greater Valley Forge TMA launch a membership drive using the following appeal:

"By joining the TMA you and your company can benefit in many ways:

- You will be part of an organization that will represent your interests, voice your concerns and speak on your behalf when key planning and investment decisions affecting your business operations are made;

- As an employer, you will obtain information and assistance in developing a company-tailored "transportation demand management" program aimed at reducing parking requirements, dealing with traffic problems affecting your facilities, and helping your employees find more effective commute options;

- You will be kept informed of transportation developments and traffic conditions affecting your company, and will have an opportunity to alert local officials to the need for "quick fix" traffic and transit improvements benefiting your employees;

- And finally, you will benefit from a positive public image as a participant in the collective effort to enhance the living and working environment of the Greater Valley Forge community."

RECOMMENDED BUDGET AND FINANCIAL PLAN

TMA operating budgets vary widely, depending on the scope and extent of their activities. Generally speaking, administrative budgets (i.e., staff salaries and housekeeping expenses) range from $70,000 to $150,000. However, total operating budgets may reach as high as $300,000 when the TMA is engaged in service delivery, as for example, in operating a rush hour shuttle or midday circulator. (See Appendix C for a sampling of TMA budgets).

Our recommended start-up budget for the Greater Valley Forge TMA assumes an initial level of activity as set out in this report. This level of activity might be appropriate for the first two years of TMA operation. No inferences should be drawn from this estimate that the level of activity (and therefore budget) should not increase in later years, as the TMA expands its outreach and assumes wider responsibilities.

RECOMMENDED OPERATING BUDGET (Annualized)

Executive Director, salary	$ 60,000
Executive Director, benefits (1)	12,000
Clerical help, part-time	12,000
Office space (fully equipped and furnished)	15,000
Communications (telephone, postage, etc...)	6,000
Printing and Publications (2)	13,000
Supplies	4,000
Employer Marketing and Outreach (3)	25,000
Membership Services (4)	5,000
Travel (5)	3,000
Insurance	3,000
Contingency	7,000
Total Operating Expenses (first year)	$165,000

Notes

(1) Includes pension contribution, health benefits, FICA, state unemployment contribution, vacation and sick leave
(2) TMA brochure, "Greater Valley Forge Transportation Guide", stationery, newsletter (4 issues), topical fliers
(3) Expenses of part-time staff to handle the marketing function
(4) Seminars, workshops, representational expenses
(5) Three trips to Harrisburg, attendance at two professional out-of-town meetings, local travel

FINANCIAL PLAN

Sources of Revenue

TMAs rely on various forms of funding. Membership fees constitute the most common source of revenue. However, membership fees are often supplemented by financial assistance from local government and, increasingly, from state government (New Jersey, New York, Virginia, California). The Federal Transit Administration (FTA) has also been the source of seed support for TMAs in the past, although more recently FTA seems to have limited sharply its TMA support.

Public support is particularly needed in the early years of a TMA. Like any fledgling enterprise, TMAs need an incubation period before they can prove their worth, establish their credibility and stand on their own feet. It is not uncommon for a new TMA to receive up to 70 percent of its initial support from public sources. This support usually decreases with time and, eventually, ceases altogether, as the TMA becomes self-sustaining.

1. Membership Fees - Membership fees commonly bear some relevance to the financial capacity of the TMA members. One common basis for assessment is the number of employees (for employers) and square footage (for developers). Some TMAs use a more complex formula tied to the trip generation characteristics of the individual member's property or facility. A common approach is to establish a sliding scale based on employee size. For illustrative purposes, listed below is the dues schedule adopted by two TMAs:

Transportation Action Partnership, Bethesda, Maryland

Employers with 25 or fewer employees	$ 300
Employers with 26-50 employees	500
Employers with 51-150 employees	1,000
Employers with 151-300 employees	1,500
Employers with 301 or more employees	3,000
Property Owners (irrespective of size)	3,000
Associate (individual) members	100

Warner Center TMA, California

0-250 employees	$ 1,000
251-500 employees	2,000
501 employees	3,000
<1,000 employees	4,000
Building Owner/Developer	4,000

The above fee schedules are fairly representative of other TMAs. Maximum contributions seldom exceed $5,000.

Proposed Revenue Target:

First Year: $25,000
Based on 19 companies which have signed letters of understanding
4 "Large" Employers & Developers @ $3,000
6 "Medium-size" Employers @ $1,500
20 "Small" Employers @ $200
Second Year: $35,000
Assumes 30% level of participation (out of a total of 120 companies)

2. Fees-for-Service - In addition to membership fees, some TMAs derive supplementary revenue from fees charged of individual members for specific services. These services may involve:

- Conducting employee surveys
- Assisting companies with development of site-specific ridesharing program
- Assisting newly relocated companies with transportation-related matters, such as arranging reverse commute services, subscription vans, and other customized services
- Conducting "travel audits" for employees of newly relocated firms
- Monitoring traffic from individual facilities

One concrete opportunity for the Greater Valley Forge TMA arises from the relocation of Philadelphia Newspapers Inc. (PNI). It is recommended that the TMA explore with PNI the possibility of offering a range of transportation-related facilitation services, such as designing flexible commute services for graveyard-shift workers, individual travel audits for PNI employees, facilitation and mitigation of truck movement, extension of SEPTA service to the site, etc.
Proposed Revenue Target: $50,000 over two years

3. Grants and Contributions - The Greater Valley Forge TMA has been assured of a sum of $100,000 from DVRPC to cover operating expenses during the first two years. These funds are a portion of a FTA grant which DVRPC has secured to support development of transportation management associations in the region. In addition we recommend that the TMA consider the following other potential funding sources:

a. Contributions from Participating Townships - Annual contributions should be sought from the four participating townships (Upper Merion, Tredyffrin, Lower Providence and Upper Providence), since these jurisdictions are going to benefit directly from any mobility improvements brought about by the TMA programs. While Montgomery and Chester counties are fully supportive of the TMA, we understand that they are not in a position to make a financial commitment to the TMA at this time.
Proposed Revenue Target: $40,000/year

b. PennDOT contribution - It is recommended that the TMA seek multi-year financial support from PennDOT, reflecting that agency's avowed intent to encourage private sector involvement in traffic mitigation. The case for PennDOT support is

particularly strong, since the Route 202 corridor has been identified as one of the critical links on PennDOT's priority list of highway improvements. The TMA should urge PennDOT to establish a formal program of financial grants to local TMAs, modeled after the NJDOT program. The NJ program provides multi-year funding of up to $200,000 annually to TMAs, with matching fund requirements increasing from 50 percent during the first two years to 90 percent in the sixth year.
Proposed Revenue Target: $50,000/year for 3-4 years

c. SEPTA - a contractual fee-for-service arrangement should be negotiated with SEPTA for the transit marketing service proposed in Section II above. Discussions held by the Consultant with SEPTA staff and SEPTA General Manager Lou Gambaccini, and subsequent contacts by Peter Quinn suggest that SEPTA might favor such an arrangement.
Proposed Revenue Target: $30,000/year for two years

d. FTA - In the longer run, the Federal Transit Administration should be viewed as another potential funding sources. While it is unlikely the FTA would entertain additional support to the TMA during the life of the present $100,000 grant, FTA has been known to provide follow-up assistance for TMA-stimulated activities of special promise.

PROPOSED REVENUE PLAN

Fiscal Year 1990

FTA Grant (through DVRPC)	$ 50,000
Township Contributions (1)	40,000
Membership Fees (2)	25,000
Contract with SEPTA (3)	30,000
Fees-for-Service (4)	20,000
Total Revenue	$165,000

Notes

(1) Upper Merion, Tredyffrin, Lower Providence, Upper Providence
(2) See "Membership Fees", above
(3) First year of a two-year $60,000 service contract
(4) Transportation services to PNI, incident to corporate relocation

Fiscal Year 1991

FTA Grant (through DVRPC)	$ 50,000
Township Contributions (1)	40,000
Membership Fees (2)	35,000
Contract with SEPTA (3)	30,000
PennDOT Grant (4)	50,000
Fees-for-Service (5)	30,000
Total Revenue	$225,000

Notes

(1) Upper Merion, Tredyffrin, Lower Providence, Upper Providence
(2) See "Membership Fees", above
(3) Second year of a two-year $60,000 service contract
(4) First annual payment on a three or four-year grant
(5) Transportation services to PNI, incident to corporate relocation

PARTNERSHIP FOR TRANSPORTATION ACTION TMA PROGRAM DESIGN[1]

As the traveling public we are faced with a new problem. In the past, traffic congestion was associated with the downtown commute, and occurred primarily on radial routes leading to the City. Today, some of the worst traffic snarls occur far from the urban core on circumferential highways and along roads leading to suburban office parks and shopping malls. Congestion has lost its directional bias. The leisurely "reverse commute" is a thing of the past. On many urban arterials and freeways, inbound and outbound traffic volumes during the rush hour are virtually identical.

In the past, commuters could avoid traffic by "taking the back roads". Today's suburbia has no back roads. Many commuters find themselves faced with the disorienting experience of being locked in stop-and-go rush hour traffic while surrounded by vistas of open fields and sparse development. Highway construction has not kept pace with the demand of suburban development. Similarly, public transportation has been slow reacting to the needs of congestion in suburban areas. These factors have combined to focus on the need to manage existing facilities to the best degree possible.

Techniques of traffic management are well known. These include strategies such as ridesharing, variable work hours, local circulation systems, parking management and other similar techniques. New to demand management, however, are the methods by which these techniques are applied and implemented.

Increasingly, private participation is considered essential to the success of congestion management. Facilitating private-sector involvement in congestion management is the new breed of organization known as Transportation Management Associations (TMAs). Today, TMAs are operating nationwide.

The PTA/TMA's Response

In response to mounting transportation problems in the Greater Willow Grove Area, nine local governments, four Chambers of Commerce and various private sector developers and employers formed a public-private Transportation Management Association incorporated as the Partnership for Transportation Action. Initial funding was provided through a federal grant from the Federal Transit Administration (FTA) to aid in the institution of the Partnership for Transportation Action/Transportation Management Association (PTA/TMA) to develop a Comprehensive Travel Demand Management Program, and facilitate the initial start-up of the PTA/TMA.

The 64.6 square mile area of the PTA/TMA incorporates six municipalities in Montgomery County and three municipalities in Bucks County. The Montgomery County municipalities include Abington Township, the Borough of Bryn Athyn, the Borough of

[1] This section is based mainly on Transportation Management Plan for the Partnership for Transportation Action/Transportation Management Association, prepared for DVRPC by McMahon Associates, Inc. and Urban Mobility Corporation, April 1991.

Hatboro, Horsham Township, Upper Dublin Township, and Upper Moreland Township. The Bucks County municipalities include the Borough of Ivyland, Upper Southampton Township, and Warminster Township.

Situated in close proximity to the City of Philadelphia, the PTA/TMA area is traversed by several major arterial roadways and expressways including the Pennsylvania Turnpike, Easton Road (PA Route 611), PA Route 309, PA Route 63, County Line Road, Street Road (PA Route 132), Limekiln Pike (PA Route 152), and Old York Road (PA Route 263). These roadways carry significant volumes of suburb-city and suburb-suburb traffic. With the exception of the recent widening of the Pennsylvania Turnpike, road improvements have not kept up with increased travel demand for east-west, intra-suburban movement nor with the increased travel demand of reverse commuters from Philadelphia to the PTA/TMA area.

The PTA/TMA area consists of a unique mixture of existing densely-developed residential and commercial areas located within the eastern portion of the study area and less-dense but rapidly expanding areas to the west. The PTA/TMA area contains several major traffic destinations such as the Horsham Business Campus, Fort Washington Industrial Park, Willow Grove Park Mall, Willow Grove Naval Air Station, Naval Air Development Center (NADC), Prudential Office Campus, Penn Mutual, Fischer & Porter, and Kulicke & Soffa Industries. Additionally, office campuses are currently either planned or are under development in several of the municipalities incorporated in the PTA/TMA area. Traffic generators such as these provide sufficient mass to support individual traffic and transit demand strategies.

Studies conducted by the Delaware Valley Regional Planning Commission (DVRPC) indicate that the PTA/TMA area currently houses approximately 193,000 people and employs approximately 111,000 people. DVRPC also predicts that the population in the PTA/TMA area will increase by almost 22% by the year 2015. Similarly, employment will increase by 25%, and car ownership by 34%.

To be sure, there are various highway improvements to be constructed in the PTA/TMA area. However, various transportation demand strategies will need to be implemented to ensure suburban mobility in the PTA/TMA area in the years to come. The PTA/TMA has established the following four basic goals:

- Reduce Peak Hour Traffic Congestion
- Increase Study Area Traffic and Transit Mobility
- Improve Labor Accessibility
- Generate supplementary financial support for essential transportation improvements

The Comprehensive Travel Demand Management Program

This report develops a program design for a Comprehensive Travel Demand

Management Program to be implemented by the Partnership for Transportation Action/Transportation Management Association (PTA/TMA). It includes:

- **Identification and Evaluation of Feasible Transportation Demand Alternatives** - An inventory of fourteen (14) feasible transportation alternatives of potential interest to the PTA/TMA have been identified and analyzed as to their potential application in the PTA/TMA area. Each transportation alternative includes a description of the alternative, a description of any services of this type which currently exist in the PTA/TMA area and the potential for each program to be implemented as part of the PTA/TMA.

- **Establishment and Assessment of a System of Incentives** - Research into commuter behavior suggest that suburban commuters are influenced by a complex set of factors in choosing their mode of travel. Therefore, eight potential incentives for use by the PTA/TMA have been identified and evaluated relative to their potential for application by the PTA/TMA.

- **Provision of Program Recommendations** - As a result of analysis of the various transportation alternatives and incentives and their potential for application in the PTA/TMA area, a list of recommendations has been established and prioritized for implementation in the PTA/TMA area.

- **Statement of PTA/TMA Mission and Objectives** - The objectives, goals, and organization of the PTA/TMA are addressed in detail.

- **Presentation of Budget/Financial Plan** - A detailed financial plan has been formulated which outlines the various sources of revenues for the PTA/TMA and the yearly expected expenditures of the PTA/TMA.

Keys to a Successful PTA/TMA

The ultimate success of the PTA/TMA depends on many factors. However, there are three that are most vital. These include:

- Securing the services of an Executive Director for the PTA/TMA
- Establishing funding support for the PTA/TMA
- Maintaining continued support and participation among all of the entities involved in the PTA/TMA

This Comprehensive Transportation Management Program provides the framework for the PTA/TMA to initiate and pursue transportation demand management strategies in the PTA/TMA area. However, the single most vital person implementing this program will be the Executive Director hired by the PTA/TMA. The combination of technical background, competence and enthusiasm for the mission of the PTA/TMA are vital qualifications of the Executive Director.

If the PTA/TMA is to attract quality candidates for the Executive Director position, vital funding from both private and public sources should be identified and in place. The candidates for Executive Director must be assured that there is a multi-year commitment on the part of the participating organizations to finance the PTA/TMA and to solve transportation problems in the area. It is only through commitment of funding by local governments and private participants as well as the broader State and Federal governmental agencies that sufficient incentive will be in place to attract a qualified Executive Director.

Finally, the support of the governments, chambers of commerce, and private sector organizations of the PTA/TMA must continue to ensure the ultimate success of achieving the objectives set forth in this Comprehensive Travel Demand Management Program for the PTA/TMA.

TRANSPORTATION DEMAND MANAGEMENT ALTERNATIVES

The first essential step in designing a Transportation Demand Management Program is to identify a range of feasible transportation alternatives which can be reasonably implemented and which offer the driver of a Single Occupancy Vehicle (SOV) an attractive alternate method of transportation. Transportation Demand Management alternatives which are feasible for implementation by the PTA/TMA may not be feasible or logical alternatives for other TMAs due to various geographical and socioeconomic conditions as well as the availability of various modes of transit.

There is a limited universe of feasible alternatives to the SOV form of transportation. These alternatives include ridesharing (car pools and van pools), public transit (bus and rail), and various forms of "customized transit". Examples of "customized transit" may include subscription buses from residential areas to suburban employment centers, time-transfer shuttles from transit stations to employment centers, circulators in suburban downtowns and reverse commute services from central cities to suburban job markets.

An inventory of feasible transportation alternatives of potential interest to the PTA/TMA have been identified. Each alternative is examined below in terms of its potential for implementation in the PTA/TMA area.

1. SEPTA's "200 Series" Bus Routes

In an effort to improve labor accessibility and promote reverse commuting from the City of Philadelphia to the suburbs, the Southeastern Pennsylvania Transportation Authority (SEPTA) has recently begun implementing bus services, known as the "200 Series" Routes in suburban Philadelphia. The "200 Series" Routes connect various regional rail stations and line haul bus stations to major employment and activity centers.

Presently, three "200 Series" bus routes are operating in the PTA/TMA area. Route 201 was implemented as the first "200 Series" route in 1989. Route 201 offers service

between the Fort Washington station of the R5 regional rail line to the Fort Washington Industrial Park. The route was originally funded by the Fort Washington Industrial Park. However, since initiation, the route has become self-sustaining and now collecting fares cover operating expenses.

Route 210 provides service from the Willow Grove station of the R2 regional rail line to the Horsham Business Center and surrounding office campuses. The annual cost of service as contained in the Proposal for Provision of Transportation Services was predicted by SEPTA to be approximately $110,000. SEPTA predicts an ultimate ridership of 140 daily passengers after the first year. This would mean that the route would function at an operating ratio of 88% and, therefore, operate at a deficit of $12,650 per year. SEPTA required that a contribution of $12,650 be made by the local businesses whose employees would utilize Route 210 to cover the projected deficit. This cost of the service was pro-rated by number of employees which resulted in a total annual cost for the above employers of approximately $12 per employee. Route 210 began operation in May, 1990, and attained a daily ridership of 145 passengers after only four months of operation according to a ridership survey conducted by SEPTA in September, 1990. This route is clearly a success.

Route 211 provides service between the Warminster station of the R2 regional rail line and the Northampton, Jacksonville, Gingko, Cherokee, Street Road, and Warminster Industrial Parks. The annual cost of Route 211 was estimated by SEPTA to be approximately $102,200 in their Proposal for Provision of Transportation Services. The anticipated ridership after one year of service was estimated to be 114 daily passengers. This would mean that the route would function at an operating ratio of 87% thus resulting in a deficit of $12,650. SEPTA required, therefore, that a subsidy of $12,650 be made from local sources. Bucks County provided the initial subsidy for Route 211 and service began in November, 1989. By September, 1990, ridership on this route reached 96 daily passengers as compared to the projected 114 daily passengers. It is anticipated that ridership on this route will continue to grow as the line gains more attention. The fact that this route achieved 85% of the project ridership in four months of operation qualifies Route 211 as an initial success. Funding is currently being secured for the $12,650 subsidy for the November 1990 to November 1991 period.

Applicability to PTA/TMA

The success of the three "200 Series" bus routes now functioning in the PTA/TMA area clearly affirms the need for such bus service. It also offers the potential for other such successes in the PTA/TMA area. SEPTA has indicated that they welcome new ideas for "200 Series" routes and would work with the PTA/TMA to identify candidate routes.

One such route is the proposed Route 209 which would provide service from the Willow Grove station of the R2 regional rail line to various employment centers in Horsham Township including the Prudential Business Campus. The proposal from SEPTA to

provide this service estimated an annual operating cost of $106,000. The anticipated 140 daily passengers would mean that the route would function at an 88% operating ratio thus operating at a deficit of $12,650. This subsidy would have to be provided by private sponsors in order to commence Route 209 service. SEPTA is presently waiting for local approval for Route 209 in the form of a funding commitment. It is also possible that this service could be provided by a private transit organization such as the Montgomery County Paratransit Association (MCPA).

Other potential "200 Series" bus routes may eventually provide service to employment centers in Upper Southampton.

2. Reverse Commute Services

The purpose of reverse commute transit service is to provide employees living in central cities with adequate mobility to efficiently and economically reach job locations in the suburbs. Most existing transit services in the PTA/TMA area are oriented into the City of Philadelphia during the morning peak hour and out of the City of Philadelphia during the afternoon peak hour with little emphasis on providing service for employees commuting from Philadelphia to the suburbs where a job market demand exists and labor accessibility is a problem.

Some reverse commute services do exist in the form of the previously described "200 Series" bus routes. The "200 Series" bus routes transport employees traveling outbound on the regional rail line servicing Philadelphia to various suburban employment centers. The existing SEPTA regular line haul Routes 22 and 55 also promote the reverse commute. Both routes originate at the Broad Street Subway. Route 22 provides service to the Willow Grove Park Mall with weekday northbound service out of Philadelphia operating about every 15 to 20 minutes during peak commuting times. Limited extension of Route 22 service is also available to Warminster. Route 55 also provides service to the Willow Grove Park Mall with limited service to Doylestown via Easton Road (PA Route 611). Northbound service out of Philadelphia to the Willow Grove Mall operates about every 10 minutes during the peak morning and evening commuting periods.

Applicability to PTA/TMA

Although the "200 Series" routes and the existing Route 22 and 55 currently promote reverse commuting from Philadelphia to the suburbs, a labor accessibility problem exists in the PTA/TMA area. Many of the PTA/TMA area employers, developers, and public sector agencies surveyed by DVRPC noted labor access as a problem. Employers noted having difficulties in recruiting and obtaining skilled personnel for many unfilled positions. Many of these positions represent light manufacturing and hospitality jobs.

The implementation of additional "200 Series" routes would undoubtedly provide reverse commuters with increased options for gaining employment in the suburbs as would additional line haul bus routes or modifications to existing SEPTA line haul bus

routes. The previously referenced Routes 22 and 55 could include modifications such as a prospective loop through the Horsham Business Campus and extension or modifications to better serve employment centers in Warminster Township.

Large employers in the PTA/TMA area with a labor pool accessibility problem could consider funding expanded Route "200 Series" shuttles to and from nearby regional rail stations in an effort to better transfer reverse commuters from local train stations to the locations of employment. Employers may also offer employees subsidies for total or partial costs of utilizing SEPTA's regular route services (bus and rail) to travel to/from the PTA/TMA area. Similarly, subsidizing line haul route variations to improve employment accessibility in the various office campuses could enhance labor pool accessibility. Services such as these could run exclusively during the morning and afternoon peak hours and could be funded entirely by the employer through SEPTA or by utilizing a private transportation carrier. If reverse commuter services are initiated, considerable effort should be focused on marketing the services to potential employees.

3. Improved Regional Rail Service

Improving regional rail service in the PTA/TMA area would require increasing local service or possibly increasing express services to and from train stations located on the three regional rail lines serving the PTA/TMA area.

The R5 Lansdale/Doylestown Line presently provides service to six stops in the PTA/TMA area including Jenkintown, Glenside, North Hills, Oreland, Felwick, and Fort Washington. Southbound service into Philadelphia during the morning peak hour and northbound service out of Philadelphia during the afternoon peak hour operates approximately every thirty (30) minutes.

The R2 Warminster line provides service to nine stops in the PTA/TMA area including Jenkintown, Glenside, Ardsley, Roslyn, Crestmont, Willow Grove, Fulmor, Hatboro, and Warminster. Service into Philadelphia during the morning peak hour and out of Philadelphia during the afternoon peak hour operates approximately every thirty (30) minutes while reverse commuting trains operate hourly.

The R3 West Trenton Line provides service between West Trenton, New Jersey, and Philadelphia. This route includes five stops in the PTA/TMA area including Jenkintown, Noble, Rydal, Meadowbrook, and Bethayres. Southbound service into Philadelphia during the morning peak hour and northbound service out of Philadelphia during the afternoon peak hour occurs about every twenty (20) to thirty (30) minutes and operates hourly during other periods of the day.

All three of the rail lines stop at Jenkintown on the border of Abington Township. The combined lines offer peak service at Jenkintown about every ten (10) minutes. This location could offer the potential for originating/terminating a "200 Series" bus route or a local circulator.

Applicability to PTA/TMA

SEPTA regional rail service already offers comparatively frequent service to numerous train stations located throughout the PTA/TMA area. Presently, none of SEPTA's regional rail lines are operating at capacity and could easily accommodate additional riders who abandon their SOV (Single Occupancy Vehicle). In fact, increasing frequency of SEPTA's regional rail service may tend to spread out riders over more trains while not necessarily increasing ridership. The current financial situation of SEPTA due to reductions in State and Federal funding do not promote this alternative as a viable and affordable option for implementation by the PTA/TMA. Any increased rail service would have to be underwritten solely by the PTA/TMA. The cost of such services would be excessive, while the prospective increased ridership would likely be minimal. The resources of the

PTA/TMA would be better utilized in subsidizing or promoting other transportation demand management incentives.

4. SEPTA's Regular Route Services

SEPTA presently provides various line haul bus services from Center City Philadelphia to suburban communities. In some instances, SEPTA also provides service between suburban areas. Current SEPTA line haul service to the PTA/TMA area includes three bus routes. As stated previously, Routes 22 and 55 provide service between the Broad Street Olney Avenue terminal in Philadelphia and the Willow Grove Park Mall with Route 22 providing limited service to Warminster and Route 55 providing limited service to Doylestown. Additionally, Route 98 provides hourly service between the Willow Grove Park Mall and the Plymouth Meeting Mall with morning and afternoon service from Plymouth Meeting Mall to Audobon. Additionally, Route 98 provides cross-county service on hourly headways between Willow Grove Park Mall and the Montgomery County communities of North Hill, Oreland, Ambler, Plymouth Meeting, Norristown, Audubon, and Oaks.

A ridership survey conducted by SEPTA in July 1990 for the Route 55 line indicates that Route 55 is currently carrying 922 people per day on 38 buses to and from Doylestown. The ridership survey indicates that several full buses are arriving at Doylestown during the early morning hours and departing Doylestown during the middle to late afternoon hours. These ridership numbers indicate the potential need for increased service to and from Doylestown to accommodate an increasing number of reverse commuters.

Route 98 has been acknowledged as a success in that it improves cross county mobility for many suburban residents. Although Route 98 serves two regional malls (Plymouth Meeting and Willow Grove Park), a significant portion of its ridership consists of workers traveling between home and work.

Applicability to PTA/TMA

The success of the existing SEPTA regular route services through the PTA/TMA area indicates that potential may exist for additional regular bus route services to the PTA/TMA area. Results of the employment survey conducted by the Delaware Valley Regional Planning Commission for the PTA/TMA area indicate that a variety of subregional areas in Philadelphia and the adjoining suburbs each house over 1,000 employees destined to and from the PTA/TMA area each day. These numbers indicate that additional regular bus lines may be successful if implemented. Moreover, the existing regular Routes 22, 55 and 98 which serve the PTA/TMA area may be expanded in terms of service frequency to better accommodate an increased number of reverse commuters to and from the PTA/TMA area.

Various institutional difficulties, however, exist due to the fact that regular bus routes operating partly within the City of Philadelphia are operated and 99.5% funded by the City Transit Division of SEPTA. The remaining 0.5% is funded by suburban Counties. Any changes to existing SEPTA regular bus routes would have to be approved by the City Transit Division and funds would have to be allocated appropriately. It is evident that significant subsidies from PTA/TMA funding sources would be required to offset any deficits incurred by expanded line haul bus services.

Discussions with the Montgomery County Planning Commission relative to the North Penn-Central Bucks Transit Study have indicated that options for other new services are being explored. These include a bus route to connect the Borough of Lansdale and possibly the Montgomery Mall to various employment centers located on either PA Route 463 (Horsham Road) or PA Route 63 (Welsh Road/Moreland Road). The need for transit service on either route may be satisfied by implementation of Route 209 which would provide service from the Willow Grove station of the R2 regional rail line to employment centers in Horsham Township. Presently, concentration is being focused on service via PA Route 63 due to greater potential ridership from activity centers such as McNeil Laboratories, the Dresher Office Campus, Prudential Insurance's Eastern Headquarters, and the Willow Grove Park Mall. One proposal includes a bus route linking Harleysville in Western Montgomery County with Landsale and the Montgomery Mall with continuing service to various major employment centers along PA Route 63 (Welsh Road) and PA Route 463 (Horsham Road). Activity centers which would attract potential passengers include McNeil Pharmaceutical, business centers along Horsham Road, Prudential Business Campus, and Willow Grove Park Mall.

Also being considered in the North Penn-Central Bucks Transit Study are the previously referenced modifications to existing services on Routes 22 and 55. However, due to the length of these routes as well as the number of riders already served, it is anticipated that SEPTA would not endorse diversions of these routes although the frequency of service could be increased.

5. Private Unsubsidized Bus Services

In high density areas and corridors, it is sometimes feasible for private transportation carriers to provide service between major activity centers. These private transportation carriers can provide services such as a local circulator between transit (bus and rail) stations and employment, residential, and commercial centers. Private transportation carriers also provide subscription bus service to and from areas of high employment concentrations. Such services could be provided on a fixed-route basis which would be available to the general public or could be provided on a subscription basis which would either be privately funded or funded by a combination of contributions from individual employers and other sources.

Presently the PTA/TMA area is served by more than forty private transportation companies providing a variety of transit services including fixed-route, limousine, airport, paratransit, feeder, shuttle, and van pools. Delaware Valley Regional Planning Commission's Directory of Transportation Service Providers in the Delaware Valley Region provides a comprehensive listing of the private transportation carriers in the PTA/TMA area. (Table XVI)

Applicability to PTA/TMA

As stated previously, DVRPC utilized interviews with PTA/TMA employers to compile a comprehensive map displaying the PTA/TMA labor market in terms of employees residing in various zones throughout the region. Zones such as Doylestown, Norristown, Bensalem, and Philadelphia have all been identified as housing over 1,000 people employed in the PTA/TMA area. These areas are, therefore, potential origins or destinations for subscription bus service or express bus service provided by a private transportation carrier. Additionally, heavily traveled corridors which pass through zones with high concentrations of PTA/TMA employees would also present a potential for such service. These routes could utilize PA Route 63, PA Route 132, PA Route 463, PA Route 611, PA Route 309, or the Pennsylvania Turnpike.

6. Local Circulator

The purpose of providing a local circulator is to link major employment and activity centers and provide greater daytime mobility to employees who do not come to work in SOV's. There are times during the day when people would like to leave their place of employment for various reasons. The noon hour is the most obvious time when employees wish to leave their place of employment to go to lunch, to shop, or to take car of personal business. Without the use of their own vehicle, employees often feel trapped at work. Provision of a local circulator enables employees to leave work at various times throughout the day, particularly lunchtime, and travel to destinations they would normally travel to in their own vehicle. Providing a local circulator in the PTA/TMA area would encourage reduction of SOV's and enhance the potential success of other alternatives such as ridesharing and reverse commuting.

TABLE XVI

PRIVATE TRANSPORTATION CARRIERS IN PARTNERSHIP FOR TRANSPORTATION ACTION AREA[1]

A-1 Limousines, Inc.
Accessible Transportation for the Disabled
Admiral Limousine Service
Aero Bus Service, Inc.
Alert Transportation Service
Bensalem Cab
Brian Cab, Inc.
Care & Emergency Systems
Carol Lines, Inc.
Chelden Radio Cab
Commuter Express
Crescent Cab Co.
DAV-EL Limousine Service
Dudley G. Brown & Co., Inc.
Elegance Unlimited, Inc.
Falcon Service Corporation
Hagey's Bus Service, Inc.
Holland Industries, Inc.
Huntingdon Valley Transit, Inc.
Krapf's Coaches, Inc.
Lamm Corporation
Limelight Limousine, Inc.
Major Tours, Inc.
Medi-Call Ambulance Service/Keystone Transportation Service
Montco Suburban Taxicab Co.
Montgomery County Paratransit Association, Inc.
National Van Pools, Inc.
O'Steen Transportation Corporation
Pacifico Luxury Limousine
Point-to-Point
R&S Cab Co., Inc.
RES Cab Co., Inc.
Romano's School Bus Service
Ryan Travel, Inc.
Self Bus Service, Inc.
Swing Transportation Tours
Transportation Services, Inc.
Van Pool of New Jersey, Inc.
Van Trans, Inc.
Weil, Joseph R.
Whiteline Transportation, Inc.
Willow Grove Yellow Cab Co., Inc.
Yellow Cab Co.
Yellowbird Bus Co., Inc.

(1) *Source - Delaware Valley Regional Planning Commission - Directory of Transportation Service Providers in the Delaware Valley Region.*

At the present time, there are a limited number of transit services in the PTA/TMA area which offer services similar to that of a local circulator. The SEPTA Route 98 line haul service connecting the Willow Grove Park Mall and the Plymouth Meeting Mall provides service which is somewhat similar to that of a local circulator. However, service on this route during the midday is not frequent enough to provide employees with enough flexibility to leave their office and be back within one hour. Moveover, the distance covered by this bus line is greater than that required to efficiently operate a local circulator.

Applicability to PTA/TMA

A significant potential exists for operation of a local circulator(s) in the PTA/TMA area. The circulator(s) would connect various employment and activity centers. Presently, three SEPTA line haul bus routes traverse the PTA/TMA area. These include Routes 22, 55, and 98. Additionally, the PTA/TMA area is served by three regional rail lines including the R2 Warminster, R5 Lansdale/Doylestown, and R3 West Trenton regional rail lines. These are linked in the PTA/TMA area by three "200 Series" Routes - 201, 210, and 211.

Any local circulator to be implemented in the PTA/TMA area should complement the existing transit services in the area thus providing for the possibility for SEPTA to enhance ridership on its existing routes. For example, a local circulator could link the Horsham, Dresher and Prudential Business Centers with the Willow Grove Park Mall. During midday periods employees could shop at the Mall, whereas at the beginning and end of the day they could transfer to Routes 22, 55, and 98.

Local circulator services could be provided by SEPTA's Frontier Division or by a private transportation carrier. Initial funding could come from either private developers and/or the PTA/TMA. The goal of any new transit service is to eventually become self-sustaining, although it is unlikely that a local circulator would ever be self-sustaining. Moreover, to achieve a significant reduction in peak period SOV's, a PTA/TMA decision could be made to fully subsidize a local circulator and charge little or no fare.

7. Park and Ride Lots

In an effort to promote increased ridesharing (car pooling and van pooling) and transit usage, park-and-ride lots are often established at convenient meeting points for employees traveling to the same employment area. Generally, there are two types of park-and-ride lots which can be established. Large lots are usually established to serve a somewhat large geographic area and usually promote long distance travel. These lots are usually constructed to serve a regional population and are difficult for a TMA to implement. However, TMAs are often active in establishing smaller park-and-ride lots which promote more localized travel over shorter distances. Smaller park-and-ride lots which could be implemented by the PTA/TMA could be leased from owners of developers which do not require the provided number of parking spaces throughout a typical

weekday when the park and ride lot would be utlized. These developments may include churches, movie theaters, restaurants, regional malls, and fitness centers. Often, an employer or developer in a TMA area will donate the use of parking facilities for park-and-ride lots.

There are presently a number of park-and-ride facilities located in the PTA/TMA area. These include the various rail stations and to a degree the Willow Grove Park Mall where limited numbers of commuters park at the terminus of Routes 22, 55, and 98.

Applicability to PTA/TMA

There are several locations throughout the PTA/TMA area which offer potential for usage as park-and-ride lots in the short-term or on a more permanent basis. These include:

- Land areas adjacent to Marriott's Courtyard or the George Washington Motor Lodge.
- Willow Grove Park Mall parking areas adjacent to Bloomingdales.
- Bucks County Drive-In Theater on PA Route 611 in Warrington.

The PTA/TMA could use labor market information collected by DVRPC to assess these and other potential locations for park-and-ride lots. This information could be further utilized to determine how many spaces would be required. The potential cost associated with establishment of a park-and-ride lot at a particular location would have to be thoroughly evaluated before a site was chosen. The PTA/TMA could then enter into a lease or lease-purchase agreement with the owner of the property being utilized. The park-and-ride lot would also require a tie-in with line haul or circulator bus service.

8. Parking Management

As a means of promoting ridesharing alternatives, major employment centers in highly congested areas often implement parking management strategies. These strategies are usually in the form of provision of preferential parking for high occupancy vehicles (HOVs), limiting or restricting parking for SOVs, assessment of a parking fee for SOVs or a reduction or elimination of parking cost for car pools and van pools. Obviously, these strategies must be implemented in combination with other transportation demand strategies such as promotion of ridesharing alternatives and provision of park-and-ride lots.

Presently, 9% of the employers surveyed by DVRPC provide preferential parking for their employees. Although this percentage seems low, it represents 23% of the total employees included in the employer surveys. Thus, it is clear that the larger employers in the PTA/TMA area are providing preferential parking. Preferential parking is not a viable solution for smaller employers with only a limited number of parking spaces.

Applicability to PTA/TMA

According to the results of the DVRPC survey, 20% of the firms surveyed would consider implementing preferential parking programs for car pools and van pools. Other strategies which assess employees parking fees would not be overwhelmingly successful in the PTA/TMA area if instituted at the present time. These types of programs are usually most effective in urban central business districts such as Center City Philadelphia where a variety of transit modes are more readily available to the commuter as alternate means of transportation and where parking fees can be high enough to persuade the commuter to participate in ridesharing or use a form of public transportation.

Many employees of the PTA/TMA area currently do not have access to alternate public transportation modes. Additionally, most PTA/TMA area employers currently provide an adequate amount of free parking. The goal of the PTA/TMA, however, should be to increase and/or improve the transit service available to PTA/TMA employees. Once this is accomplished, employers will be justified in charging parking fees and may be more inclined to provide transit subsidies.

The focus of the PTA/TMA regarding parking management programs would be to consider promoting preferential parking among the major employment centers in the PTA/TMA area subsequent to establishing and promoting various ridesharing programs.

9. Alternate Work Hours

A large reduction in peak hour traffic can often be obtained through implementation of alternative work hours in the form of staggered work hours, flex-time, compressed work weeks, and telecommuting. Implementation of alternative work hours in the form of staggered work hours or flex-time does not typically reduce the volume of traffic on roadways but rather spreads the traffic over longer periods of time. This reduces peak traffic congestion which occurs during the 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM peak traffic periods.

Provision of staggered work hours involves assignment of employees to different work shifts which requires employees to arrive and depart outside the typical peak commuting hours. Provision of staggered work hours is most easily implemented in large corporate facilities where the employees would generally begin and end work at the same time and where the employer can easily control work schedules.

Flex-time allows employees to act a independent workers who arrive and depart work at their convenience within specified time periods. For example, employees utilizing flex-time may arrive at work between 7:00 AM and 9:30 AM and depart between 3:00 PM and 5:30 PM provided they put in a full eight hour day. Many flex-time programs specify a time during the midday (often defined as a period between 10:00 AM to 3:00 PM) when

all employees must be present. Flex-time works well in situations where employees work independently and can generally schedule their own work.

Compressed work week schedules permit employees to condense their work week to include fewer days provided the employee completes the required number of working hours. The most common compressed work week is the 4/40 schedule in which employees work four ten hour days and take the fifth day off. This eliminates 20% of the total weekly commute trips for employees. Additionally, early arrival and late departure times associated with working a ten hour shift further reduces traffic during the morning and afternoon peak hours. Compressed work weeks can reduce volumes of peak hour traffic.

Employees who do not need to be in the office to complete their work assignments could participate in telecommuting. This program allows an employee to complete work assignments either at home or at a neighborhood work center. These types of arrangements are often on a part-time basis meaning that employees also spend a specific portion of their work week in the office.

Results of the DVRPC employee survey indicate that approximately 48% of the firms surveyed utilize staggered shifts, 26% use flex-time, and only 26% of the firms surveyed utilize a fixed schedule.

Applicability to PTA/TMA

It would appear from the DVRPC survey that a majority of the employees in the PTA/TMA area are already working under some form of alternate work hours. Because this transportation demand strategy is already presently practiced in the PTA/TMA area, it would appear that major efforts in this area would not be required as an early priority of the PTA/TMA. However, the PTA/TMA may eventually wish to persuade those working on fixed schedules to switch to some form of alternate work hours. To accomplish this, the PTA/TMA may sponsor seminars for the employers working under fixed schedules to educate them on how to implement alternate work schedules. Further, the PTA/TMA may wish to sponsor seminars which encourage compressed work weeks and telecommuting. These latter two strategies offer the greatest potential for congestion reduction.

10. Ridesharing

Ridesharing involves two or more people traveling to and from work in either a car pool or a van pool. Promoting car pools is often a top priority of TMAs because it offers a low cost alternative to reducing traffic congestion. When promoting car pool programs, a matching service is usually established by individual business parks or major employers, or by the PTA/TMA as a whole.

Van pooling involves a larger scale customized employee transportation service utilizing vans or small buses. These programs are generally operated and funded by employers or contracted to private transportation carriers. Employers who either sponsor or subsidize van pools also provide personalized matching services and additional incentives such as preferential parking, guaranteed ride home programs, and paid parking to persuade the employee to participate in the van pool program.

Only 11% of the companies surveyed by DVRPC mention the availability of car pools as an alternative means of transportation and only 3% mentioned the availability of van pools.

Applicability to PTA/TMA

It is apparent that promotion of ridesharing programs such as car pools and van pools could become a critical element in the effectiveness of the PTA/TMA to reduce area traffic congestion. The PTA/TMA should actively promote a ridesharing program as part of its transportation demand strategy. Such a program may involve developing a program for employers to follow when setting up a car pool and van pool program; aiding employers in setting up ridesharing programs; and establishing a referral service for smaller employers who cannot justify setting up an in-house program. The DVRPC sponsors various forms of ridesharing programs.

11. Guaranteed Ride Home Programs

Guaranteed Ride Home (GRH) programs are being implemented by a growing number of TMAs and major employers to remove one of the major psychological barriers to using transit and ridesharing modes. The purpose of a GRH program is to provide alternate means of transportation during the midday and for emergency situations for employees travelling to work in other than an SOV. Although this is considered a transportation alternative, it is usually implemented as a transportation incentive to promote employees to utilize alternate modes of transportation. Therefore, GRH programs are discussed in further detail in a subsequent report section addressing transportation demand management incentives.

12. Land Use Policy/Site Design

Implementation of land use policy/site design programs would require modification of subdivision and zoning ordinances to direct high density business developments to areas adjacent to transit lines. Criteria for site design would be modified to promote short walking distances to transit stops. Adequate pedestrian and commuter facilities would also be required such as sidewalks, bus stops and bus shelters, and bus cutouts on highways. Adoption of trip reduction ordinances could also be considered as a means of reducing peak hour traffic. Additionally, municipalities may consider increasing allowable developer densities to encourage transit use, particularly in areas where

frequent and varied transportation modes are available.

Applicability to PTA/TMA

Because the regional rail lines servicing the PTA/TMA area were implemented before the current era of suburban sprawl, many of the stations on the regional rail lines are located in boroughs or communities with low densities of commercial and office development and higher densities of residential development. When these lines were first brought into service, their purpose was to promote the commute from suburban communities into Philadelphia. Therefore, most train stations are surrounded by primarily residential areas. Unfortunately, the potential for new rail route service in the PTA/TMA area is limited. Therefore, provision of modified zoning codes to permit higher density uses near transit stations would seem to offer little benefit. The fact that there are six townships and three boroughs in the PTA/TMA area offers a further institutional obstacle to using land use policy through ordinances to achieve transportation objectives. On the other hand, bus services such as the "200 Series" routes and the existing SEPTA line haul services could be modified to more efficiently serve high density areas to promote transit usage.

13. Highway Improvements

In the context of a TMA, provision of highway improvements generally involves traffic engineering improvements which increase the capacity and improve traffic efficiency on existing highway systems. These improvements may involve addition of left and right turn lanes at intersections, modifications to existing traffic control signals, ramp metering, progressive signal systems on arterial highways, and the possibility of adding High Occupancy Vehicle (HOV) lanes on existing corridors.

The Pennsylvania Department of Transportation has recently published a draft of the Commonwealth of Pennsylvania 1990-2002 Twelve Year Transportation Program. As shown in Table XVII, there are 23 projects listed in the PTA/TMA area. The total cost of these projects is estimated at $34,546,000. Additionally, there are nine projects listed on the Candidate List of the Twelve Year Transportation Program totalling $17,060,000. These candidate projects may or may not be included in the final Twelve Year Transportation Program to be adopted in July, 1991. The public hearings concerning adoption of each project included in the Twelve Year Transportation Program will be held in the spring of 1991.

Applicability to PTA/TMA

Due to existing traffic problems in the PTA/TMA area, the Pennsylvania Department of Transportation will be implementing various improvements over the next several years. It is crucial that the improvements listed on the Candidate List for the Twelve Year Transportation Program be appropriately supported by local municipalities and by the

TABLE XVII
PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
DRAFT TWELVE YEAR TRANSPORTATION PROGRAM
1990-2002
PTA/TMA AREA

Municipality	Project Location	Description	Program Period	Funding (1)	Total Cost
Warminster Township	Old York Road/Street Road	Intersection Improvement	First Four Years	F/S	$1,248,000
	Bristol Road Bridge Over Little Neshaminy Creek	Bridge Replacement	First Four Years	S	1,705,000
Upper Southampton Township	2nd Street Pike/County Line	Signal Improvement	First Four Years	F/S	151,000
	Churchville/Bristol Road	Signal Improvement	First Four Years	F/L	138,000
	County Line Road from Buck Road to New Road	Widen to 4 Lanes	Third Four Years	F/S	7,408,000
Warminster/Upper Southampton Townships	Davisville Road Bridge over Southampton Creek	Bridge Repairs	First Four Years	F/L	498,000
Horsham Township	Limekiln Pike/Babylon Road/ Herman Road	Relocation; Signalization	First Four Years	F/L	300,000
	County Line Road/PA Route 611	Intersection Improvements	First Four Years	F/S	274,000
	PA Route 463/Lower State Road	Intersection Control Beacon; Tree Removal	First Four Years	F/S	75,000
	Dresher Road from Horsham Road to Welsh Road	Widening: Intersection Improvements	First Four Years	F/L	2,270,000
	PA Route 309/PA Route 202	Intersection Improvements	First Four Years	F/S	4,445,000
Upper Dublin Township	Virginia Drive Bridge over Sandy Creek	Bridge Rehabilitation	Third Four Years	S	200,000
Upper Moreland Township	PA Route 611/Fitzwater Road	Widening: Signal Improvements	First Four Years	F/S	722,000
	Davisville Road Bridge over Pennypack Creek	Bridge Replacement	First Four Years	F/S	1,841,000
	Davisville Road Bridge over Conrail	Bridge Replacement	First Four Years	F	1,950,000
Horsham/Upper Dublin Townships	Welsh Road from Tennis Avenue to Twining Road	Widen to 4 lanes	First Four Years Second Four Years	F/S F/S	500,000 4,100,000

TABLE XVII (continued)
PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
DRAFT TWELVE YEAR TRANSPORTATION PROGRAM
1990-2002
PTA/TMA AREA

Municipality	Project Location	Description	Program Period	Funding (1)	Total Cost
Horsham/Upper Moreland Townships	Blair Mill Road from County Line Road to Welsh Road	Widen to 4 lanes; Intersection Improvements	First Four Years	F/S	$3,800,000
Hatboro Borough	PA Route 332 (Montgomery Avenue)/ Jacksonville Road	Intersection Control Beacons	First Four Years	F/S	19,000
Abington Township	Jenkintown Road Bridge over Baeder Run	Bridge Replacement	First Four Years	S	175,000
	Jenkintown Road/Edge Hill Road/ Tyson Road	Widening, Signalization	First Four Years	F/S	310,000
	Susquehanna Road from PA Route 611 to Mill Road	Restoration	Maintenance	S	880,000
	PA Route 73 (Washington Lane) from Township Line Road to Old York Road; PA Route 73 (Township Line Road) from Old York Road to Hasbrook Avenue	Restoration	Maintenance	S	1,360,000
	Easton Road/Susquehanna Road at SEPTA railroad crossing	Warning Devices	Maintenance	F/S	177,000
Total					$34,546,000

TABLE XVII (continued)
PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
DRAFT TWELVE YEAR TRANSPORTATION PROGRAM
1990-2002
PTA/TMA AREA

Municipality	Project Location	Description	Program Period	Funding (1)	Total Cost
Horsham Township	PA Route 463 from U.S. Route 202 to PA Route 611	Widen to 4 lanes	-	F/S	$7,200,000
Upper Dublin Township	Dreshertown Road from Welsh Road to Limekiln Pike	Widen to 4 lanes	-	F	4,000,000
	Limekiln/Norristown Road	Intersection Improvement	-	F/S	750,000
Upper Moreland Township	PA Route 611 from PA Turnpike to Blair Mill Road	Widen to 6 lanes	-	F/S	1,500,000
Abington Township	SEPTA's Meadowbrook Station	Parking Lot Expansion	-	F/S	80,000
	Easton Road from York Road to Cheltenham Avenue	Reconstruct/	-	F/L	2,000,000
	Susquehanna Road/ Washington Avenue	Intersection Improvement/ Feasibility Study	-	F/S	80,000
Warminster Township	Jacksonville Road/Bristol Road	Intersection Improvements	-	F/S	650,000
	County Line Road from Buck Road to New Road	Engineering	-	F/S	800,000
Total					$17,060,000

PTA/TMA to ensure adoption of these projects as part of the final transportation program.

14. Administrative Actions

The nine municipalities which form the PTA/TMA may implement various administrative actions to ensure adequate traffic mitigation of developments. These actions could include enactment of trip reduction or parking reduction ordinances, assessment of transportation impact fees in accordance with Act 209, the Transportation Impact Fee Legislation, or the establishment of "special districts" in conjunction with the Pennsylvania Transportation Partnership Act (Act 47 of 1985).

Trip reduction ordinances are regulations enacted by a municipality which require developers or land owners to implement transportation demand management strategies to reduce, by a specified amount, the number of vehicle trips expected to be generated by a development based on nationally or locally published trip generation data. Similarly, municipalities can enact parking reduction ordinances which allow developers or land owners to construct less off-street parking in exchange for participation in specific transportation demand management programs.

The recent enactment of Pennsylvania Act 209 of 1990 provides municipalities with the authorization to assess transportation impact fees for new development. In order to comply with the new legislation, a municipality must first develop a Roadway Sufficiency Analysis and Transportation Capital Improvements Plan and subsequently adopt a Transportation Impact Fee Ordinance which complies with the requirements of Act 209. The costs associated with implementation of the Transportation Capital Improvements Plan in combination with the amount of traffic to be generated by new development serves as the basis for calculating transportation impact fees to be assessed by a municipality on new development.

Municipalities which are presently assessing impact fees have one year from December 1990 to recalculate their current transportation impact fees in accordance with Act 209 or they must refund all previously collected transportation impact fees. Municipalities which currently do not assess transportation impact fees may elect to develop a Transportation Impact Fee Ordinance in compliance with Act 209 and begin assessing transportation impact fees, or may choose to continue not collecting fees.

The Pennsylvania Transportation Partnership Act (Act 47 of 1985) enabled municipalities to set up "special transportation districts" in which developers and land owners could be assessed extra taxes to finance needed capital improvements. A highly successful cooperative public-private partnership was established in the PTA/TMA area when Upper Dublin Township designated the Fort Washington Industrial Park as a "special transportation district". This partnership resulted in the completion of several intersection and roadway improvements within the district including extensive improvements to the Dresher Triangle.

Applicability to PTA/TMA

Although the administrative actions described above must be implemented by the individual PTA/TMA municipalities, the PTA/TMA should be aware of the differences in administrative policies of each of the PTA/TMA member municipalities and should offer to provide assistance to municipalities wishing to adopt new administrative policies or modify existing policies. The PTA/TMA should also coordinate any implementation programs with Montgomery County Planning Commission, the Bucks County Planning Commission, and the Bucks County and Montgomery County Building Industry Councils. Intermunicipal and interagency coordination will play an important role in the success of the PTA/TMA.

TRANSPORTATION DEMAND MANAGEMENT INCENTIVES

Numerous surveys have documented the strong attachment that commuters have to their cars. In the absence of active and deliberate efforts to encourage alternative modes of travel, more than nine out of ten employees on the average elect to drive to work alone. The reasons for this strong dependence on personal transportation go beyond the mere desire for comfort and privacy. Surveys of suburban workers suggest that a key reason why people drive to work is because they need their cars before, during and after work, and because cars save time.

For some people driving to work is a matter of necessity - for example, a parent who must drop off a child at a day care center on the way to work. For others, it is a matter of convenience - for example, to shop on the way home, to run errands during the day, or simply to escape the monotony of the company cafeteria during lunch breaks. For still other commuters, having a car at work represents insurance that they will be able to get back home if they have to work late or leave in a hurry because of a family emergency.

Thus, any efforts to modify commuter travel habits must involve deliberate incentives, strong enough to overcome the natural inclination to drive alone.

This section examines the type of incentives that have been found effective in coaxing people out of automobiles and into alternative modes of transportation. Each incentive will be examined in terms of its potential for implementation by the PTA/TMA.

1. Personalized Marketing

It is generally agreed that simply offering alternative means of transportation is not enough. Transit, ridesharing, commuter rail and other commuter alternatives must be actively marketed to their potential users. The more personalized the marketing, the more effective user response is likely to be. Evidence shows that an aggressively promoted "commute alternatives" program can induce as much as a five percent reduction in the number of employees driving alone.

A commonly used marketing approach by large employers is to designate an in-house Transportation Coordinator (TC). A TC will typically help employees find car pool companions; assist them in forming van pools; provide current information on transit routes, fares and schedules and private transportation providers (taxis, limousines, airport shuttles, etc.); organize and administer variable work hour programs and emergency or guaranteed ride home programs; manage company shuttle services; and generally serve as the employees' commute ombudsman and facilitator.

Company-designated TCs serve, in effect, as the TMAs' "field agents" and facilitate the TMA's corporate outreach. However, since only very large employers can afford (and justify) maintaining a full time Transportation Coordinator on their payroll, TMAs often take on the function of marketing transit and ridesharing as a service to their membership. By serving as a central source of information, promotion and facilitation, TMAs can usually do the job more efficiently and at a lower cost than individual employers. At the same time, by virtue of their close continuing presence in the community and their outreach to employers, they are often better positioned to market transit service than the transit agency itself.

Applicability to PTA/TMA

The marketing function should constitute the focus of the PTA/TMA's initial phase of activities. Specifically, the PTA/TMA should assume responsibility for promoting the use of transit and raising awareness of its availability among area employees. The marketing effort should be targeted initially at major employment concentrations, notably the Horsham and Prudential Business Campuses, the Fort Washington Industrial Park, Street Road Industrial Park, Abington Hospital and other major employment centers. The employee outreach could be supplemented with occasional "Transit Awareness Days" held at local shopping malls, in order to create greater visibility for transit among shoppers and area residents.

The PTA/TMA could also monitor ridership on existing routes serving the greater PTA/TMA area and periodically re-evaluate the effectiveness, in consultation with area employers. These include the three "200 Series" routes - Route 201 (Fort Washington station to Fort Washington Industrial Park), Route 211 (Warminster station to Ivyland) and Route 210 (Willow Grove station to Horsham Business Campus) and line haul Routes 22, 55 and 98. Routes and schedules found not to satisfy local requirements or found to be underutilized, should be drawn to the attention of SEPTA with recommendations that they be modified to better serve the needs of the area, or else eliminated as not cost-effective.

The PTA/TMA should also work toward increasing awareness of ridesharing as a commute option. A modest program should be initiated, involving the following actions:

(a) Develop a promotional "ridesharing kit" that explains the benefits of ridesharing, and sets forth the procedures for forming car pools and van pools.

(b) Assist individual major employers with setting up in-house ridesharing promotion/incentive programs. Programs should be individually tailored, but at a minimum should include a Guaranteed Ride Home program and preferential parking for car pools and van pools - a low-cost incentive with proven attraction. A first year goal should be to assist three of the largest area employers with establishing in-house ridesharing programs.

(c) Establish a PTA/TMA managed car pool matching referral service for employees of small firms which cannot justify an in-house ridesharing program.

2. Monetary Subsidies and Financial Disincentives

Monetary subsides have generally been found effective in encouraging transit and ridesharing. Subsidies may take the form of discounted transit passes, low interest loans to help finance the purchase of vans, or outright "travel allowances" to employees willing to discontinue driving alone and utilize car pools or van pools. While travel allowances have been adopted only in jurisdictions which are under stringent legislative mandates and court orders to meet air quality standards, DVRPC and the transit operators in the region have instituted a major marketing program to encourage employers to subsidize employee use of transit.[1] The PTA/TMA could associate itself with these efforts and thus help extend the outreach of this program.

A particularly effective incentive is to offer a transportation allowance in conjunction with elimination of free parking. The way it works is this: the employers gives employees a monthly commute allowance but starts charging an equivalent sum for parking, which formerly was free. Employees can continue driving alone with no net monetary loss or gain; they can form car pools or van pools, split the parking cost and pocket the rest of the allowance; or they can switch to transit (where available), save themselves driving costs, and keep the difference between transit fare and allowance. Preliminary evidence suggests that employer-paid travel allowances, coupled with a financial penalty for solo driving, are among the most effective incentives available.[2]

An early demonstration of the use of financial incentives and disincentives to reduce solo driving is the traffic mitigation program of the City of Pasadena, California. In October 1989, the city introduced a travel reduction program to comply with the requirements of Regulation 15. The program grants all employees a $20 monthly transportation allowance, but charges solo drivers a "trip reduction fee" of $45/month (employees who drop off children at day car centers and schools get an extra $40 monthly allowance if they ride with other employees and their children). The net result

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(1) Delaware Valley Commuter Benefit Program - administered through the Delaware Valley Regional Planning Commission. (See Appendix D)

(2) They would be even more effective if income tax laws were changed to make travel allowances tax exempt, just as employer-provided parking is now. Currently, employer travel subsidies in excess of $15/mont are treated as taxable income.

may thus range from a $240/year bonus to a $300/year penalty, depending on the mode of travel chosen. The city's goal is to reduce the drive-alone rate from 85 percent to 60 percent, which would eliminate 407 daily automobile trips. The city believes it will meet this target.(3)

Applicability to PTA/TMA

While charging employees for parking has been found quite effective in discouraging drive-alone commuting, parking fees have been embraced primarily in jurisdictions with stringent emission reduction mandates.

The new Clean Air Act will require employers with more than 100 employees in the Philadelphia metropolitan area to increase their vehicular occupancy rates by 25% by November, 1992. In light of this new legislation it is anticipated that PTA/TMA employers will utilize and, hopefully, financially support transportation demand management programs implemented by the PTA/TMA in order to increase vehicular occupancy rates.

The high cost to employers of providing on-site parking could also serve as an incentive for employers to implement transportation demand management programs in lieu of constructing parking. The average cost to construct surface parking is $5,000 per space, while the cost of construction of a multi-level parking structure can be as much as $20,000 per space. Employers may, therefore, find it more equitable to provide transit subsidies, promote transit use, or implement ridesharing programs than to construct parking to accommodate every employee.

The PTA/TMA should explore the question of monetary subsidies and financial disincentives with employers and property managers. Specifically, the PTA/TMA should associate itself with the **Delaware Valley Commuter Benefit Program**, an independently funded 3-year program to market increased transit use through employer-provided employee subsidies. The program, which includes SEPTA and PennDOT among its sponsors and is administered by DVRPC, provides an institutional mechanism for involving the private sector in the support of user-side subsidies aimed at increasing transit ridership and reducing automobile use.

3. Provision of Midday and Emergency Transportation

An oft cited reason for bringing a car to work is the fear of being stranded at work in the event of overtime work at night or a family emergency necessitating immediate return home. To allay this concern, employers offer a "Guaranteed Ride Home" to employees who find themselves "stuck" at work without a means of transportation. This

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(3) City of Pasadena Transportation Management Program for the City of Pasadena, June 30, 1989.

technique has been found to be an effective incentive for ridesharing and has been adopted widely across the country. For example, the Rideshare Company, a TMA in the Hartford, Connecticut area, has developed a back-up ride program for employees who customarily come to work by transit or car pool. Under this program, these employees will be issued vouchers worth a one-way cab fare for use in emergency situations when they need a ride home or to work, after having missed their normal commute arrangement. During a test period the fare will be equally sponsored by the employer and the TMA.

Another oft cited reason for solo driving is the need or convenience of having a car in order to shop and run errands during lunch break and after work. Surveys carried out by the Urban Mobility Corporation disclose that more than 60 percent of suburban office workers use their cars on a regular basis to make intermediate stops on their way to or from work, and 80 percent use them regularly at lunchtime to run midday errands and go to restaurants. To compensate for the inconvenience of not having a car, large employers often provide midday transportation to nearby retail and service facilities if such services are not available on site or within an easy walking distance of the workplace. Sometimes several employers and/or developers will fully subsidize a local circulator using small buses to link employment and activity centers.

Applicability to PTA/TMA

There is every reason to believe that a Guaranteed Ride Home program would find a good response among PTA/TMA employees. The PTA/TMA should actively explore this technique with area employers as a potential early action PTA/TMA initiative.

In the same vein, the PTA/TMA should discuss with employers the desirability of a midday shuttle that would provide lunchtime access between retail centers and amjor employment centers.

4. Park and Ride and HOV Priorities

Surveys suggest that time savings are the single most important factor in the commuter's personal calculus of costs and benefits. Thus, car poolers and van poolers will often find it more convenient to assemble at a common staging point and proceed directly to the workplace, rather than follow a circuitous route picking up passengers on the way to work. This is why strategically located park and ride lots are found to facilitate and offer a significant incentive to ridesharing. Similarly, HOV lanes and other HOV treatments that save travel time (such as priority at metered freeway ramps, priority at toll gates, etc.) are a powerful incentive to ridesharing, especially in highly congested highway corridors.

Applicability to PTA/TMA

One potential incentive for the PTA/TMA area would be to approach the Pennsylvania Turnpike Commission to establish special car pool/van pool toll lanes at the Willow Grove, Fort Washington, Philadelphia, Norristown and Valley Forge Interchanges. This could be linked to a toll rebate program financed by employers. Employees who rideshare would have their tolls reimbursed depending on the number of riders in the vehicles. Special toll receipts (color coded, for example) would establish the number of passengers per vehicle.

5. Effectiveness of Demand Management Incentives

Some tentative answers as to the effectiveness of the above demand management incentives are provided in Table XVIII. These estimates have been derived from large-scale employee surveys and focus group sessions conducted by the Urban Mobility Corporation in numerous suburban developments throughout the country.

The overall conclusion, based on an evaluation on nearly 8,000 employee questionnaires, interviews with scores of employers, and monitoring of various demand management programs, is that well conceived and aggressively promoted demand management programs, that offer a choice of travel options and provide incentives tailored closely to the preference of the client groups, can result in a 10-15 percentage point shift in the mode of travel, from driving-alone to ridesharing and transit.

Thus, implementation of various transportation demand management strategies in the PTA/TMA area should somewhat reduce the number of SOV's on the local roadway network. Review of Table XVIII in combination with a review of the unique travel characteristics of the PTA/TMA area, indicates that the transportation demand management strategies which will have the greatest initial impact on modal split in the PTA/TMA area will be the implementation of an aggressive transit marketing program to promote existing SEPTA service including regional rail, regular bus route, and "200 Series" bus route service, provision of midday (local circulator) and emergency transportation (GRH programs), and promotion of ridesharing and parking management alternatives in combination with a possible transit subsidy for commuters.

Other transportation demand management programs such as alternative work hours, land use policy/site design, highway improvements, and administrative actions will have a lesser impact on commuters' modes of travel. However, it is hoped that the additive results of implementation of several transportation demand management strategies will reduce the number of SOV's in the PTA/TMA area by at least 10%.

TRANSPORTATION DEMAND MANAGEMENT PROGRAM RECOMMENDATIONS

In considering what role the PTA/TMA should play in transportation demand management, one must take account the current transportation environment of the PTA/TMA area. That environment is characterized by: (1) considerable population and employment dispersion; (2) no significant traffic congestion on the area's freeway and arterial system (of course, the perception of congestion is subjective; what we mean here is that congestion in the area has not yet become a pervasive, around-the-clock problem); and (3) a public mindset that is overwhelmingly automobile-oriented. The typical PTA/TMA resident or employee is not a user of public transportation and finds no compelling reason for changing his travel habits.

TABLE XVIII

EFFECT OF DEMAND MANAGEMENT INCENTIVES
ON MODAL SPLIT

Demand Management Incentive	Reduction in Drive-Alone Commuters (1)
Aggressive workplace-based promotion & marketing of commute alternative	6%
Financial subsidy for transit riders and car poolers	
low option (e.g., fare subsidies)	2%
high option (e.g., "transportation allowance")	5-8%
Employee-paid parking charge (nominal)	2%
Employee-paid parking charge (market cost)	12%
Provision of midday transportation	2%
Emergency Ride Home Program	4%
Walk-accessible services	3%
Preferential parking for HOVs	>1%

(1) Percentage point reduction in number of drive-alone workers during commute hours. Trip reductions are additive, but some combinations of incentives may produce exaggerated results.

Source: Urban Mobility Corporation employee surveys, focus group interviews and first-hand monitoring of travel demand management programs in suburban centers.

Given these circumstances, the challenge facing the PTA/TMA is not so much to cope with an existing crisis as it is to educate the public to the need for a gradual transition to a less-automobile dependent lifestyle. Thus, there is no need to impose severe restraint, and any demand management actions taken must be seen as commensurate with the problem they are trying to solve. On the other hand, significant actions will be required for employers with over 100 employees to comply with Clean Air Act provisions.

The short term objective of the PTA/TMA in the field of transportation demand management should be largely one of educating the public and monitoring traffic conditions. Specifically, the PTA/TMA should establish, in cooperation with DVRPC and the local municipalities, a traffic surveillance system that would allow local government and the PTA/TMA to monitor increases in arterial traffic congestion and spot potential trouble spots before they become serious impediments to traffic flow.

A first coordinated survey of critical intersections should be undertaken to establish baseline conditions. Thereafter, an effective monitoring system should be agreed upon by the participating agencies, with the PTA/TMA acting as the coordinating body. Depending on what subsequent surveys show, the PTA/TMA should be ready to take corrective action.

Such corrective action would take the form of a staged demand management program coordinated by the PTA/TMA and implemented largely by employers. The program would begin modestly and ratchet up its response only as and when traffic conditions demand it. The PTA/TMA should focus its attention initially on all the recommended programs below. Initial response/success should direct the prioritization of the PTA/TMA focus to the best potential programs. We recommend that the PTA/TMA concentrate its efforts in the first two years (Stage 1) of operation to implementing the following programs:

- **Transit Marketing** - The marketing function should constitute the focus of the PTA/TMA's initial phase of activities. Specifically, the PTA/TMA should assume responsibility for promoting the use of transit and raising awareness of its availability among area employees. The marketing effort should be targeted initially at major employment concentrations throughout the PTA/TMA area. The employee outreach could be supplemented with "Transit Awareness Days" held at local shopping malls in order to create greater visibility for transit among shoppers and area residents. Transit marketing should also focus on the "200 Series" routes and line haul routes in the PTA/TMA area. Additionally, the PTA/TMA should focus on the DVRPC's Commuter Benefit Program by acting as liaison between DVRPC staff and local employers, as well as including the program prominently in the "Transit Awareness Days".

  The PTA/TMA could monitor ridership on existing routes serving the area and

periodically re-evaluate their effectiveness in consultation with area employers. Routes and schedules found not to satisfy local requirements or found to be underutilized should be drawn to the attention of SEPTA with recommendations that they be modified to better serve the needs of the area, or else eliminated as not cost-effective.

- **Ridesharing** - The PTA/TMA should take on a responsibility for marketing and promoting employee ridesharing. This could involve. (a) providing employers with information about how to set up a company-wide ridesharing program, (b) conducting a public information campaign about the benefits of ridesharing, using posters, "ridesharing promotion days" at local shopping malls, and local news media, (c) coordinating a Guaranteed Ride Home program (assurance of transportation in the event of a family emergency or overtime work has proven to be an important inducement to ridesharing), and (d) extending technical assistance to individual employers who have expressed interest in promoting ridesharing in the workplace.

- **Flexible Work Schedules** - The PTA/TMA should acquaint local employers with the potential for using flexible work schedules. Even small changes in the regular patterns of commuting could significantly reduce peak hour pressure on the local road network, especially in the vicinity of large traffic generators.

  The PTA/TMA should convene a workshop to provide employers with a "nuts and bolts" overview of various flexible work schedule practices such as staggered work hours, flextime, compressed work week and telecommuting. Local experiences as well as experience from other jurisdictions should be examined and the benefits and drawbacks of each technique carefully assessed. The PTA/TMA should arrange to provide interested employers with technical assistance in setting up flexible work schedule programs.

- **Improved Transit Services (labor pool accessibility)** - Improved transit services will not only reduce congestion but also improve labor pool accessibility. Additional "200 Series" and regular line haul routes should be pursued as well as the potential for subscription and express transit services where demand exists. A local circulator in the PTA/TMA area should also be designed and implemented. The PTA/TMA should urge local employers to establish Guaranteed Ride Home Programs for employees and aid employers in successfully implementing these programs. The PTA/TMA should meet regularly with SEPTA officials to discuss services (both existing and new proposals) in the PTA/TMA area.

- **Parking Management** - In combination with the establishment of ridesharing programs, the PTA/TMA should aid employers in implementing effective parking management programs which complement other transportation demand

management programs such as ridesharing. Efforts in this area should concentrate on providing preferential parking for HOV's such as car pools and van pools.

- **Highway Improvements** - In the context of the PTA/TMA, provision of highway improvements generally involves traffic engineering improvements which increase the capacity and improve traffic efficiency on existing highway systems. These improvements may involve addition of left and right turn lanes at intersections, modifications to existing traffic signal controls, and progressive signal systems on arterial highways. The Pennsylvania Department of Transportation in the recently published draft Commonwealth of Pennsylvania 1990-2002 Twelve Year Transportation Program has identified 32 projects totaling almost $52 million in the PTA/TMA area. It is crucial that the improvements listed on the Draft Twelve Year Transportation Program be appropriately supported by the PTA/TMA to ensure adoption of these projects as part of the final transportation program.

  The PTA/TMA should act as a unified force to focus the need to implement as many of these projects (as well as other projects not listed) as are beneficial to the PTA/TMA area. Projects which are viewed as vital to the area should be prioritized and the PTA/TMA should track their progress toward implementation.

- **Administrative Actions** - The PTA/TMA should aid municipalities in implementing various administrative actions such as the establishment of trip reduction or parking reduction ordinances. The PTA/TMA should coordinate and implement programs with municipal officials as well as with local and regional agencies to ensure the success of the PTA/TMA.

In the second two years of operation (Stage 2), assuming the above programs have been successfully implemented, the PTA/TMA should focus its efforts on implementing the following programs:

- **Improved Reverse Commuter Services** - Although implementation of Stage 1 Transportation Demand Management Programs such as increased "200 Series" routes will greatly improve reverse commute services in the PTA/TMA area, subsequent efforts should further improve the transit services available to reverse commuters. The PTA/TMA should investigate the potential for increasing or improving SEPTA's regular bus route services. The PTA/TMA should meet regularly with SEPTA officials to discuss the potential for improving service in the PTA/TMA area.

- **Private Unsubsidized Bus Services** - The PTA/TMA should consider the potential for increased area transit services through private unsubsidized transit carriers. Areas in need of transit services should be identified and the possibility for provision of services via private carriers should be investigated.

- **Monetary Subsidies and Financial Disincentives** - The PTA/TMA should focus on encouraging employers to provide monetary subsidies for transit and ridesharing. Increased and improved transit services will encourage employers to provide monetary subsidies for employees using mass transit. Additionally, the PTA/TMA may at the same time urge employers to implement financial disincentives such as charging parking fees for SOV's.

Once the above programs have been successfully implemented, and as traffic congestion increases, the PTA/TMA may choose to focus some efforts on implementing the following programs:

- **Park and Ride Lots** - The PTA/TMA should investigate the possibility of establishing park and ride lots in the PTA/TMA area to promote ridesharing and transit usage.

- **Improved Regional Rail Services** - The PTA/TMA may wish to investigate the need for increased or improved regional rail service to the PTA/TMA area. As stated previously, SEPTA presently offers frequent service to numerous stations in the PTA/TMA area. Major efforts in the area should only occur if there is a substantial increase in regional rail ridership.

A well conceived and aggressively pursued transportation demand management program of the kind described above could be an effective instrument of congestion mitigation. Current traffic conditions in the PTA/TMA area may not yet warrant full immediate implementation of all potential transportation demand management strategies. Therefore, the staged implementation program will enable the PTA/TMA to play a very constructive role by educating public opinion to these measures, so that when the traffic situation worsens (as it inevitably will), the private sector and local government will have a plan of action to remedy the situation.

MISSION, ORGANIZATION AND ACTIVITIES OF THE PARTNERSHIP FOR TRANSPORTATION ACTION TRANSPORTATION MANAGEMENT ASSOCIATION

Recommended Mission and Goals Statement

The mission of the PTA/TMA is to offer a forum in which the local business community and municipal officials can cooperatively address and seek a resolution of traffic-related problems affecting the area. By ensuring mobility, the PTA/TMA will help to promote the area's orderly growth, ensure its continued commercial vitality and enhance its livability. It is recommended that the PTA/TMA seek to fulfill this mission by pursuing the following goals:

- Building and sustaining a vigorous alliance of business, community leaders and local government, committed to improving personal mobility in the 64.6 square mile PTA/TMA area;

- Advocating solutions to the transportation needs and interests of the local business community and residents through involvement in the ongoing municipal, county, regional and state transportation planning processes;

- Promoting and coordinating travel demand management activities designed to reduce the growth of peak hour traffic, and helping member organizations comply with travel reductions required as part of any future individual development agreements;

- Improve labor accessibility to/from the PTA/TMA area through aggressive transit marketing in combination with increased and improved transit services in the PTA/TMA area;

- Facilitating access and internal circulation for those who live, work, shop and do business in the PTA/TMA area, through jointly funded transit services;

- Serving as an information clearinghouse and an advocate for innovative transportation improvements;

- Monitoring local transportation conditions in order to assess their impact on future highway and transit needs, and alerting public officials to opportunities for remedial action;

- Undertaking other activities and programs which the PTA/TMA's members may from time to time determine to be in the public interest and in the interest of the PTA/TMA.

Recommended TMA Activities

While promotion and marketing of transit service and management of transportation demand should constitute a key focus of the PTA/TMA's activities, the Association should not ignore its broader purpose as an instrument of advocacy and education. In furtherance of these objectives, it is recommended that the PTA/TMA pursue the following additional activities:

- **Newsletter** - Publish a quarterly newsletter containing transportation news and events of general interest, news about PTA/TMA activities, "Rideshare Exchange", etc. This newsletter could be published individually or jointly with other TMAs in the region (i.e., through the currently pending FTA grant applied for through DVRPC);

- **Commuter Assistance Center ("Transportation Store")** - Provide information about transit services, other transportation resources (taxis, limos, airport shuttles, paratransit); car pool/van pool matching; maps and schedules;

- **"Transportation Audits/Survey"** - Conduct transportation surveys of existing or newly relocated companies to assist in assessing the need for employee commute options such as parking needs or shuttle services;

- **Business Forums** - Sponsor semi-annual open meetings to discuss current transportation needs and concerns, and to brief the membership on PTA/TMA activities. Guest speakers (senior County, PennDOT, DVRPC, and SEPTA officials, business leaders) would be a regular feature of each forum.

Recommended Organizational Structure and Governance

Membership in the PTA/TMA should be open on a voluntary basis to employers, developers, commercial property owners and facility managers, merchants and institutions in the PTA/TMA area. Municipalities and local Chambers of Commerce should also be full voting members. Other public bodies (e.g., Montgomery and Bucks Counties, SEPTA, PennDOT, PenJerDel) can be granted nonvoting membership status.

The PTA/TMA should be governed by a Board of Directors whose members are selected from among the Association's membership. An Executive Committee of the Board should be charged with conducting the PTA/TMA's business. The Executive Committee may appoint special committees (such as Membership, Finance, Program Development, etc.)

While some TMAs may conduct their activities as fraternal organizations, most TMAs choose to incorporate as non-profit corporations. Subsequent to incorporation, a TMA may seek an IRS tax-exempt status as a 501(c)(3) charitable organization or as a

501(c)(4) business association. A majority of TMAs elect the latter, in order to have the freedom to engage in advocacy work and income-generating activities which are precluded under the more stringent IRS rules governing charitable organizations.

Strengthening Private Sector Participation in the PTA/TMA

Private sector participation in demand management activities can be secured in three ways:

- Through voluntary participation in the PTA/TMA
- Through contractual conditions in development agreements
- Through regulatory requirements imposed by local government

Implicit in the formation of the PTA/TMA is the intent to involve the private sector on a voluntary basis. It is recommended that the PTA/TMA launch a formal membership drive using the following appeal:

"By joining the PTA/TMA you and your company can benefit in many ways:

- You will be part of an organization that will represent your interest, voice your concerns and speak on your behalf when key transportation planning, service and investment decisions affecting your business operations are made;

- As an employer, you will obtain information and assistance in developing a company-tailored "transportation demand management" program aimed at reducing parking requirements, dealing with traffic problems affecting your facilities, and helping your employees find more effective commute options;

- You will be kept informed of transportation developments and traffic conditions affecting your company, and will have an opportunity to alert local officials to the need for "quick fix" traffic and transit improvements benefiting your employees;

- An finally, you will benefit from a positive public image as a participant in the collective effort to enhance the living and working environment of the PTA/TMA area."

TABLE XIX

INITIAL PTA/TMA ANNUAL OPERATING BUDGET

Staff salaries & benefits (1)	$ 60,000
Office space (fully equipped and furnished)	10,000
Communications (telephone, postage, etc.)	5,000
Printing and Publications (2)	5,000
Supplies	2,000
Employer Marketing and Outreach (3)	20,000
Membership Services (4)	5,000
Travel (5)	2,000
Insurance	3,000
Contingency	8,000
Total Operating Expenses	$120,000

(1) Includes health benefits, FICA, state unemployment contribution, vacation and sick leave
(2) TMA brochure, Transportation Guide, stationery, newsletter (4 issues), topical fliers
(3) Expenses of part-time staff to handle the marketing function
(4) Seminars, workshops, representational expenses
(5) Three trips to Harrisburg, attendance at two professional out-of-town meetings, local travel

TABLE XX

PTA/TMA SUGGESTED FEE SCHEDULE

Requested Private Industry Pledges

Employers with 25 or fewer employees	$ 300
Employers with 26 - 50 employees	500
Employers with 51 - 150 employees	1,000
Employers with 151 - 300 employees	1,500
Employers with 301 or more employees	3,000
Property Owners (irrespective of size)	3,000
Associates (individual) members	100

Proposed PTA/TMA Private Industry First Year Revenue Target: $25,000

Based on companies which have indicated a willingness to provide financial support, the first year's targeted funding could include:

4 "Large" Employers & Developers @ $3,000
6 "Medium-size" Employers @ $1,500
20 "Small" Employers @ $200

Fees and Services - In addition to membership fees, some TMAs derive supplementary revenue from fees charged of individual members for specific services. These services may involve:

- Conducting employee surveys
- Assisting companies with development of site-specific ridesharing programs
- Assisting newly relocated companies with transportation-related matters such as arranging reverse commute services, subscription vans and other customized commuter services
- Providing transit marketing services
- Conducting "travel audits" for employees of newly relocated firms
- Monitoring traffic from individual facilities

Proposed PTA/TMA Revenue Target: to be determined

Grants and Contributions - The PTA/TMA has been assured of a sum of $20,000 from DVRPC to cover some operating expenses during the first two years. These funds are a portion of an FTA grant which DVRPC has secured to support development of transportation management associations in the region. In addition we recommend that the TMA consider the following other potential funding sources:

- **Contributions from Participating Townships** Annual contributions should be sought from the nine participating Townships and Boroughs, since these jurisdictions are going to benefit directly from any mobility improvements brought about by PTA/TMA programs.

  Proposed PTA/TMA Revenue Target: $35,000/year

- **PennDOT Contribution** It is recommended that the PTA/TMA seek multi-year financial support from PennDOT, reflecting PennDOT's intent to encourage improvement in traffic mitigation. The PTA/TMA should urge PennDOT to establish a formal program of financial grants to local TMAs, modeled after the NJDOT program. The NJDOT program provides multi-year funding of up to $200,000 annually to TMAs, with matching fund requirements increasing from 50 percent during the first two years to 90 percent in the sixth year.

  Proposed PTA/TMA Revenue Target: $25,000/year for 3-4 years

- **SEPTA** A contractual fee-for-service arrangement should be negotiated with SEPTA for transit marketing services.

Proposed PTA/TMA Revenue Target: $15,000/year for 2 years

- **Montgomery County and Bucks County** Although neither Montgomery County nor Bucks County have made a financial commitment to the PTA/TMA as yet, both counties are fully supportive of the activities of the PTA/TMA. Thus, the PTA/TMA should continue to solicit funds from both counties and/or in-kind services of staff transportation professionals. It is anticipated that some funding will eventually be provided especially in light of Burlington, Camden and Delaware Counties' support of TMAs in the region.

- **FTA** In the long term, the Federal Transit Administration should be viewed as another potential funding source. While it is unlikely that FTA would entertain additional financial support to the PTA/TMA during the life of the present grant, FTA has been known to provide follow-up assistance for TMA-stimulated activities of special promise.

Table XXI presents the initial Financial Plan for the PTA/TMA. It anticipates a reasonable level of funding for what is basically a mid-level TMA program.

The Financial Plan lists other prospective funding sources which could be pursued. These include Federal Highway Administration programs and the Private Industry Council which could be a source of funding labor accessibility related PTA/TMA initiatives. Also considered should be securing "financing" from member organizations through in-kind services/donations including secretarial, accounting, legal, technical and general support services.

The PTA/TMA Financial Plan reflects the operating needs of the PTA/TMA but does not include funding for major projects such as additional "200 Series" routes subsidies, funding of local circulators and/or ridesharing programs. Each of these programs would be funded separately. This Financial Plan, appropriately supported, will permit the PTA/TMA to secure the services of a competent Executive Director and move forward to begin implementation of this comprehensive Transportation Demand Management Plan.

Program Budget

Table XXII provides an estimate of the costs of transportation demand management programs to be established in the first two years of PTA/TMA operations. These are operating costs for the PTA/TMA only. They do not anticipate any capital expenditures. Capital facilities such as desks, copiers, etc. would be provided by member organizations. Vehicles for circulator services, etc. are assumed to be provided at least initially by a participating transportation service provider.

TABLE XXI

ANNUAL FINANCIAL PLAN

Member Fees	$ 25,000
Employers Developers	
Participating Townships and Counties	35,000
Pennsylvania Department of Transportation	25,000
Southeastern Pennsylvania Transportation Authority	15,000
Federal Transit Administration (through DVRPC)	20,000
Federal Highway Administration	
Private Industry Council	
Total	$120,000

TABLE XXII

TENTATIVE TWO-YEAR PTA/TMA PROGRAM BUDGET[1]

Program	Costs[2]
Transit Marketing[1]	$ 25,000
Ridesharing	
Flexible Work Schedules	20,000
Improved Transit Services	35,000
Parking Management	15,000
Highway Improvements	15,000
Administrative Actions	0 [3]
Total	$125,000

(1) To be initiated and carried out by the PTA/TMA Executive Director and support staff
(2) Operating costs only. Assumes no capital investment for PTA/TMA
(3) Part of regular operating budget of PTA/TMA

CONSHOHOCKEN TRANSPORTATION MANAGEMENT PLAN[1]

Close to 3 million square feet of office space has been proposed for the Conshohocken/West Conshohocken area. In addition, plans include a 288-room hotel and 150-200,000 square feet of retail space. Two of the buildings, totaling approximately 500,000 square feet have been completed and are partially occupied. It is estimated that at buildout the proposed development will generate approximately 5,400 trips in the a.m. peak and 6,000 trips in the p.m. peak (See Tables XXIII, XXIV, and XXV). According to a traffic analysis carried out by DVRPC, these traffic volumes, when combined with projected traffic from developments in the adjoining communities of Lower Merion, Upper Merion, Whitemarsh and Plymouth, will place the existing street and highway system under significant pressure. Average Annual Daily Traffic (AADT) is projected to increase 200-350 percent by Year 2011 on certain segments of the road network, even assuming new I-476 ramps to and from Matsonford Road. Five intersections are expected to operate at level of service F in the a.m. peak. (Ref: Conshohocken Area Traffic Study, June 1989, Delaware Valley Regional Planning Commission).

Improved access to and from the expressway system (i.e., construction of new ramps to and from I-476, and relocation of the existing westbound off-ramp from the Schuylkill Expressway to Crawford Avenue) is felt to be part of the solution to the traffic congestion problem, but is expected to require a number of costly modifications whose future is still uncertain at this time. Moreover, the County and the boroughs are concerned that even after completion of new ramps, the local roads network may be inadequate to handle the projected traffic volumes. Consequently, other ways of improving access and reducing traffic congestion in the Conshohocken area must also be explored, notably through Demand Management. Experience from other jurisdictions indicates that well conceived and aggressively promoted demand management programs can reduce peak hour trip generation in suburban activity centers by as much as 10 to 15 percent.

What is Demand Management?

Demand Management can best be described as a set of actions intended to influence the intensity, timing and modal distribution of transportation demand for the purpose of reducing traffic congestion.

In designing a Demand Management Plan three issues need to be considered:

- What alternative means of transportation are already available? Can the choice of commute alternatives be increased?

1 This section is based mainly on A Transportation Management Plan for the Conshohocken/West Conshohocken Area, prepared for DVRPC by Urban Mobility Corporation, March 1990.

TABLE XXIII

PROPOSED DEVELOPMENT

CONSHOHOCKEN BOROUGH

	Development	Developer	Type	Size sq.ft.
C1	Fayette St.-First St. to Elm St.	Meehan-Weinman	Office	180,000
C2	Elm St.-Fayette St. SE corner	Pulver	Office	270,000
C3	Harry St./access road NW corner	Pulver	Office	300,000
C4	Harry St./access road NE corner	Pulver	Office	300,000
C5	Elm St.-Fayette St. SW corner	Pulver	Office	270,000
C6	Elm St.-Maple St. SE corner	Pulver	Office	220,000
C7	Elm St./access road SE corner	Pulver	Office	195,000
C8	Access road west of Fayette St. Bridge	Pulver	Retail	150-200,000
C9	Raymond Rosen Colwell Lane		Office/ Warehouse	150,000
	TOTAL	Office Retail Office/Warehouse	1,735,000 sq.ft. 150-200,000 sq. ft. 300,000 sq.ft.	

TABLE XXIV

PROPOSED DEVELOPMENT

WEST CONSHOHOCKEN BOROUGH

	Location	Developer	Type	Size sq.ft.	Status
WC1	Front St./Matsonford Rd. NW corner	Pulver	Office	273,000	60% leased
WC2	Access Road west of Matsonford Rd. Bridge	Pulver	Office	220,000	Early '91
WC3	Access Road east of Matsonford Rd. Bridge	Pulver	Office	165,000	Early '91
WC4	Crawford Ave. north of Front St.	Pulver	Hotel	288 rooms	1993
WC5	Crawford Ave. north of Woodmont Ave.	Acorn	Office	150,000	1993
WC6	Woodmont Rd. north of Crawford Ave.	Acorn	Office	150,000	1993
WC	Conshohocken State Rd. south of I-76	Acorn	Office	250,000	Partially leased
	TOTAL	Office Hotel		1,208,000 sq.ft., 288 rooms	

TABLE XXV

PEAK HOUR TRIP GENERATION

FROM PROPOSED DEVELOPMENT

AT CONSHOHOCKEN/WEST CONSHOHOCKEN DEVELOPMENT

Building Designation	Sq.Ft.	A.M. Peak Hour	P.M. Peak Hour
C1	180,000	332	321
C2	270,000	470	449
C3	300,000	539	516
C4	300,000	539	516
C5	270,000	470	449
C6	220,000	394	379
C7	195,000	356	343
C8	150,000	168	551
C9	150,000	261	249
WC1	273,000	475	453
WC2	220,000	394	379
WC3	165,000	308	298
WC4	288 rooms	118	181
WC5	150,000	284	276
WC6	150,000	284	276
WC7	250,000	441	421
	Total	5,410	6,057

Source: Comprehensive Traffic Impact Report, June 1988. Greiner Engineering Sciences, Inc. Figures have been adjusted to reflect revised square footage data.

- What incentives can be provided to persuade commuters to shift to alternative travel modes? Experience from other jurisdictions indicates that only strong incentives can overcome the commuters' natural preference to drive alone.

- What can be done to secure the support and participation of the business community in demand management? Evidence from other areas suggests that active private sector involvement contributes significantly to the success of demand management efforts.

These issues will be discussed on the following pages. A proposed implementation plan will also be discussed, as part of an overall strategy to improve mobility and permit the Conshohocken/West Conshohocken area to realize its full development potential.

RECOMMENDED TRANSPORTATION MANAGEMENT PLAN

1. TRANSIT STRATEGIES

A. Transit Providers

The study area presently is served by one line of the regional (commuter rail) system and two bus routes. Both are operated by the Southeastern Pennsylvania Transportation Authority (SEPTA). The rail service is part of a regional network of commuter rail lines operating radially to and through Center City Philadelphia. The bus service is part of SEPTA's Suburban Transit Division operating from the Frontier garage in Plymouth.

SEPTA is the major public transportation provider in the Philadelphia region. Its operation is supported by passenger fares and public subsidies from the Commonwealth of Pennsylvania, City of Philadelphia and Montgomery, Chester, Delaware and Bucks counties.

The study area is also served by the Montgomery County Paratransit Association, Inc. (MCPA), a private non-profit organization based in King of Prussia. Originally created to coordinate paratransit services within the county, MCPA is increasingly involved in providing employee shuttle services. These services provide peak hour connections from employment centers to regional transit facilities as well as midday circulation to nearby shopping and restaurant facilities. The shuttle services are operated under contract to private developers and employers.

B. Regional Rail Service

The R6 Norristown Line has two stops within the study area - the Spring Mill station at Station Road and Washington street in Whitemarsh Township, and the Conshohocken station at Harry and Washington streets under the Fayette Street bridge. This rail line continues outbound along the Schuylkill River to Norristown. Inbound, the rail line parallels the river into the City of Philadelphia through Roxborough, Manayunk and East Falls. It includes several stops within North Philadelphia before reaching the three Center City stations. On weekends it is paired with the Airport High Speed Line (R1).

The R6 is in operation for 18 hours a day, seven days a week from approximately 6:00 a.m. to midnight. During the peak hours, trains run about 30 minutes apart, though they are not on a regular clock-face headway. This is true for both the peak and reverse-peak travel directions. The reverse peak schedule for Conshohocken is as follows:

Arrive Conshohocken Outbound	Leave Conshohocken Inbound
6:25 a.m.	4:06 p.m.
7:02 a.m.	4:40 p.m.
7:32 a.m.	5:20 p.m.
8:04 a.m.	5:45 p.m.
8:37 a.m.	

This reverse peak frequency of service is one of the best in the system, exceeded only by the R5 line. Midday, evening, and Saturday service on the R6 Norristown is hourly. Sunday service is once every two hours.

Approximately 5,500 riders use the entire R6 line on a typical weekday. This accounts for less than six percent of all regional rail ridership. Only the Airport Line carries fewer passengers than the R6. Annual ridership for Fiscal Year 1989 in both directions was 1,330,100. The R6 line carried approximately 50 passengers per car hour of revenue service, slightly below the system average of 58 passengers per hour, indicating that there is additional capacity on these trains.

On a typical weekday, 437 passengers get on or off the train at the Conshohocken station; another 357 passengers use Spring Mill station. Approximately 25 to 30 percent of these boardings and alightings at these two stations are in the reverse peak direction. On-board observations showed that many of the reverse peak riders from Conshohocken and Norristown began their rail trip at either Wissahickon, Allegheny, or North Broad Stations. There are a total of 14 stations on the line (excluding the Center City terminals). The two stations, Conshohocken and Spring Mill, rank 4th and 7th respectively in daily boarding activity.

The R6 line operates over a limited access right-of-way, stopping at stations with minimal facilities. It is single-tracked at the far northern end past Elm Street, Norristown. This limits the carrying capacity of the line, making it difficult to add more trains in rush hours than are presently scheduled (e.g., at a 20-minute rather than a 30-minute headway). Further, there is no signalized interlocking along most of the line (from 16th Street in North Philadelphia to Ford Street in Norristown). Also, at several points the line crosses local streets at grade without automatic signals. The current operating procedure requires a complete stop so the conductor can step off, enter the crossing ahead of the train and warn approaching cars with an orange safety flag. All of these conditions limit operating speed and capacity on this line.

The R6 is part of a rail network that is acknowledged to be in poor condition. Extensive capital funding is required to bring it up to a state of good repair. Because of

poor track conditions and inadequately maintained structures, power, communications, and signal systems, operating speeds are constrained and schedule reliability is low throughout the system.

The Conshohocken train station presently consists of a level platform and a rudimentary shelter. No other amenities exist such as heaters, ticket vending machines, hot coffee and soft drink dispensers or a candy/newspaper stand. The main access point for pedestrians is on the west side of the Fayette Street bridge via a steep staircase. Access also is possible from the surface streets running along the riverfront industrial area. This is used by riders parking at the station, and as an access point for kiss-and-ride. Parking at the station is provided for 79 cars. However, only 25 spaces are on SEPTA property.

C. Bus Service

Two SEPTA bus routes serve the Conshohocken area. They are:

Route 95 - This route operates from the Plymouth Meeting Mall to Paoli Hospital. It serves both Conshohocken and West Conshohocken, traveling on Fayette Street and Front Street/River Road. It also serves the Swedeland area and Renaissance Center. Connections are possible from this bus route to the R6 Regional Rail line at the Conshohocken Station. Transfers to the Norristown High Speed Line (Route 100) can be made at the Gulph Mills Station. The Route 95 operates from approximately 6:30 a.m. to 10:30 p.m. on a 60-minute headway, weekdays and Saturdays. No Sunday service is provided. Additional shuttle trips are operated in the weekday peak periods between Swedeland and Gulph Mills. This route was recently revised to serve Conshohocken. In Fiscal Year 1989, prior to the changes, it carried 67,600 annual passengers and averaged 11.3 passengers per revenue hour.

Route 97 - This route originates in the Spring Mill Area of Whitemarsh Township. The other terminus is Penn Square (Germantown Pike and Swede Road). Route 97 serves Conshohocken on Spring Mill Avenue/First Avenue and Fayette Street/Butler Pike. After leaving Conshohocken, it travels to the Norristown Transportation Center. This route operates from approximately 6:30 a.m. to 6:30 p.m. on a 60-minutes headway, weekdays and Saturdays. No Sunday service is provided. This is one of the better performing suburban bus routes in this area. It carried 190,900 passengers in Fiscal Year 1989 and averaged 25.3 passengers per hour.

SEPTA's suburban services are now being reoriented toward transportation centers. These serve as regional focal points for transit services and provide convenient transfer points. While some transportation centers serve bus routes only others provide an interface between the regional rail system and the suburban bus service. Specific transportation centers in the vicinity of Conshohocken are Gulph Mills, King of Prussia, Norristown, and Plymouth Meeting. Another center has been proposed at Radnor but its

ultimate future is still uncertain.

D. Recommended Transit Service Improvements

As stated earlier, the physical condition of the R6 Norristown Line precludes the operation of more frequent service to accommodate reverse peak travel to Conshohocken. The emphasis at present should be on upgrading the physical plant to assure that the current 30-minute headways can be maintained reliably. The extent of schedule adherence will be a key determinant in the potential riders' willingness to use this line for the daily work trip.

Longer-range capital-intensive solutions would be needed to add capacity on this line. One possible solution involves restoring the former Plymouth branch, a spur off the R6 line north of the Conshohocken station. This would enable trains to be short-turned past Conshohocken in the outbound direction. Also, by starting inbound trains here, more seats might be available for those boarding at closer-in stations such as Manayunk and East Falls. Essentially, if demand warranted, this might permit headways to be halved. Upgrading the track and support systems to permit this, would require capital costs in excess of $1 million. Coincident with these improvements should be expanded station facilities to accommodate additional inbound riders and reverse commuters.

A Conrail freight line on the west side of the Schuylkill River may also present a long-range opportunity. The line runs behind One Tower Bridge in West Conshohocken and continues outbound as far as Pottstown and inbound into Philadelphia. The line is reported to be in good condition. It is not electrified and would require diesel equipment. There is no known plans to operate passenger service on this line at this time.

A key emphasis in the short term should be the physical enhancement of the Conshohocken train station. Presently, SEPTA operates two bus routes and the R6 rail line into Conshohocken without a common transfer point. The Conshohocken train station, because of its central location, could serve as a logical site for a Transportation Center, in keeping with SEPTA's policy to create such centers throughout the suburbs. The facility could also serve the planned "200-series" shuttle route from the Conshohocken train station to the Metroplex complex on Chemical Road, the regular bus route connecting Conshohocken with 54th and City Line Avenue via Conshohocken State Road, and any other shuttle proposed in this report.

We are mindful of the desire of Conshohocken officials and residents not to attract additional traffic in the station area. For this reason we are not recommending expansion of parking at the station but only facilitation of transfers between train, bus and local circulators. We agree that the station should not serve as a park-and-ride facility.

As regards improved bus service, priority attention should be given to better access to the Gulph Mills station of the Norristown High Speed Line - the site of the closet

transportation center on the High Speed Line (Route 100). Access to Gulph Mills from Conshohocken is limited to an hourly service of the Route 95 bus. Additional direct service via Balligomingo Road (rather than via Swedeland) to Gulph Mills should be considered in order to tie Conshohocken more closely into the regional transportation system.

Eventually, shuttle bus service should also be provided to the proposed Radnor Transportation Center, to be located in the vicinity of the existing train station. The new Radnor station will have direct access from I-476 (The Blue Route) and will connect with the R5 Regional Rail line. It would be only minutes away via I-476 from Conshohocken, with access from the new West Conshohocken ramps. A shuttle to Radnor could also serve the Route 100 line whose Radnor station is in close proximity to the R5 line. Shuttle bus service - to Gulph Mills in the short run and to Radnor in the long run - would make Conshohocken accessible to many other users of the regional transportation system.

2. LOCAL CIRCULATION STRATEGIES

Another key aspect of mobility that must be considered is local circulation. This includes pedestrian facilities, parking intercepts and shuttle transportation serving the Conshohocken train station and major employment sites on both sides of the river. Each of these service concepts is discussed below.

A. Pedestrian Circulation

The commuter rail patrons have excellent access by foot to the commercial and office destinations in Conshohocken. Most existing and planned office development is within a 1,000 foot radius of the station, requiring a 4 to 5 minute walk from the outbound station and a 5 to 6 minute return trip to the inbound station. Walking conditions in Conshohocken are fairly pleasant, though difficulties may be encountered in crossing Fayette Street.

With regard to West Conshohocken destinations, walking times to and from the train station are approximately double those for the Conshohocken destinations. Two sets of wide steps connect the inbound and outbound platforms with the north sidewalk of the bridge which spans the river. The sidewalks on the bridge are approximately five feet wide and pedestrians are protected from vehicular traffic by a 32" high concrete barrier, making the river crossing safe and pleasant. Approximately 650,000 square feet of office space and a 288-room hotel are within a 2,000 foot distance of the train station and will require an 8-minute walk. The remaining building sites are over ½ mile from the station (and thus beyond normal pedestrian reach) and must be served by a shuttle service (see below).

B. Parking Intercepts

Another means of improving local circulation is to intercept commuter traffic bound for Conshohocken and West Conshohocken, and for the train station by providing satellite parking facilities in close proximity to the Interstates where much of the commuter traffic is likely to come from. The potential for satellite parking exists at several sites. One is a lot approximately 2,000 feet south of the rail station where SEPTA owns a 1.75 acre parcel on the river side of the rail tracks. This location takes on meaning as a park-and-ride lot only if the Conshohocken ramps are built. The distance is probably too great for parking commuters to walk to the station, but could be bridged with a peak period shuttle. SEPTA has also mentioned the possibility of a commute intercept farther north in Plymouth Township that would connect with the R6 line via a rail spur along an abandoned freight corridor. Finally, fringe parking lots could be developed along the I-476 ramps along Matsonford Road on land owned by PennDOT.

C. Rush Hour Shuttle

To bring the remaining development sites within reach of the rail commuters, and to encourage increased use of the R6 Regional Rail line, a time transfer shuttle service should be considered during the morning and evening peak periods. The shuttle buses would meet every reverse peak train and transport commuters to office buildings in West Conshohocken. The service would utilize small vehicles able to maneuver in the immediate station area.

D. Midday Circulator

As employment in Conshohocken/West Conshohocken continues to expand, the need for the expanded lunchtime transportation will grow. Even with the current limited occupancy of Tower Bridge One and the Four Falls Corporate Center, pressure is building for lunchtime services and mobility for employees. Beyond the local McDonald's, Tara, and Cunningham Court little else if available within walking distance in West Conshohocken. On the Conshohocken side eating facilities are likewise limited within an acceptable walking distance. As employment grows, the need for a lunchtime circulator service will become pressing. The circulator should link the Four Falls Corporate Center and the hotel in West Conshohocken with the Conshohocken business district along Fayette Street, with extension to Plymouth Square shopping area at Butler & Ridge Pikes. The cost effectiveness of the lunchtime circulator would be greatly enhanced if it were combined with the peak period commuter shuttle.

E. Operating Cost Estimates

These new shuttle/circulator services could be operated either by SEPTA or by Montgomery County Paratransit Association (MCPA). To estimate the cost of public service, SEPTA's incremental operating costs for Fiscal year 1988 have been used.

These costs are the sum of $11.98/hour and $1.39/mile. Assuming weekday operations seven hours per day (7-9 a.m., 11 a.m. - 2 p.m. and 4-6 p.m.) and daily mileage per vehicle of 30 miles (this would include rush hour service to/from the fringe parking lots and the train station and midday service as described in paragraph D above), the annual cost of operation (260 days) would amount to $32,650/vehicle. In order to maintain adequate frequency of service two vehicles would be necessary, for a total cost of $65,300. It should be noted that these are incremental costs, typically used for small service additions, and not including the cost of extra vehicles. If fully allocated costs were used ($16.47/hour + $0.49/mile + $42,040/peak vehicle), the total cost would increase to $151,700.

To estimate the cost of privately contracted service, MCPA's Radnor and Chesterbrook cost data can be used. MCPA has been providing service to the Radnor Corporate Center for six years, and to Chesterbrook for four years. Using the same level-of-service assumptions (2 vehicles at 1,820 annual hours each), and an operating cost of $22/hour, the expense of privately contracted service would be approximately $80,000/year.

The above estimates would be offset by whatever farebox revenue could be generated. Assuming a 25 cent fare and a daily ridership of 200 (a conservative assumption, considering that approximately 130 boardings and alightings by reverse commuters take place at the Conshohocken train station each day), the shuttle would generate an annual revenue of $13,000 which would bring the net operating cost down to $67,000/year.

3. OTHER DEMAND MANAGEMENT STRATEGIES

While improvements in transit service deserve a high priority in order to improve access to the Conshohocken/West Conshohocken area for reverse commuters from central Philadelphia, the automobile will remain the mode of choice for an overwhelming majority of Conshohocken workers even in the face of significant transit improvements. Assuming a 10 percent modal diversion to transit (a moderately optimistic estimate based on experience from other suburban office centers with access to regional rail transportation), the proposed development will still generate close to 5,200 automobile trips in the p.m. peak when fully built out. This volume of traffic will place the local road network under considerable strain.

Thus, regardless of any transit service improvements, a solid case exists for additional demand management measures, aimed at reducing the peak hour use of single-occupant automobiles. Two actions seem particularly appropriate in the context of the Conshohocken/West Conshohocken development.

A. Ridesharing

Many suburban centers have successfully implemented ridesharing programs through vigorous marketing of car pooling and van pooling to employees. Ridesharing is commonly marketed by providing employees with information about potential "poolers." The more personalized the ridematching efforts, the more effective the response. Hence, workplace-oriented ridematching services, operated by employer-hired "transportation coordinators" or by Transportation Management Associations, tend to be more effective than matching services offered by public agencies on an areawide basis.

Large-scale customized employee transportation services, utilizing fleets of vans or small buses and operated under contract by private carriers, have been introduced by some companies and office parks where significant numbers of workers share common residential origins. Such services offer door-to-door transportation or direct connections to and from common staging points, such as freeway park-and-ride lots. Customized employee transportation services work best in corporate facilities with large manufacturing or "back office" (e.g., data processing) operations where workers have rigid schedules. For this reason, employee buses or vans would probably not be appropriate in the case of Conshohocken, where the employee mix is likely to be heavily skewed toward professional and managerial employees who work irregular hours and maintain flexible schedules.

B. Reducing Peak Hour Travel

Another way to reduce peak period demand on highways is to influence the timing of transportation demand. In most suburban employment centers traffic congestion tends to be highway peaked, occurring chiefly between the hours of 7-9 a.m. and 4-6 p.m. Even within these "rush hour" periods, there tend to be pronounced spikes, often lasting no more than 30 minutes. Thus, by flattening out the peaks, one can achieve significant reductions in local traffic congestion levels.

There are several methods of shifting peak period commuter travel. One is through staggered work hours which spread out employee arrivals and departures over a longer period of time. This method is particularly effective at facilities with limited entrance and egress capacity, such as the Conshohocken/West Conshohocken area.

Another method is "flextime," which give employees the flexibility of arriving and departing at their discretion provided that they put in a full 8-hour day and are present during the "core time" (e.g., between 10 a.m. and 3 p.m.).

Shifting travel to off-peak hours is often the easiest and most cost-effective method of reducing peak period on transportation facilities. It is not surprising, therefore, that adoption of flexible work hours frequently constitutes the first step in a demand management program. In Pleasanton, California for example, employers were able to

comply with a peak period trip target of 35% reduction primarily through an aggressive variable work hour program.

It should be noted that this approach works well only if its is implemented in a coordinated manner. If everyone decided to alter working hours in the same manner, the result would be merely to shift the peak period toward an earlier or later period, without affecting its intensity.

4. DEMAND MANAGEMENT INCENTIVES

Recent research into travel behavior suggests that strong incentives are necessary in order to overcome the suburban commuters' strong preference for driving to work alone. This section discusses the type of incentives that could be used to encourage employees to shift to high occupancy modes.

Personalized Marketing - The more personalized the marketing of commute alternatives (ridesharing and transit), the more effective the response. Hence, workplace-oriented "commuter assistance" programs, operated by employer-hired "transportation coordinators" or by Transportation Management Associations tend to be more effective than marketing efforts undertaken by public agencies on a region-wide basis.

Financial Subsidies - Financial subsidies, such as low-interest loans to purchase vans and reduced parking fees for car pools and van pools in public and private garages, have proven generally effective as a means of encouraging ridesharing among hourly wage and clerical workers; they have been found less effective with technical, professional and managerial personnel. Given the anticipated employee mix at Conshohocken/West Conshohocken, financial subsidies offer a limited potential as an incentive for reduced car usage.

Constraining or Raising the Cost of Parking - Where parking has been traditionally considered as "free," i.e., in most suburban developments, imposition of parking charges may discourage single automobile commuting, provided that adequate commute alternatives are readily available. However, nominal parking charges seem to have little deterrent effect on the commuters' decision to drive alone.

Provision of Emergency Transportation - An oft cited reason for bringing a car to work is the fear of "getting stuck" without transportation in the event of a family emergency necessitating immediate return home. To overcome this concern, employers are introducing "Guaranteed Ride Home" programs in order to encourage ridesharing.

Provision of On-Site Convenience Shopping and Services - Another oft cited reason for solo driving is the need or convenience of shopping and running errands during

lunchbreak and after work. Recent surveys indicate that 60-80 percent of suburban office workers run midday errands and make regular stops on the way home fromwork. Thus, another way to encourage ridesharing is to provide midday transportation to nearby retail and service centers, and/or convenience shopping and other services (banking, post office, dry cleaning, video rental, etc.) within walking distance of the workplace.

Evaluation of Demand Management Incentives

Urban Mobility Corporation has done considerable research in estimating the effectiveness of various demand management incentives. The estimates have been derived from empirical data generated through employee surveys, focus groups and first-hand monitoring of ongoing travel demand management programs in suburban developments across the country.

The data base consists of half a dozen large-scale surveys carried out in suburban locations by UMC for private clients, and involving a total of over 30,000 individual employees. This empirical data base has been further refined through focus group sessions that probe the commuters' motivation more exhaustively, and through monitoring of ongoing demand management programs in various suburban locations throughout the country.

The demand management techniques are evaluated in terms of their impact on the commuter's choice of mode. Thus, a factor of 10% means that a given demand management incentive results on the average in a 10 percent shift of commuters from single-occupant automobiles to high occupancy modes (ridesharing or transit). The reductions are measured from a base case that assumes a certain "background" (or "ambient") level of ridesharing that occurs spontaneously because some workers will find it convenient to car pool even in the absence of any employer-furnished incentives. Similarly, sites served by transit will have a certain "background" level of transit usage whether or not incentives are provided. These background levels average nationally 7 percent for ridesharing and one percent for transit. However, they may differ significantly from site to site depending on the availability of transit and other factors, as can be seen from the table below:

TABLE XXVI

WORK TRIP MODE SHARES AND AUTO OCCUPANCY
FOR SUBURBAN OFFICE WORKERS

	Rideshare %	Transit %	Avg. Vehicle Occupancy
Bellevue, Washington	16.9	8.8	1.16
South Coast Metro, Orange Co, CA	6.4	0.1	1.07
Parkway Center, Dallas	5.6	0.2	1.06
Perimeter Center, Atlanta	6.5	0.5	1.07
Tysons Corner, No. Virginia	9.8	0.7	1.11
Southdale, MN	6.6	0.8	1.07

Ref: "Travel Characteristics at Large-Scale Suburban Activity Centers," JHK Associates and Urban Mobility Corporation, NCHRP Report 3-38(2)

Urban Mobility has developed effectiveness measures (modal diversion factors) for a broad range of demand management incentives. These are shown in Table XXVII.

TABLE XXVII

EFFECT OF DEMAND MANAGEMENT INCENTIVES
ON MODAL SPLIT

Demand Management Incentive	Modal Shift Factor
Aggressive workplace-based promotion & marketing of commute alternatives including On-site Transportation Coordinator, personalized "travel audit" and Ridesharing facilitation (ride matching)	6%
Financial subsidy for transit riders or car poolers	
low option	2%
high option	5%
Employee-paid parking charge (nominal)	2%
Employee-paid parking charge (market cost)	15%
Provision of midday transportation	3%
Emergency Ride Home Program	4%
Walk-accessible services	3%
Flexible work schedule policy	*
Formal program of part-time telecommuting	*

* Will vary, depending on company policy

** Trip reductions are additive, but different combinations of demand management incentives may produce somewhat different cumulative effects.

It should be stressed that a "modal shift factor" does not necessarily translate into an equivalent auto-use reduction. For example, if two drive-alone workers in a ten-person office should decide to form a new car pool, there will be a 20 percent reduction in the drive-alone rate but only a 10 percent reduction in car usage. On the other hand, if those same two individuals should join an existing car pool or shift to transit, there will be a 20 percent reduction in drive-alone rate and a 20 percent reduction in car usage.

The total impact of a demand management strategy will depend on the level of employer participation in the demand management program. Hence, to derive actual auto use reductions one must apply the modal shift factors only to the employee population that effectively participates in the demand management program.

THE CONSHOHOCKEN AREA TRANSPORTATION MANAGEMENT ASSOCIATION

5. RATIONALE FOR A TMA

Until recent years demand management efforts were undertaken largely on an individual basis. Typically, they were initiated by individual companies on a voluntary basis as a service to their employees, usually taking the form of ridesharing promotion and/or flexible work schedules. In some communities, demand management programs were also initiated by individual developers in compliance with traffic mitigation conditions placed on the developers' subdivision or site plan approvals.

These small-scale efforts at managing demand have been largely replaced by collective initiatives through Transportation Management Associations. Consolidating traffic mitigation efforts on an areawide basis is viewed as having numerous advantages:

1. A joint program can produce more effective results. Individual developers and employers often do not have a sufficient "critical mass" of employees or tenants to support viable commute assistance programs. By consolidating their efforts they can create a larger pool of commuters for rideshare matching purposes and a larger market for subscription bus services.

2. A jointly sponsored program can save its participants money. By sharing overheads and utilizing economies of scale, employers and developers can support demand management activities at a substantially reduced cost to themselves.

3. A jointly sponsored program can offer a greater variety of services and commute options. For example, an individual employer or developer might find it beyond his means to fund a internal circulator linking Conshohocken and West Conshohocken, but such a circulator could, conceivably, by affordable on a collective basis.

4. A jointly sponsored program avoids the problem of "free riders". Through the mechanism of a Transportation Management Association, no one escapes the obligation to contribute to the cost of running the program or to do his share to reduce trips. This would eliminate the potential criticism that some employers and properties are avoiding their "fair share" of responsibility to deal with traffic in the Conshohocken area.

5. A jointly sponsored program would simplify the monitoring and evaluation of traffic mitigation efforts. Instead of requiring each individual development to monitor its own program, the TMA could carry out his responsibility on behalf of all its members and monitor the entire Conshohocken area.

6. Finally, a comprehensive traffic mitigation program, covering all major properties and including all major employers, would have a greater impact on traffic congestion levels than one that was spotty in its application.

The Conshohocken area has a number of features which enhance the potential for joint action in demand management.

- Most of the projects are still in the site plan review stage, with less than 20 percent of the proposed development under construction. This still permits the boroughs to write in appropriate conditions into the site plan approvals requiring all properties to participate in a demand management program through a local Transportation Management Association.

- There is a limited number of developers involved. Of the nearly three millon square feet being proposed, one developer is responsible for approximately two-thirds, and two others are responsible for the remainder. This should facilitate agreement on a joint demand management program and its subsequent implementation.

- The developers have already exhibited a willingness to participate in a cooperative public/private initiative by signing a Roadway Improvement Plan Agreement with one of the boroughs.

- The proposed staging of construction means that traffic volumes will be increasing only gradually. This provides an opportunity to phase in a program of demand management initiatives in stages, without imposing a serious financial burden or causing major disruption in employees' travel habits.

In summary, the anticipated conditions in the Conshohocken area argue strongly for the creation of a Transportation Management Association. A TMA may be launched in a reactive or a proactive way. Most of the first generation TMAs were established in

response to a serious traffic crisis, or at least to conditions that demanded immediate attention. Increasingly, however, TMAs are being created preemptively, on the theory that the best and least costly way to avert a crisis is to anticipate it. The proposed Conshohocken Area TMA falls in this latter category. By forming a TMA in the early stages of development, a staged program can be designed that phases in demand management actions progressively, as the situation warrants. The following sections develop a framework for the TMA, with due regard to the unique circumstances of the Conshohocken area and the needs of its prospective participants.

6. WHAT ARE TRANSPORTATION MANAGEMENT ASSOCIATIONS?

Transportation Management Associations can best be described as partnerships formed by the business community and local governments to deal with transportation problems arising from rapid suburban growth. While traffic congestion ranks as the chief concern of the TMAs, labor market accessibility and employee commute assistance are also high on their agenda.

TMAs are grounded in two principles. The first principle is that business has an obligation to mitigate the impact of activities and must assume a greater responsibility for the traffic it generates. The second principle is that employers and property managers are an indispensable party to any meaningful "demand management" efforts since only they have the practical means to influence their employees' and tenants' commuters' travel behavior.

TMAs serve multiple objectives. They give the business community a voice in local transportation decision-making, they build a local constituency for better transportation, and they serve as a forum for public/private consultations on a variety of subjects such as highway funding priorities, traffic engineering improvements, changes in transit service, and traffic mitigation. TMAs enable developers, employers and property managers to pool resources and address transportation problems on a joint basis, thus achieving economies of scale and conserving resources. In unincorporated suburbs TMAs serve as a civic establishment promoting the transportation interests of locally unrepresented areas.

There is no such thing as a "typical" TMA. Each TMA is individually crafted to respond to special needs of its members and the unique requirements of the area it serves. Some are organized around a single activity center, while others function on a corridor-wide basis. Some TMAs are purely private, receiving no government funding, while others are supported by a mix of private and public funds. Some TMAs focus on policy leadership and advocacy while others assume a more operational role such as facilitation or ridesharing, organization of reverse commute programs, operation of shuttle buses, and helping their members comply with local traffic mitigation requirements. Some "second generation" TMAs have evolved into broad purpose organizations which, in addition to their transportation responsibilities, manage a variety of shared-tenant services

such as daycare and telecommunications.

The initiative to form a TMA may be sparked by a variety of motives. In some cases the catalyst has been a concern among employers and developers that mounting traffic congestion could affect the economic viability of the area in which they do business. In other cases, the need for a TMA has sprung from a local ordinance that imposes travel reduction requirements on employers and new developments. In yet other cases, TMAs have been launched out of a desire on the part of the local business leaders to take a more active part in the planning of the transportation future of the area.

Experience from various jurisdictions suggests that there are several conditions that favor establishment of successful TMAs:

- There must be a sense of a present or impending transportation problems, such as traffic congestion, labor market accessibility or lack of commute alternatives;
- There must be strong corporate leadership that has a stake in preserving the economic and environmental well being of the area and perceives transportation problems as a threat to that well being;
- The business community must perceive a benefit from pooling resources and acting in concert;
- There must be a supportive public policy environment and sympathetic local government officials;
- The TMA must have an energetic and imaginative staff.

7. THE CONSHOHOCKEN AREA TMA: GOALS AND OBJECTIVES

Local Transportation Concerns

Interviews with local officials and developers have revealed a number of transportation-related concerns arising from the planned redevelopment of the Conshohocken/West Conshohocken area. These can be summarized as follows:

- Inadequate access from the regional highway system into Conshohocken/West Conshohocken to handle the anticipated volume of traffic
- Increased traffic congestion within Conshohocken/West Conshohocken
- Increased traffic congestion on approaches to the Conshohocken area

- Highly peaked a.m. and p.m. rush hours
- Lack of an attractive and safe pedestrian circulation system connecting the various elements of the development and providing convenient access to the commuter rail station.
- Inadequate rail transit service to/from Philadelphia
- Labor recruitment/retention problems due to poor reverse commute service
- Lack of on-site services necessitating external midday trips
- Increased through traffic due to new development in the adjoining municipalities
- Danger of spillover commuter parking in residential areas
- Need for better traffic management (lane channelization, on-street parking restrictions, through traffic restrictions, etc.)

Mission and Goals

The purpose of the Conshohocken Area Transportation Management Association is expressed by a Statement of Mission and Goals. The mission represents the strategic direction of the Association and a set of supporting goals and objectives defines the nature and scopes of the Association's activities.

The mission of the Conshohocken Area TMA is to promote mobility in the Conshohocken/West Conshohocken area so as to allow the area to reach its full development potential. In pursuing this mission, the Conshohocken Area TMA intends to pursue the following goals:

- Provide a forum for the Conshohocken Area business community to work cooperatively with public officials on the resolution of local traffic and transportation problems;
- Represent the transportation needs and concerns of the business community before public bodies and in the transportation planning process;
- Build local support for transportation improvements;
- Develop, coordinate and market an areawide demand management program with the aim of reducing the growth of peak hour traffic;

- Facilitate commuting and internal circulation for those who work, shop and do business in the Conshohocken area;

- Monitor transportation conditions and development trends on a continuing basis and alert public officials and the business community to the need for action;

- Share experience and serve as an information clearinghouse for its members on local transportation issues, policies, plans and programs;

- Undertake such other activities and programs as the Association's members may from time to time determine to be in the public interest and in the interest of the Association.

8. ORGANIZATIONAL STRUCTURE AND GOVERNANCE

Membership in the Conshohocken Area TMA shall be open to employers, developers, commercial property owners and managers, merchants and institutions in the Conshohocken and West Conshohocken Boroughs. The Boroughs will also be full voting members. Other public bodies whose involvement may be sought from time to time (e.g., Montgomery County, SEPTA, PennDOT) could be given an associate membership or observer status.

The Conshohocken Area TMA shall be governed by a Board of Directors whose members will be selected from among the Association's membership. An Executive Committee of the Board will conduct the TMA's business. The Executive Committee may appoint special committees.

The Association should eventually have a full time Manager or Executive Director, reporting to the Policy Board. However, in its formative phase, which could extend for up to 12 months, the Associations's activities could be managed on a part time basis by a loan executive or a consultant.

While a TMA may conduct its activities as a fraternal association, most TMAs incorporate as non-profit corporations. Subsequent to incorporation the TMA may seek an IRS tax-exempt status as a 501(c)(3) charitable organization. Many TMAs elect not to do so in order to retain the capacity to earn service fees (charitable non-profits cannot engage in income-generating activities). The only advantage of being a 501(c)(3) organization is that contributions are treated as charitable donations and are tax deductible. However, since membership fees in a TMA are also tax-deductible, as a business expense, the net effect is the same.

9. FUNDING

TMAs rely on various sources of funding. Membership fees are a common source of revenue. However, membership fees are often supplemented by financial assistance from local government (municipality, county) or, in a few cases, from the state level. FTA has also been the source of seed support for several TMAs.

Public support is particularly needed in the early years of a TMA. Like any fledgling enterprise, TMAs need an incubation period before they can stand on their own feet. One reason is that they are often established in newly developing areas, where the initial membership base is low. Another reason is that it takes time for a TMA to prove its worth to everyone. Consequently, participation rates may be modest at first, although they tend to grow rapidly once the TMA has established its credibility within the business community.

It is not uncommon for a new TMA to receive up to 70 percent of its budget from public sources. This support usually decreases with time and, eventually, is withdrawn altogether, so that the TMA becomes self-sustaining.

Membership fees usually bear some relevance to the financial capacity of the TMA members. One common basis for assessment is the number of employees (for employers) and square footage (for developers). Some TMAs use a more complex formula tied to the trip generation characteristics of the individual member's property or facility. A common approach, and one that we would recommend, is to establish three categories of employers - "large," medium" and "small" - and set a progressive scale of fees (e.g., the Bethesda TMA has set the following scale: $250/year for "small"; $1,000 for "medium size" and $3,000 for "large" employers).

10. PROGRAM BUDGET AND FINANCIAL PLAN

The Budget requirements of the Association should be considered in two phases: (1) Start-Up and (2) Regular operation.

Start-Up (1990)

• Incorporation	in-kind contribution
• Office space (furnished and equipped)	$15,000
• Printing & Publications	5,000
• Telephone, Postage, etc	2,000
• Program Development	15,000
• Outreach program	3,000
TOTAL, first year	$40,000

Regular Operation (1991 and subsequent years)
Administrative Budget

• Executive Director (salary + fringes)	$45,000
• Clerical help	8,000
• Office Space (furnished & equipped)	15,000
• Telephone, postage, etc	2,000
• Printing & Publications	5,000
• Membership Services	5,000
TOTAL	$80,000

Operating Budget

• Shuttle Operation (net cost)	$67,000
• Transit/Ridesharing Marketing	15,000
• Other Demand Management Actions	7,000
TOTAL	$89,000

Three-Year Financial Plan

It is proposed that funding for the Conshohocken Area TMA be provided from three sources:

1. Membership Fees
2. Local Government Contributions
3. Assessments for Special Membership Services

Administrative costs are typically funded with membership fees, paid by private sector participants. Assuming full participation, annual TMA fees would amount to about 2.5 cents/square foot at buildout. Initial fees however, would be higher. They would be approximately 8 cents/s.f. in each of the first three years, declining progressively as more development came on line.

The operating budget, it is proposed, should be funded with local government contributions and special benefit assessments. An equitable formula, reflecting the respective benefits accruing to the public and the business community, should be negotiated by borough officials, developers and employers, with potential assistance from the Redevelopment Authority.

IMPLEMENTATION PLAN

The preceding two sections have identified the elements of a Transportation Management Plan and an implementing mechanism in the form of a Transportation

Management Association. This section sets forth a proposed Implementation Plan for the Conshohocken/West Conshohocken transportation initiative.

The Implementation Plan is guided by the following principles:

- Priority attention should be given to street and highway improvements aimed at expanding road capacity.

- To the extent that planned road improvements will not fully accommodate traffic growth and lead to increased levels of congestion, actions aimed at reducing transportation demand will be instituted.

- Demand Management actions will be implemented progressively, as and when traffic conditions require reductions in trip generation.

- Demand Management actions will be implemented in a manner which minimizes their cost of implementation.

1. Establish a Transportation Management Association

The first recommended step is the establishment of a Transportation Management Association. The TMA will provide an institutional framework for public/private cooperation on transportation matters and will represent the interests of the business community, residents and commuters.

The start-up of the TMA should include the following steps:

- Recruit founding directors among the current local officials and business and community leaders.

- Incorporate the Association. This is necessary in order to give the TMA a legal identity and make it eligible to receive public funds. The filing of incorporation papers and the drafting of the Association's by-laws could be performed by one of the TMA's founding members.

- Elect officers; Secure minimum staff support for the association, through in-kind member contributions and short-term "loan executives".

- Build membership outreach. Outreach activities could include an informational brochure outlining the aims and proposed activities of the Association; and briefing for local officials and existing, new and prospective tenants.

Timetable: April through December 1990

2. Launch consultations with local and county officials and with SEPTA. Through participation in the TMA, developers, employers, property managers and other interested parties will have an opportunity to maintain a channel of communication to local and county officials and to SEPTA on transportation-related matters. The TMA would speak on behalf of the Conshohocken Area business community on such transportation issues as improvements in transit service, road repairs, street improvements and traffic management.

An early topic of consultations should be improvements in rail and bus service to Conshohocken. The TMA should request a briefing from SEPTA on planned service improvements and should take that opportunity to present its own suggestions for improved transit service. By representing the totality of employers and commuters, and by assisting SEPTA in marketing transit service (see below) the TMA could exercise more influence and guide SEPTA to make market-responsive decisions.

Short-term objective: Convene a meeting with SEPTA officials to discuss:

- Improved reverse commute rail service to Conshohocken
- Physical enhancement of the Conshohocken train station
- Improved transit access to the Gulph Mills station
- Marketing of transit service by employers (see below)

3. Transit Marketing

The TMA should assume a responsibility for marketing public transit services to employees. This should include establishing a "Transit Information Center" that would provide information on SEPTA's schedules and fares, and serve as a sales and distribution outlet for Transpasses, Trailpasses, and other prepaid fare media. Through the SEPTA "Compass" program, employers can participate in the sale of transit passes whether or not they choose to offer a subsidy to employees who purchase passes.
Timetable: Begin Fall 1990

4. Support a Long Range Highway Improvement Program

The Association should represent the Conshohocken/West Conshohocken area in the cooperative planning process initiated by the Conshohocken Area Traffic Study Task Force. Now that the Task Force report has been issued, a level of cooperation and coordination is necessary to ensure that the Task Force recommendations are followed through. Specifically, the Association should participate through its members in:

- Refining the Task Force recommendations
- Generating local support for the recommended program of highway improvements
- Identifying funding sources

- Prioritizing the improvement program
- Securing right-of-way commitments from developers and land owners for the proposed improvements

Short-term Objective: Convene a meeting with County and PennDOT officials to review the latest status of the road improvements program.

5. Implement an Internal Circulation System

The TMA should undertake a detailed service design for an internal circulation system. The system should comprise a peak hour shuttle to/from the Conshohocken train station and fringe parking lots, and a lunchtime circulator. If ridership analysis supports initiation of such a service, the TMA should take steps to secure financial commitments from the boroughs and TMA membership to underwrite the costs of the shuttle service, initially on a one-year pilot demonstration basis, and should enter into discussions with the Montgomery County Paratransit Association and SEPTA concerning the operation of the shuttle service.
Timetable: Spring 1991

6. Initiate, Coordinate and Market a Demand Management Program

The Association should launch a staged demand management program to ensure that street and intersection capacity does not fall below an acceptable level of service.

Short-term Objective: Initially, the TMA, with the help of local and county resources, should establish a traffic monitoring program. A traffic survey of critical intersections should be conducted semi-annually. According to a recent DVRPC traffic study, three of the eight signalized intersections and four unsignalized intersections currently experience level of service F (i.e., "severe delay") during either the AM or PM peak periods. If subsequent traffic surveys show a clear increase in traffic congestion (i.e., the number of critical intersections experiencing LOS F grows steadily larger), the TMA should phase in a demand management program. The trigger points and the type of response necessary should be determined in light of the ongoing situation. Outlined below is a representative phased demand management program.

- **Flexible Work Hours** - As a first step, the TMA should explore the potential of flexible work hours to reduce the growth of peak hour traffic. A workshop on flexible work hours should be sponsored to provide employers with information about the pros and cons of various forms of flexible work hours (staggered arrival and departure hours, flextime, telecommuting) and to explore their willingness to adopt flexible work hours as a company policy. A community-wide flexible work hours program could have a significant impact on peak hour congestion levels, as has been demonstrated in Pleasanton, California.

- **Ridesharing** - As a second step, the TMA should assume a responsibility for marketing and facilitating employee ridesharing. This could include (a) establishing a ridematching service; (b) publishing a "ridefinders" bulletin; (c) marketing the program to individual employers and assisting them in training inhouse "transportation coordinators"; and (d) conducting an active promotional campaign to encourage employees to consider alternatives to driving alone. Aggressive promotion and facilitation of ridesharing can result in as much as a 5% or greater reduction in the use of single occupant automobiles. A reduction of this size can make a significant difference in peak hour traffic on local streets.

- **Guaranteed Ride Home Program** - Concurrently with ridesharing promotion, the TMA should launch a Guaranteed Ride Home program. Assurance of transportation in the event of a family emergency or in case of overtime work has proven to be an important inducement to ridesharing. Experience indicates that implementation costs of such a program are minimal.

- **Parking Management** - Finally, if the supply of private parking should prove insufficient to accommodate all needs, the TMA could assume responsibility for the management of peripheral parking facilities. The revenue from these fringe parking lots could be dedicated toward the cost of TMA operation.

Timetable: Traffic monitoring to begin in the Spring of 1991, with semi-annual surveys thereafter. Demand management actions to be introduced on an "as needed" basis.

CHAPTER V

TMA OPERATIONS

Marketing

The GVFTMA and PTA TMA were marketed extensively. The TMAs wanted to advertise their existence, attract members, and publicize the need for TDM programs. The primary means of accomplishing these objectives were newsletters, media notices, letterhead, and mailings to their members and Boards of Directors. There is general agreement that these methods are achieving their objectives.

Budgeting

Once the GVFTMA and PTA TMAs were incorporated, they developed operating budgets. Their 1992 budgets differed in that GVFTMA's private sector contributions amounted to 31% of the total revenue, while PTA TMA's private contributions are 21% of total revenue. Private sector plus local government contributions account for 50% of PTA TMA's 1992 revenue, 43% at GVFTMA.

TMA Structure

The GVFTMA and PTA TMA both incorporated in 1990. The TMAs adopted by-laws to guide their operations. Each TMA elected a Board of Directors, officers, and an Executive Committee.

Letters of Understanding were developed in order to obtain the philosophical commitment to the TMAs of major employers, developers, and government officials. These signed letters served as a stepping-stone to financial commitments to the TMA.

Revenue Implementation

The GVFTMA and PTA TMA have obtained revenue from a number of sources. A substantial portion of the money received up to this point has been federal and state government grants. Private sector local government funding has also been raised, as was mentioned above in the budget discussion.

Many facilities and services were donated by the private sector and municipal government to both TMAs. Office space, furniture, meeting facilities, and a computer were provided to both TMAs. A printing company produces GVFTMA's newsletter in lieu of membership dues. At both TMAs legal, accounting and marketing services are provided for free by corporate members or board members.

Both GVFTMA and PTA TMA have developed contracts and fee-for-service arrangements. The GVFTMA 1992 budget includes approximately $229,000 in state contract revenue, municipal contributions, and private sector dues. Both the PTA TMA and GVFTMA developed contracts with a bus passenger shelter company to manage and maintain the shelters. The PTA TMA has $21,000 in revenue from several employers and municipalities in 1992.

Both the GVFTMA and the PTA TMA have entered into contracts with PennDOT for its newly initiated TMA Assistance Program. Each TMA will receive $75,000 in 1992-93 for performing work which will help the state comply with employer trip reduction requirements of the Clean Air Act Amendments of 1990.

TMA Operation during Contract Period

Both the GVFTMA and PTA TMA have hired staff. The GVFTMA hired an Executive Director and Secretary in 1990. The PTA TMA hired an Executive Director in 1991. The Conshohocken program is not staffed, but the developers contracted with a private transit operator to provide shuttle service. It is not staffed because development there has not reached the point where paid staff because development there has not reached the point where paid staff is required; the very small number of developers and employers allow the developers to function as a TMA as part of their everyday activities.

Both staffed TMAs have been involved in a variety of program activities and membership services. The PTA TMA is providing management and maintenance services for six municipalities for the construction of bus passenger shelters. It has provided public and private transit advocacy services for its members. It has also designed a ridesharing program for employers to be implemented when funding becomes available.

The GVFTMA has developed three employer programs for parking management, marketed SEPTA routes, held 67 transit awareness days, developed a marketing packet on employee transit subsidies, developed a ridesharing kit, developed a commuter assistance center, produced 12 newsletters, held two variable work hour workshops, prepared an area-wide transportation needs evaluation, and contracted with a private firm to construct bus passenger shelters.

CHAPTER VI

CONCLUSION

One of the key aspects of the grant was the differences between the three areas. King of Prussia is the largest suburban employment center in the Philadelphia region, with the largest shopping mall complex as well. In addition, a significant percentage of the traffic that passes through is on four limited access expressways headed for other parts of the region.

The Willow Grove TMA area has a lower development density than King of Prussia and does not have a single high density node such as King of Prussia. Its area includes many more municipalities than the King of Prussia TMA and thus requires more inter-jurisdictional cooperation.

The Conshohocken TMA encompasses an extremely small area - two redevelopment areas with only two developers on opposite sides of the Schuylkill River. However, because of the small area, the planned developments will generate a level of trips that can only be handled through intensive travel demand management (TDM).

What has happened in these three areas supports the proposition that different approaches are needed for each area. Willow Grove's approach to TDM will require a high degree of inter-municipal coordination and cooperation, a talent that will not be required in the other two areas to the same degree. Conshohocken's old urban setting requires an intensive TDM approach including shuttles and walking, especially as the developments get built. King of Prussia is justified in its involvement in expressway incident management and intelligent vehicle-highway systems, because of the significant volume of through traffic. The development of these three TMAs supports the reasoning that a unique approach to public-private transportation partnerships is required for each location.

APPENDIX A

GREATER VALLEY FORGE TMA TRANSPORTATION MANAGEMENT PLAN

APPROVED WORK PLAN

	Completion Date
Task 1: Meet with TMA Board and Executive Committee; Revise Work Plan	Feb 21
Task 2: Devise a Transit Marketing Plan	March 15
Task 3: Brief Small Businesses and Civic Associations	March 15
Task 4: Brief Local Officials	April 26
Task 5: Design a Demand Management Program	May 9
Task 6: Submit Interim Final Report	June 1
Task 7: Help Recruit and Train Executive Director	April-June
Task 8: Submit Final Report	July

APPENDIX B

SUGGESTED PRESS RELEASE

GREATER VALLEY FORGE TRANSPORTATION MANAGEMENT ASSOCIATION LAUNCHES TRANSIT AWARENESS DAYS AT AREA WORKSITES

To reach and inform office workers, shoppers and visitors about the availability of public transit, the Greater Valley Forge Transportation Management Association (TMA) is sponsoring a series of "Transit Awareness Days" at corporate facilities, shopping malls and office parks in the Greater Valley Forge area.

"Our aim is to help improve transportation for all who live, work, shop and do business in the Greater Valley Forge area," said Peter Quinn, Executive Director of the Transportation Management Association. "Mobility holds a key to our continued prosperity as a community and as a commercial hub. And transit plays an important role in maintaining that mobility."

The Transit Awareness campaign will be kicked off with an event at the Court at King of Prussia on _____. TMA staff, SEPTA and PennDOT representatives will be onhand to meet with commuters, answer questions about transit services and planned highway improvements, sell assorted fare media such as fare cards, transit passes and bus tokens, and counsel individuals on how they can use the transit system to the best advantage to meet their personal transportation needs. The TMA will sponsor similar events at major corporate facilities and office parks throughout the area on a regular basis in order to reach a maximum number of existing and potential riders. "Our intent is to provide continuing assistance to the area commuters," noted Mr. Quinn. "We want to learn how to make the transportation system more responsive to the commuters' needs, and we welcome ideas on how to improve service so that the investment the business community and SEPTA have made in the expanded bus service really pays off."

The Greater Valley Forge Transportation Management Association is a nonprofit partnership of local business leaders and governments officials committed to improving transportation conditions in the Greater Valley Forge area of Montgomery and Chester counties. The TMA offers a forum for the private sector and local government to work cooperatively on issues related to road improvements, traffic mitigation, transit service and labor accessibility. The Board of Directors reflects a wide variety of interest and includes local and county officials, business leaders and developers.

The Association intends to pursue a wide range of transportation actions. In addition to facilitating commuting, it will coordinate employer-oriented reverse commuting services, sponsor traffic mitigation measures, advocate local highway and transit improvements and provide long term policy leadership.

APPENDIX C

SAMPLING OF TMA BUDGETS AND REVENUE SOURCES

TMA Name	State	Budget	Revenue Source
Bellevue TMA	WA	$ 296,150	Contracts w/ developers, employers, & Metro
Bishop Ranch TMA	CA	308,146	Developer & employer assessments
Centeride	CA	92,500	Grant from State + member companies assessed $30/ee/yr
Dulles Area Trans Asn	VA	306,000	FTA grant + membership fees
El Segundo Employers Asn	CA	171,000	Member companies assessed $2/ee/year & member developers assessed $2/200 sq ft/yr
Golden Triangle Task Force	CA	578,000	County funds 50%, participating cities fund remainder
Greater BWI Trans Cent	MD	169,500	Membership fees
Greater Princeton TMA	NJ	215,000	Member fees range from $500 to $3,000/yr based on company size
Hacienda Business Park	CA	166,250	Members of Owners Assn pay dues
Irvine Spectrum TMA	CA	250,000	Members assessed semi-annually based on % of land ownership or square footage
Mayor's TM Roundtable	NJ	269,000	Federal grant
Morris Co Rides	NJ	400,000	Grants, donations, & in-kind services from county & companies
Rock Spring Park Commuter Service Center	MD	250,000	Developer sponsored
Shady Grove W. TMA	MD		To be funded thru annual membership dues + contributions
Silver Spring TMD	MD	1,700,000	County funded
Towson TMA	MD	44,000	State grant + contributions from local municipalities & businesses
Trans Action Partnership	MD	95,000	Members assessed annual dues: $300 to $3,000 based on no. of employees; developers pay $3,000

Source: Urban Mobility Corporation

APPENDIX D

DELAWARE VALLEY
COMMUTER BENEFIT PLAN

DELAWARE VALLEY COMMUTER BENEFIT PROGRAM
FISCAL YEARS 1991, 1992 AND 1993

Participants	Response to Funding Level	Response to Multi-Year Participation
SEPTA	YES	YES -- 3 YEARS
NJ TRANSIT	YES	YES -- ONGOING
PATCO	YES	YES -- 3 YEARS
AMTRAK	YES	YES -- UNSPECIFIED
PENNDOT	YES	YES -- 3 YEARS
NJDOT	YES	YES -- UNSPECIFIED
DTA*	YES	YES -- 5 YEARS

* Delaware Transportation Authority for DART and DelDOT

DELAWARE VALLEY COMMUTER BENEFIT PROGRAM
SUMMARY OF ANTICIPATED REVENUES FOR FISCAL YEARS 1991, 1992 AND 1993

	FY'91			FY'92			FY'93		
	CASH	NON-CASH	TOTAL*	CASH	NON-CASH	TOTAL	CASH	NON-CASH	TOTAL
SEPTA	70,000	15,000	85,000	77,000	20,000	97,000	85,000	15,000	100,000
NJT	25,000	10,000	35,000	27,500	15,000	42,500	30,000	10,000	40,000
PATCO	25,000	10,000	35,000	27,500	15,000	42,500	30,000	10,000	40,000
AMTRAK	-	5,000	5,000	5,500	10,000	15,500	6,000	10,000	16,000
PENNDOT	20,000	5,000	25,000	20,000	-	20,000	20,000	-	20,000
NJDOT	10,000	2,500	12,500	10,000	-	10,000	10,000	-	10,000
DTA(DART)	11,000	5,000	16,000	16,500*	10,000	26,500	18,500	10,000	28,500
MISC.**	10,000	-	10,000	15,000	-	15,000	20,000	-	20,000
TOTAL$	171,000	52,500	223,500	198,000	70,000	269,000	219,500***	55,000	274,500

* BROADLY BASED ON 1988 RIDERSHIP ESTIMATES

** MISCELLANEOUS SOURCES OF FUNDING INCLUDE: EMPLOYER ASSOCIATION/SERVICE ORGANIZATIONS FOR EMPLOYMENT TRAINING, PRIVATE OPERATORS, GRANTS/PROPOSALS, AND INTERNAL REVENUES

*** THE COMMUTER BENEFIT PROGRAM WILL BE STABILIZED AT THE THIRD YEAR FUNDING LEVEL

DELAWARE VALLEY COMMUTER BENEFIT PROGRAM

SUMMARY OF PROPOSED EXPENDITURES FOR FISCAL YEAR 1991

TOTAL ANTICIPATED BUDGET: $223,500 = $171,000 CASH AND $52,500 NON-CASH SERVICES

1. PROGRAM ADMINISTRATION ■ DVRPC BUDGET: $8,000 CASH

TASKS:

- CONTRACTS
- GRANTS
- WORK PROGRAM & BUDGET CONTROL

2. PROGRAM OPERATIONS ■ DVRPC BUDGET: $45,500 CASH $12,500 NON-CASH NON-RECURRING: $30,000

TASKS:

- EMPLOYER SALES MEETINGS
- CUSTOMER SERVICE TO COMPANIES & EMPLOYEES
- COORDINATION WITH PRIVATE SECTOR ORGANIZATIONS
- PROGRAM TASKS (i.e., PROGRAM EXPANSION)
- POLICY COMMITTEE PROCESS
- INTERFACE WITH FULFILLMENT PROCESSOR
- COORDINATION WITH OPERATORS
- PROGRAM MONITORING
- FACILITIES, EQUIPMENT & OTHER START-UP COSTS
- CONTINGENCY RESERVE

3. PROGRAM FULFILLMENT ■ CONSULT. BUDGET: $25,000 CASH NON-RECURRING: $80,000

TASKS:

- FILLING ORDERS
- BILLING
- FINANCIAL MONITORING
- USAGE REPORTS
- CUSTOMER COMMUNICATIONS
- SELF-INSURANCE FUND
- DOCUMENT DEVELOPMENT

4. MARKETING & ADVERTISING ■ CONSULTANT BUDGET: $92,500 $40,000 NON-CASH NON-RECURRING: $30,000

TASKS:

- MARKET ANALYSIS
- PROMOTIONAL DESIGN: DIRECT MAIL, ADVERTISING POSTERS, BROCHURES, FOLDERS, STATIONERY, ORDER FORMS
- PUBLIC RELATIONS CAMPAIGN
- PROMOTIONAL CAMPAIGN TO IMPLEMENT PROGRAM TARGETED TO EMPLOYERS AND EMPLOYEES
- PRESENTATIONS TO EMPLOYERS AND BUSINESS GROUPS
- PROMOTION TO EMPLOYERS AND ASSOCIATIONS
- MARKETING CONCEPT & DESIGN
- CREATIVE DEVELOPMENT

DISTRIBUTION OF REVENUE BY PROGRAM AREA	CASH	NON-CASH	NON-RECURRING
CONSULTANT: MARKETING, FULFILLMENT, INS.	$117,500	$ 40,000	$110,000
DVRPC: ADMINISTRATION & OPERATIONS	53,500	12,500	30,000
TOTAL:	$171,000	$ 52,500	$140,000

DELAWARE VALLEY TRANSIT CHECK

Project Policy Committee

Program Director: Paul J. Pezzotta, Associate Director Transportation Planning, DVRPC
Manager, Public Relations & Marketing: Rita Dommermuth, DVRPC

John J. Coscia, Executive Director
Delaware Valley Regional Planning Commission

Mr. Robert Schwab, General Manager
Port Authority Transit Corporation
Ms. Marian Darlington

Mr. James A Crawford, Asst. Commissioner
New Jersey Department of Transportation
Ms. Patricia Soeteber, Office of Mobility

Mr. Thomas Gagliano, Executive Director
New Jersey Transit Corporation
Mr. Stan Rosenblum, Strategic Planning

Ms. Joyce Gallagher, Deputy General Manager
NJ TRANSIT Bus Operations
Mr. James Schwarzwalder

Mr. Louis Gambaccini, General Manager
Southeastern PA Transportation Authority
Mr. Carol Lavoritano

Ms. Denise L. Goren, Director
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Mr. Larry Wilson

Ms. Barbara J. Kaplan, Executive Director
Philadelphia City Planning Commission
Mr. Steve Bartlett

Mr. David Lacey, Executive Director
Private Industry Council

Mr. Edwin B. Erickson, Administrator
Environmental Protection Agency, Region III

Mr. Allan Kammerer, Chairman
Transportation Committee
South Jersey Chamber of Commerce

Ms. Cheryl Spicer, Deputy Secretary
Local and Area Transportation
Pennsylvania Department of Transportation

Mr. Robert Taylor, Administrator
Delaware Administration for Regional Transit
Mr. Steve Welch

Mr. W. Graham Claytor, Jr., President
AMTRAK
Ms. Suzi Andiman

Mr. Thomas Widing, Vice President
Transportation Council
Greater Philadelphia Chamber of Commerce

Mr. John McGaw, Associate Director
Central Philadelphia Development Corp. (CPDC)
Mr. Bradford Spear, WHYY

Mr. Dan Logan, Administrator
Commuter Services Administration
Delaware Department of Transportation

Mr. Jan Abrams
Delaware Development Office

Mr. Andrew Warren, Chairman
Bucks County Board of Commissioners

DELAWARE VALLEY COMMUTER BENEFIT PLAN

PROGRAM GOALS & OBJECTIVES

The Delaware Valley Commuter Benefit Plan will bring together key transit proponents in an expanding alliance of interests from public and private sectors serving the strategically vital task of improving mobility in the tri-state area of Delaware, South Jersey and Pennsylvania. Several important relationships will be strengthened considerably through the Commuter Benefit Plan (CBP): (1) Transit with Transit, (2) Transit with Business, (3) Transit with Commuters, (4) Business and Employee, and (5) Transit with Environment.

The marketing, public relations and advertising campaigns that comprise the major activities of the program will address these relationships, all of which come into play in the unique tri-state environment of the Commuter Benefit Plan. The program will, however, focus considerable attention on the providers of the Plan: employers, who play the pivotal role implementing Delaware Valley Transit Check (DVTC) and employer service organizations, who are in an excellent position to advocate the new type of employee benefit, if informed/educated about it. The commuting public comprises the third group to be informed, largely, because they will stimulate employer inquiry. These are the five major goals and their objectives in more detail.

Strengthen the Transit-Transit Alliance.

Objectives

- Capture positive public image for each transit operator through joint marketing of the Delaware Valley Commuter Benefit Plan.

- Promote cooperation among participating transit operators through system integration, efficiency measures and other joint ventures.

- Expand network of transit operators and affiliated organizations to achieve complete tri-state coverage of CBP. Promote statewide usage in Delaware, Pennsylvania and South Jersey.

Cement the Transit-Business Alliance

Objectives

- Offer a unique, low cost employee benefit that benefits transit and business.

- Advance labor market access with innovative funding device.

- Meet the many types of recruitment-related issues for employers in both urban and suburban environments.

COMMUTER BENEFIT PLAN
PROGRAM GOALS & OBJECTIVES 2

Enhance the Transit-Commuter Relationship

Objectives

- Implement the Commuter Benefit Plan to reduce the cost of commuting for employees.
- Create an equitable benefit that offsets free parking and other benefits provided to some employees.
- Facilitate region-wide travel through a seamless tri-state transit system.

Add Dimension to Business Employee Relationship

Objectives

- Offers employers the ability to assist their employees with a more complete range of transportation benefits.
- Provides business with the opportunity to support transit without paying a tax.
- Relieves congestion in suburban areas by promoting employer transit subsidies paid directly to employees.

Support the Transit-Environment Connection

Objectives

- Promote greater use of transit to affect regional modal splits in favor of transit.
- Create opportunity for business to reduce congestion and, its by-product, pollution.
- Establish linkages among organizations advocating cleaner air.

DELAWARE VALLEY COMMUTER BENEFIT PLAN

MARKETING STRATEGY

Target Audience:

Business and workforce in three states -- Pennsylvania, South Jersey and Delaware.

Approximately 100,000 employers, one-half million commuters and over 150 employer/business service organizations (chambers, job training agencies, trade associations, financial and tax consultants, employee benefits industry and transit advocates).

Message:

Employers, employer/business service organizations, and employees will derive specific benefits from participating in, or using the Delaware Valley Commuter Benefit Plan. The advantages to each will be articulated in targeted literature. The Plan will be positioned with other types of employer provided benefits for employees.

Priority Locations:

Urbanized and suburban areas characterized by established transit network. The focus will be major cities in the tri-state area.

Secondary Locations:

Suburban areas, where transit development is occurring. Focus: Small towns, TMA areas and growing activity centers.

Strategy:

A three-year campaign that cements the alliance of public and private program participants to market the Commuter Benefit Plan. The strategy consists of marketing, public relations and advertising campaigns.

A foundation will be built from the outset to enable a thorough market penetration of all target audiences over the course of three years. Activities will be staged over the three programmed years emphasizing awareness of the plan on the part of key employers, employer service organizations and the commuting public. Essentially, this is a top-down and bottom-up approach to enlist all potential audiences that could add to the impact of the campaign. Thus, the campaign's message will also be conveyed through

numerous channels, not just DVRPC, reaching the thousands of employers who cannot be contacted personally, but who comprise the core market of this program.

It is the aim in the first year to position the Commuter Benefit Plan as equally important as the many other employer provided benefits covering health, retirement, investments and child care.

This approach will accomplish a multiplier effect through the many avenues created by extensive public relations to the markets at large and personal briefings to carefully selected groups/key employers who become advocates. Advocacy by "peers" and through "testimonials" will be the most effective form of persuasion on behalf of Commuter Benefits offered through the workplace.

During the second and third years, the program will continue to build coalitions, but emphasize direct contacts with employers through established methods such as direct mail campaigns.

Strategy Implementation:

Key will be to segment employers by size, select all pertinent employer/business service organizations and identify all possible channels of conveying the program message to them so that they are knowledgeable about Commuter Benefits.

Before the campaign can begin, these tasks will take place: (1)* Develop program identity and logo (creative design), (2)* prepare examples of all printed materials to be employed in media and employer/employee contacts, (3)* printing of all materials, and (4)* concept and development of public relations campaign.

COMMUTER BENEFIT PROGRAM
MARKETING STRATEGY 3

During the first year of implementation, program tasks will entail: (1) presentations to key employers, and all employer service organizations mentioned in "Target Audience" above; (2) media activities aimed at establishing thorough awareness of the program in all markets; and (3) advertising done throughout participating transit systems which will reach thousands of employees currently using the system.

These tasks will be accomplished with consultant assistance and through cooperative efforts of DVRPC staff and the transit operators. Consultant services will be obtained for selected tasks, marked "*" above.

Schedule:

RFPs will be prepared and proposals solicited by the end of March. Consultant selection/negotiation will take place in April. Production is anticipated in May and the start of the program in June-July. A public media campaign is slated for late summer/early fall.

DELAWARE VALLEY COMMUTER BENEFIT PLAN

MARKETING AUDIENCES

TARGET AUDIENCES	STRATEGIES
[AUDIENCES EXTERNAL TO PROCESS]	
• Employers 1) 1 - 24 1C 2) 25 - 99 1C 3) 100 - 249 1C 4) 250 - 499 1C 5) 500 - 999 DC 6) 1000 + DC	• Combined: PR, marketing and advertising; targeted to employers by size. Important to this audience is the foundation laid by informing the appropriate employer service organizations (described below), who will be key channels of communication to employers. Strengthen public-private Alliance as visible symbol of Commuter Benefit Plan. IC -- indirect communication through secondary channels DC -- direct communication
• Employer Service Organizations • Chambers of Commerce • Associations • Business Alliances • Private Industry Councils • Job Training and Employment Agencies • Benefits Industry • Tax Consultants	• Combined strategies emphasizing thorough briefings through presentations and materials provided in direct contacts and industry publications. Participation in Alliance.
• Transit Riders/Commuters • Transit Riders • Automobile Commuters	• Primarily PR and advertising through public media channels, but primarily through advertising throughout participating transit systems.
[AUDIENCES INTERNAL TO PROCESS]	
• Transit Agencies 1) Program participants 2) Non-participants 3) State DOTs and Economic Development Departments	• Marketing and advertising through transit industry channels to gain new program participants. For participants, maintain alliance and provide marketing support. Provide services to both, such as user data, surveys and focus groups, and associated services.

COMMUTER BENEFIT PROGRAM
MARKETING AUDIENCES 2

- Environmental Organizations
  - US EPA, State Depts.
  - Energy Depts. and Groups

- Marketing and advertising through environmental channels and participation of key groups in alliance.

DELAWARE VALLEY COMMUTER BENEFIT PLAN

MARKETING PROGRAM COMPONENTS

PROGRAM COMPONENTS	EXPLANATION
• Program Concept and Identity [RFP] 1. Development of message 2. Design/specs of visual materials 3. Program logo and voucher	• Consultant. Create coherent message for each market segment: Types of employers by size and employees. Design relationship evident in all printed materials. Logo and voucher name to appear on all printed materials and voucher.
• Production of Printed Materials [RFP] 1. Art work (camera-ready) 2. Printing	• Consultant. Part of Concept/Identity RFP. May be provided by Operators if schedule & resources allow.
• Public Relations Campaign [RFP] 1. Development and supervision 2. Implementation	• Consultant. Conduct public as well as targeted campaign. Develop awareness utilizing the credibility of alliance, key companies and other participants. Achieve visibility through all means, primarily gratis publicity. Emphasize trade communications, especially in area of benefits. Development and supervision by consultant. Depending on costs, implementation may be handled by either consultant or staff. Consultant contract will be set up on annual or semi-annual basis.
• Marketing Campaign 1. Key employers 2. Business/employer organizations 3. Benefits industry	• Staff with Transit Operators Hold face to face meetings/presentations with key area employers and related organizations. Emphasis on the benefits industry to raise awareness of "new" commuter benefit.
• Advertising Campaign 1. Public media [part of p.r. campaign] 2. Transit Systems	• Consultant and Transit Operators. Prepare samples of public service and paid advertising and recommend most effective media.[P.R.] Conduct coordinated advertising campaign on all transit systems.

DELAWARE VALLEY COMMUTER BENEFIT PLAN

PROGRAM OVERVIEW

FEBRUARY 1990:

- POLICY COMMITTEE MEETS TO APPROVE 3-YEAR BUDGET & EXPENDITURE AND MARKETING PLANS
- MEETINGS WITH OPERATORS ON CHECK & FULFILLMENT
- PREPARE ALL IMPLEMENTATION PLANS
  COMPLETE MARKETING PROGRAM
  PROCUREMENT SPECIFICATIONS & FULFILLMENT SERVICES
- FINALIZE ALL SCHEDULES
- PRESENTATION TO SOUTH JERSEY CHAMBER
- START PROCESS TO OBTAIN CONSULTANT SERVICES FOR VOUCHERS & FULFILLMENT
- COORDINATE WITH POLICY COMMITTEE

MARCH 1990:

- PRESENTATIONS TO DELAWARE CHAMBERS; REVIEW MARKETING & PUBLIC RELATIONS PLANS/REVIEW WITH EXPERTS
- OBTAIN AGREEMENTS ON PARTICIPANT CONTRACTS FOR MARKETING
- DEVELOP MARKETING MESSAGE
- PREPARE RFP FOR MARKETING SERVICES
- DRAFT TRAINING GUIDELINES FOR OPERATORS & BANKS
- COMPILE DISTRIBUTION LISTS FOR ALL RFPs
- RELEASE RFP FOR VOUCHER/FULFILLMENT

APRIL 1990:

- RECEIVE PROPOSALS TO PROCURE TRANSIT CHECKS & FULFILLMENT
- PRODUCE/PRINT LOGO, EMPLOYER/EMPLOYEE INFORMATION MATERIALS & SIGNS
- DESIGN EMPLOYER/EMPLOYEE INFORMATION
- ASSIGN MARKETING RESPONSIBILITIES OF 3-YEAR PLAN
- SET UP PROGRAM OPERATIONS AT DVRPC
- TRAIN OPERATIONS STAFF (CUSTOMER SERVICE)
- DEVELOP SIGNAGE FOR REDEMPTION LOCATIONS

MAY 1990:

- POLICY COMMITTEE MEETS
- SELECT VENDOR FOR FULFILLMENT SERVICES
- SET UP ALL OPERATIONAL & FULFILLMENT SYSTEMS
- CONDUCT TRAINING OF ALL PARTICIPANTS
- PREPARE DRAFT COSTUMER SERVICE POLICIES
- PREPARE & HOLD PRESS CONFERENCE

JUNE 1990:

- CONDUCT BUSINESS OUTREACH FOR INITIAL ENROLLMENT
- RECEIVE PRINTED TRANSIT CHECKS
- BEGIN PRESENTATIONS TO EMPLOYER SERVICE GROUPS
- BEGIN BILLING ORDERS

APPENDIX E

SAMPLING OF TMA BUDGETS AND REVENUE SOURCES

TMA Name	State	Budget	Revenue Source
Bellevue TMA	WA	$ 296,150	Contracts w/ developers, employers, & Metro
Bishop Ranch TMA	CA	308,146	Developer & employer assessments
Centeride	CA	92,500	Grant from State + member companies assessed $30/ee/yr
Dulles Area Trans Asn	VA	306,000	FTA grant + membership fees
El Segundo Employers Asn	CA	171,000	Member companies assessed $2/ee/year & member developers assessed $2/200 sq ft/yr
Golden Triangle Task Force	CA	578,000	County funds 50%, participating cities fund remainder
Greater BWI Trans Cent	MD	169,500	Membership fees
Greater Princeton TMA	NJ	215,000	Member fees range from $500 to $3,000/yr based on company size
Hacienda Business Park	CA	166,250	Members of Owners Assn pay dues
Irvine Spectrum TMA	CA	250,000	Members assessed semi-annually based on % of land ownership or square footage
Mayor's TM Roundtable	NJ	269,000	Federal grant
Morris Co Rides	NJ	400,000	Grants, donations, & in-kind services from county & companies
Rock Spring Park Commuter Service Center	MD	250,000	Developer sponsored
Shady Grove W. TMA	MD		To be funded thru annual membership dues + contributions
Silver Spring TMD	MD	1,700,000	County funded
Towson TMA	MD	44,000	State grant + contributions from local municipalities & businesses
Trans Action Partnership	MD	95,000	Members assessed annual dues: $300 to $3,000 based on no. of employees; developers pay $3,000

Source: Urban Mobility Corporation

APPENDIX F

DRAFT INCORPORATION CHARTER

Articles of Incorporation
of
The Conshohocken Area
Transportation Management Association

The undersigned, acting as incorporators of a corporation, do hereby form a non-profit, non-stock corporation under and by virtue of the general laws of the Commonwealth of Pennsylvania and hereby make, execute and adopt the following Articles of Incorporation.

FIRST: The name of the Corporation is THE CONSHOHOCKEN AREA TRANSPORTATION MANAGEMENT ASSOCIATION, INC.

SECOND: The period of its duration is perpetual

THIRD:

(a) The Corporation is organized and shall be operated exclusively as a charitable, educational organization which is exempt from federal income taxation under Section 501(a) of the Internal Revenue Code of 1986. The purposes and objectives of the Corporation are:

(i) To provide a forum for interested members of the private sector, including private developers, commercial property owners, employers and merchants, and for concerned local and county public officials to address cooperatively common transportation concerns and to work jointly on minimizing the growth of peak hour traffic congestion and improving access to and circulation within the Conshohocken/West Conshohocken area.

(ii) To coordinate the efforts of the business community to address common transportation concerns.

(iii) To undertake such other activities and programs as the Corporation's directors may from time to time determine to be in the public interest and in the interest of the Corporation.

(iv) To buy, contract for, lease, acquire, take, hold and own real, personal and mixed property of all kinds and descriptions and to sell,

mortgage, lease, improve and otherwise dispose of such real, personal and mixed property.

(v) To exercise generally all the powers conferred upon non-profit corporations formed under the general laws the Commonwealth of Pennsylvania in order to accomplish the above objectives. The foregoing enumeration of specific purposes shall not, except as specifically restricted herein, be construed to limit or restrict the purposes and powers of the Corporation, which may exercise all powers and perform all activities as are permissible to non-profit corporations formed under the general laws of the Commonwealth of Pennsylvania, but only to the extent that the exercise of such purposes and powers are in furtherance of the Corporation's exempt purposes.

(b) No part of the net earnings of the Corporation shall inure to the benefit of, or be distributable to, its directors, officers, members or other private persons, except that the Corporation shall be empowered to pay reasonable compensation for services rendered and to make payments and distributions in furtherance of the exempt purposes of the Corporation. No substantial part of the activities of the Corporation shall be the carrying on of propaganda, or otherwise attempting to influence legislation. The Corporation shall not carry on any activities not permitted to be carried on: (A) by an organization exempt from federal income taxation under Section (501)(A) of the Internal Revenue Code of 1986, as an organization described in Section 501(c)(3) of such Code; (B) by an organization described in Section (509)(a)(1), (2) and (3) of the Internal Revenue Code of 1986, and (C) by an organization contributions to which are deductible under Sections 170(c)(2), 295(a)(2) or 2522(a)(2) of the Internal Revenue Code of 1986.

FOURTH: The Corporation shall have such members as provided in the Bylaws of the Corporation.

FIFTH: The qualifications and rights of the Corporation's members shall be set forth in the Bylaws of the Corporation. The Corporation is not organized for profit, and it shall have no capital stock and shall not be authorized to issue capital stock.

SIXTH: The Directors of the Corporation shall be elected or appointed as provided in the Bylaws of the Corporation. The number of Directors shall be set forth in the Bylaws, but shall never be less than three (3).

SEVENTH: Provisions for the regulation of the internal affairs of the Corporation, except as provided in these Articles, shall be determined and fixed by the Bylaws as adopted by the Board of Directors.

EIGHTH: The address of the Corporation's principal office in the Commonwealth of Pennsylvania and its initial registered office is _____, and the name of its initial resident agent at such address is _____ _____, who is an individual citizen of the Commonwealth of Pennsylvania and who resides in the Commonwealth of Pennsylvania.

NINTH: The names and addresses of the persons who are to serve as the initial Directors of the Corporation until the first meeting called for the purpose of electing Directors, are:

TENTH: The name and address of the incorporator is:

IN WITNESS WHEREOF, etc.