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FINAL REPORT

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16. Abstract This study conducted a state survey to assess the feasibility of expanded vanpool operations in Pennsylvania and financing models available. An overview of current commuting patterns and vanpool operations in Pennsylvania is presented and an employer-based survey of attitudes toward vanpool programs was conducted among five firm-based organizations in South Central Pennsylvania in 2010. In addition, a cost-benefit analysis of vanpool programs and options for financing increased statewide vanpool programs was studied.		
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University of Pittsburgh
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Impacts of Vanpooling in Pennsylvania and Southwestern Pennsylvania and Future Opportunities

Task 13 – Final Report

December 30, 2010

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Executive Summary

This report presents the findings of the project *Impacts of Vanpooling in Pennsylvania and Future Opportunities*. Vanpools are ride-sharing arrangements among participants, using a van or other small commercial vehicle, typically for commuting to their places of employment. A vanpool carries a group of people – generally between 7 and 15 passengers – from a common origin to a common destination, most often an employer, workplace, or downtown location. Vanpools are organized and run under several different models, and vanpool programs themselves are operated by different agencies, employers, or partnerships of interested parties.

Support for vanpooling as a mode of commuting has varied greatly since the mid-1960s and developed when vanpooling programs in North America generally began. In the U.S. in the 1970s, under the oil embargo and resulting increased gasoline prices, vanpooling expanded quickly, based on rising fuel costs creating incentives for increased ridesharing. By the early 1980s, there were more than 20,000 commuter vanpools in the U.S.

Declining gasoline prices left vanpooling stagnant across the country until the mid-1990s. Vanpooling use increased in the late 1990s and through the 2000s, driven by increased congestion in many markets, coupled with new financial incentives, including the federal Commuter Choice Program, aimed at increasing transit use and ridesharing arrangements.

Over the last two decades, several federal government programs re-introduced incentives available for vanpooling through a number of transit programs, including the Intermodal Surface Transportation Efficiency Act (ISTEA; 1991), Job Access Reverse Commuter (JARC; 1998), Transportation Equity Act for the 21st Century (TEA-21; 1998); the Congestion Mitigation and Air Quality Improvement Program (CMAQ; authorized under ISTEA and reauthorized 2005), and Commuter Choice, the benefits that employers can offer employees under IRS rules, other than driving alone.

Over the last decade, renewed volatility in energy prices coupled with increased congestion in many commuter sheds across the country created new incentives for state-level policies focused on vanpool programs. The result is that several states have introduced additional incentives for vanpooling, including Washington, which implemented a highly successful Vanpool Investment Program.

Across Pennsylvania today, vanpooling remains only a limited option for most commuters. Census data indicates that at most 8,000 residents commute to work via private vehicles in groups of 8 or more riders. As of 2008, just over three quarters (76.2 percent) of Pennsylvania

commuters are estimated drive to work alone, virtually identical to the U.S. average of 75.5 percent. Pennsylvanians are slightly more likely to walk to work (4.0 percent of Pennsylvania commuters) than the average American (2.8 percent), while less likely to work at home (3.4 percent in Pennsylvania) than the U.S. average (4.1 percent).

While an estimated 575,527 Pennsylvania workers commuted to work as part of a carpool in 2008, representing 9.7 percent of working Pennsylvanians, the majority of those workers (81.5% of all PA carpoolers) commuted in groups of two persons per vehicle, while approximately 48,404 Pennsylvania carpoolers commuted with four or more persons per vehicle, representing 8.4 percent of Pennsylvania carpoolers in 2008.

Our work found that the mode of commuting is not homogeneous across workers in different industries or occupations. Leaving aside special commuting patterns common among construction and agricultural occupations, we find sets of occupations and industries with more prevalent commuting by carpool than others, including production and maintenance, food, transportation and healthcare workers, and workers in administrative and management positions.

One major focus of this study was to develop market potentials for increased vanpool demand across the state. The current utilization of vanpools within the state is limited. The potential for increased demand of vanpool services as a mode of commuting is most likely in areas with a concentration of employment with large employers, often with a single firm or small group of establishments co-located at a single location. Given the concentration of carpool usage in specific industries, the type of industry is itself a major factor impacting commuting patterns of workers. This sort of arrangement lends itself to developing vanpools in rural commuter sheds or exurban and suburban regions with limited transit provision.

Overall, the factors affecting vanpooling decisions align along a number of dimensions, including:

1. Geographic conditions. Geographic conditions are critical in the potential of establishing vanpool operations, as well as affecting individual decisions to join a vanpool. Key among them:

- Long distance commuting - 20 to 100 miles roundtrip
- Priorities and incentives set by government agencies
- Agglomeration or concentrations of employers in common locations
- Increased congestion
- Regional ridesharing

2. Economic conditions. An interrelated set of economic conditions influences the vanpool decision process, in addition to the obvious cost of fuel:

- Housing markets – rising housing markets expands residence location, lengthening commute distances
- Fuel prices - greater vanpool demand related to rising prices
- Retail growth – rapid growth and job increase positively related to employer-subsidized vanpools in some places
- Positive correlation between ridesharing and firm size

3. Social/demographic characteristics. Surveys of vanpool riders and potential riders, including survey work by PennDOT, reached similar conclusions on prospective vanpool riders:

- Income groups and ranges - results from a recent PennDOT web survey found "drivers with incomes $25,000-$75,000 are slightly more likely to consider car/vanpools" (Neiman Group, 2008); this finding corroborates results from other areas on income ranges and vanpooling.
- White collar workers more common to mid-levels. Certain professional employment found to be negatively associated.

Based on our analysis of the current patterns of carpool and vanpool utilization in Pennsylvania, along with extensive interviews of current vanpool stakeholders including an advisory board, one conclusion became clear: the key factor for expanding vanpool operations came down to support for vanpool by specific employers or firms. In order to further understand the factors impacting vanpool formation, a survey focused on employers' views toward vanpooling was developed. Previous research has shown that vanpool success is enhanced with strong employer involvement. Vanpool programs have often been developed by employers, and existing public funds for vanpooling offer financial incentives for employers to engage in vanpooling programs for their employees. Different types of vanpooling programs offer sets of incentives for employers. Therefore, the central focus of this survey was to determine the level of engagement and potential engagement of employers in vanpooling efforts.

The employer survey was developed for the South Central Region of Pennsylvania. This area shows a variety of commuting patterns across a number of counties and transit authorities, as depicted above from Census commuting data, and extends beyond the boundaries of PennDOT District 8. The data also show limited public transit usage, compared to the larger urban centers in the state, and a relatively higher incidence of carpooling. With a large number of commuters, including long distance commuters, and transit largely limited to local bus service, South Central Pennsylvania represents a smaller market where many commuters can benefit from alternatives to long distance driving available with vanpooling.

The survey was delivered to employers in the South Central region of Pennsylvania with the assistance of Commuter Services of Pennsylvania and the Susquehanna Regional Transportation Partnership. A total of 437 employer surveys were returned. The results of this employer-based survey can be summarized with these key results:

- Size matters: Regardless of the form of the question, the larger the firm, the greater the support for vanpooling. Larger firms were also more closely linked to support for additional incentives developed by the state for vanpooling and ride sharing services provided by Commuter Services of Pennsylvania.

- The larger-sized firms in the region with more positive views towards vanpooling were in the following industries: manufacturing, educational services, and health care and social assistance.

- As expected, current commuting among survey respondents puts driving alone at the top. Indeed 80 percent of firms in the survey reported that 90 percent of their workers drove alone to work. Nonetheless, once again, when broken down by size of establishment, driving alone is much more common among workers at smaller establishments than larger ones. Public transit use is highest for workers at larger-sized employers. And workers at larger-sized employers are also more likely to travel longer distances to work.

- Telecommuting and adequate parking for employees are inversely related to interest in vanpooling. Firms with greater concern about parking costs will be more likely to engage in vanpooling efforts than those whose costs are not as much a concern.

- Convenience and access to public transit were not significant and thus are not strongly related to a firm's support for vanpooling. This fits the general lack of a variety of public transit in much of the South Central Pennsylvania region. Public transit serves limited urban destinations tied to population density and existing use and is unlikely to cover the dispersed geographic locations of many large South Central Pennsylvania employers.

- Commuter Choice is not used extensively in the South Central Pennsylvania region. Not only were most firms not using Commuter Choice, a greater number were not familiar with it. Only 4 percent of survey firms participated in Commuter Choice. Thirty eight percent of firms in the survey were not familiar with Commuter Choice. The tax benefits available through Commuter Choice could be more widely promoted in Pennsylvania.

- Qualitative analysis revealed that there seems to be a general lack of knowledge of what vanpooling can provide firms. Low levels of public knowledge of vanpooling in general

and the Commuter Choice Program in particular need to be overcome in order for any incentive program aimed at vanpooling to be effective.

The results of this survey were also used to develop a set of predictive models of potential support for expanded vanpool operations among employers in Pennsylvania, and these were then tested. The employer survey included a question where the respondent could indicate if they were willing to support vanpooling in their firm**.** A consistent finding of these models was that the most significant factors predicting an employer's interest in vanpooling included size of firm, which was significant and positively related to support. Firms also reported that greater availability of transportation for commuters was a positive factor in employee recruitment.

Options to finance the expansion of vanpooling in Pennsylvania through statewide vanpool programs were a focus of this report. How much funding would be necessary to implement a successful vanpool program was explored. Looking at examples already in place, there were demonstrable examples elsewhere that could be used as models in Pennsylvania.

Statewide vanpool programs have shown success at expanding vanpool usage in other places. The State of Washington provides a model statewide vanpool program that can be used to expand vanpool operations statewide in Pennsylvania. The Washington State Vanpool Investment Program (VIP) was initiated in 2003 and has received on average $3.56 million annually since its inception. The results show that since 2003 Washington State has seen a 41 percent increase in vanpool ridership. Washington State has also tied reducing driving and expanding ridesharing to reducing congestion and improving air quality. Unlike other states, Pennsylvania does not link its greening initiatives to programs aimed at reducing congestion, an area of opportunity for the state.

Pennsylvania can potentially expand its Federal §5307 funding available via greater reporting of existing vanpool operations. Only certain vanpool operations in the state are currently reporting into the National Transit Database (NTD), which is then used as a source of allocation of §5307 funding. In addition to potentially missing additional funding streams, as other states continue to expand their reporting of vanpool operations, Pennsylvania risks lower allocations in funding in the future.

Current changes being proposed in the §5307 program and vanpool reporting into the National Transit Database will increase options for incorporating existing and new vanpool operations into NTD reporting. The potential for greater public/private partnerships in supporting new vanpool operations exist as rules governing the reporting of private vanpool operators are expanded. New §5307 revenues along with existing federal funding sources could potentially generate revenues comparable to the level Washington State's successful VIP program has received. Several existing public-private partnerships in place could be areas to explore for these types of initiatives.

Preface

This report presents the findings and results of Tasks 1, 2, 3, 4, and 5 of the project, *Impacts of Vanpooling in Pennsylvania and Future Opportunities.*

This project was performed by the University of Pittsburgh under the PennDOT/University of Pittsburgh Intergovernmental Agreement Contract No. 510601, awarded by the Pennsylvania Department of Transportation.

Task 1 involved summarizing the literature and findings on vanpooling from across the U.S. It investigated current vanpool operations in Southwestern Pennsylvania and other parts of the state. It analyzed different models of vanpooling in place in different locales and summarized the market for vanpools versus other forms of commuting. The information from Task 1 served as a baseline for survey and model development in subsequent tasks. A draft was submitted in September 2009 and the revised Task 1 report was delivered on November 2, 2009. Task 1 is primarily contained in Sections 1-3.

Task 2 covered local stakeholders' analysis and input. Local stakeholders of Pittsburgh-area transit and transportation experts and coordinators were an advisory group for the project. They contributed to the project through interviews, responding to questions, and reviewing materials. The stakeholders' comments were instrumental in shaping the survey instrument and other models developed for the project. The draft report was submitted in November 2009 and the revised Task 2 report was delivered on January 5, 2010. Much of this information is covered in Sections 2–3.

Task 3 involved a cost-benefit analysis of vanpool operations. The development of this model was delayed significantly because of the period involved in setting up the contacts for the employer survey in Task 4. Because of the survey delay, a draft of Task 3 was not completed as a separate document and is contained in Section 5.

Task 4 conducted a state survey to assess the feasibility of expanded vanpool operations. In discussions with PennDOT staff throughout the first six months of the project, the project team altered the composition of the survey to focus on employers who had not been covered in previous survey work. The University of Pittsburgh team met with PennDOT on February 2, 2010, and the team reviewed the draft of the employer survey, part of the deliverable of Task 4. PennDOT requested and UCSUR staff agreed that the survey would go to members of the Susquehanna Regional Transportation Partnership (SRTP), a nonprofit organization working with employers to reduce congestion in South Central Pennsylvania and funded in part by PennDOT. The SRTP board included metropolitan and rural planning organizations, chambers

of commerce, and transit authorities. When the decision was made to switch the survey to central Pennsylvania through SRTP, it extended the schedule. Further extensions occurred when the SRTP board did not meet until late spring to make their decision to participate. This resulted in several months delay until June 2010. Given modest survey returns over the summer months, PennDOT agreed to continue the survey through August and September to receive an acceptable number of surveys from the Chamber of Commerce members of the SRTP. Based upon the revised plan on where and how to perform the survey, the schedule was revised accordingly. Results are in Section 4.

Task 5 covered the development of an effective financing model and operations model for vanpooling. This task required information contained in the survey results and is presented in Section 6.

The authors acknowledge the guidance and information provided by the PennDOT, local stakeholders, and various project leaders engaged over the course of this project.

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1. Objectives of the Report

The objectives of this report are to analyze the current conditions for vanpooling in Pennsylvania, review current vanpool projects in Southwestern Pennsylvania and other regions of the Commonwealth, and develop models for understanding the costs and benefits of vanpooling. The project reviewed developments in vanpooling in recent years and incentives for commuters and employers to adopt vanpooling, with a focus on the tax incentive Commuter Choice Program, along with other cost-saving measures. Other incentives to improve air quality and reduce congestion are incorporated.

The project also has a focus on South Central Pennsylvania, an area of interest to PennDOT. South Central Pennsylvania has experienced recent population and employment growth and covers expanding areas of inter-county and inter-state commuting. Most public transit options in the region are limited to intra-city bus routes. Many commuters in the region travel longer distances to their place of employment with no commuting alternatives other than driving alone or small carpools.

Vanpooling represents a transit option to provide greater commuting options to longer distance, inter-county workers. To assess the possibilities for greater participation in vanpooling in the region, the study conducted a survey of employers in South Central Pennsylvania.

A vanpool is a group of typically 7–15 passengers who share their ride to work in a common vehicle. Vanpools are driven by a volunteer who is responsible for driving and fueling the van. Vanpooling offers a low cost transportation alternative for many commuters. People save on personal automobile expenses, share a ride with others, and gain time from not driving or sitting in congestion. Areas benefit from a reduction in commuting vehicles on regional highways, reduced congestion, and improved air quality through a reduction in air contaminants. Employers can benefit from a reduced demand for parking or not expanding parking slots. Employers also have a tax incentive available through the Commuter Choice Program, with vanpool, transit, and bike commuting incentives established by the federal government.

Pennsylvania's interest in vanpooling options rose during the period of escalating oil prices in the past decade. The federal government's transit incentive program, Commuter Choice, was also a factor in determining if there were broader prospects for vanpooling operations in the Commonwealth.

The objectives of the report are summarized as follows:

For Task 1, we summarized the literature on vanpooling and the markets for vanpooling. Included was existing literature plus information collected from the local advisory committee to summarize the current prospects for vanpooling and driving features.

For Task 2, we collected input from our local stakeholders, a group of people involved in transit and transportation planning across the Southwest Pennsylvania region. This included the regional Metropolitan Planning Organization, which operates the region's vanpooling program, transportation managers in large organizations, private firms with vanpool operations, and other interested stakeholders.

For Task 3, we determined the costs and benefits of a vanpooling model through information from the employer survey and other sources under different scenarios. These included differences in pricing, as well as different financial incentives.

In Task 4, we conducted a survey of employers in South Central Pennsylvania. In discussions with PennDOT, it was determined that the originally proposed state-wide survey of residents would be of limited benefit and a regionally targeted survey of employers would produce more significant results. There have been many surveys of vanpoolers and potential vanpoolers and the results cluster together on what is known about potential vanpoolers. In many parts of the state, vanpool prospects would be limited or not a viable option. It was determined that an employer-focused survey in the South Central region of the state would be more beneficial. In the literature on vanpooling, employer surveys are much less common. The impacts of the current increase in Commuter Choice payments would be better understood from employer viewpoints, along with the understanding of transit options for employees. PennDOT was also interested in this region of the state, which has a large commuting workforce across counties (and states). Unlike the Southwestern and Southeastern corners of the state, this heavily populated region does not have the same transit options and transit developments. Therefore, both researchers and PennDOT agreed to refocus the survey on employers in the South Central Pennsylvania region.

In Task 5, options for increasing funding through greater reporting of vanpool programs into the National Transit Database (NTD) were developed. A financing and operations model for vanpooling was developed, bringing in a number of related factors, including funding opportunities with U.S. Department of Transportation programs, such as Job Access Reverse Commute (JARC) and Congestion Mitigation and Air Quality Improvement (CMAQ) and possible underused federal funding sources. This is analyzed in the final chapters of this report.

2. Overview of Vanpooling

Vanpools are ride-sharing arrangements among participants, using a van or other small commercial vehicle, typically for commuting to their places of employment. A vanpool carries a group of people – generally between 7 and 15 passengers – from a common origin to a common destination, most often an employer, workplace, or downtown location. Vanpools are organized and run under several different models, and vanpool programs themselves are operated by different agencies, employers, or partnerships of interested parties.

There are many important factors in determining the market for vanpool uses and its comparison to other forms of commuter transportation. The project reviewed the literature on vanpooling across the U.S. and summarized current programs in Pennsylvania.

Overview of vanpooling in the U.S.

Vanpooling began in North America in the mid-1960s and developed in the U.S. in the 1970s, under the oil embargo and resulting increases in gasoline prices (see Table 1). The Minnesota Mining and Manufacturing Company is generally credited with setting up the first company vanpool program in 1973. With rising energy costs, vanpooling expanded quickly in the U.S. in the 1970s. By the early 1980s, there were more than 20,000 commuter vanpools in the U.S.

Declining gasoline prices left vanpooling stagnant across the country until the mid-1990s. The federal government re-introduced incentives for transit through a number of programs, including the Intermodal Surface Transportation Efficiency Act (ISTEA; 1991), Job Access Reverse Commuter (JARC; 1998), Transportation Equity Act for the 21st Century (TEA-21; 1998), Congestion Mitigation and Air Quality Improvement Program (CMAQ; authorized under ISTEA and reauthorized 2005), and Commuter Choice, the benefits that employers can offer employees under IRS rules, other than driving alone. Not only were rising energy prices creating new incentives for vanpool operations, increased congestion in many commuter sheds across the country created additional incentives. Several states have introduced additional incentives for vanpooling, including Washington State, which is used as a model in the financing section of the report.

Table 1. Overview of vanpooling, 1960s – 2000s

Mid-1960s	Vanpooling in North America begins in Sarnia, Ontario's "chemical valley"
1973	Vanpooling in the U.S. begins with 3M's (Minnesota) vanpool program to reduce the demand for parking
1977	VPSI established and headquartered in Troy, Michigan
1970s	Energy crisis boosts growth of vanpooling; most employer-sponsored vanpooling formed in response to oil embargo
1979	First vanpool program in the U.S. begins in Seattle; it is now operated by King County Metro, largest publicly–owned vanpool program in N.A. with 690 vanpools
Mid-1980s	Vanpooling declines due to decreasing gasoline prices and improved economic conditions
Mid-1990s	Vanpooling expands, with corporate downsizing, dispersed workplaces, and calls for alternative transportation
2000s	Incentives for vanpools under Commuter Choice, coupled with gasoline price increases, expands vanpooling once again

Source: Victoria Transportation Policy Institute and British Columbia Transit. Vanpooling Unplugged: A New Direction for the future" and "Provincial Vanpool Program."

Vanpool operations

As a form of ridesharing, vanpools are a cost-effective transportation mode for many commuters and the operation of vanpools falls under a number of different models[1]:

1) ***Owner–operators***: Vanpool owner-operators are generally individuals who buy or lease their vanpool vehicle. In the 1980s, there were as many as 600 vanpool owner-operators across the country, but by 2000 that figure had dropped to 200-300 (Winters & Cleland, 2000). This is generally a less common form of vanpools today, with the form more common in the Washington, DC and San Francisco Bay area markets.

2) ***Employer-sponsored vanpools***: These are companies who buy and/or lease vanpool vehicles for use by their employees. Once again, the numbers of employer owned or leased vanpools have dropped significantly, though, in the 1970s, there were as many as 20,000 employer vanpools in the nation (Winters & Cleland, 2000). Reasons include declining ridership, increased costs to employers, and lack of recapitalization of existing stock.

[1] See Table 2 for more details.

3) ***Private operators***: These are private firms operating and leasing vanpools and vanpool operations. They can be for-profit or not-for-profit entities. Companies include: VPSI, headquartered in Troy, Michigan; Enterprise Vanpool, a division of Enterprise Rent-A-Car, concentrated in Southern California; the Rideshare Company in the northeast; Easy Street, formed out of the Rideshare Company and operating largely in Connecticut; and HT Drummond Transportation of Boston. Many other organizations, including metropolitan planning Organizations, transit nonprofits, and transit agencies, contract with private operators for their vanpooling operations.

For this study, VPSI is the most prominent. VPSI was founded in 1977 and is headquartered in Troy, Michigan. It operates over 5,000 vanpool programs in more than 40 cities nationwide and has become the largest private company for vanpool services in the world. VPSI has extensive operations in Pennsylvania, discussed below.

Private operators typically engage in a range of services, including acquisition of the vehicles, vehicle maintenance, invoicing the van group, data collection, and conducting driver checks. Under law of the Pennsylvania Utilities Commission, these providers cannot engage in direct marketing or advertising, so the provision of vanpooling services is distinct from marketing efforts.

4) ***Public transit***: Many public transit systems operate vanpooling programs as part of their services and fleets. The form differs across agencies. Some transit agencies, like the Puget Sound region around Seattle and PACE in Chicago, build their own vanpool operations, while some work with a private operator, as in Orlando, Tampa Bay, and Phoenix (Winters & Cleland, 2000). The Centre County Area Transportation Authority (CATA) in State College, Pennsylvania is an example of a public transit-run vanpooling program in Pennsylvania.

Table 2. Types of vanpools

	Third party, private operators	Employer-sponsored vanpools	Owner-operators	Commuter associations**	Public transit**
Definition	Provides services to commuters, companies, government, others	Companies buy or lease vans for use by their employees	Van supplied by one member	Van is jointly owned or leased by members of the vanpool as a cooperative venture	Transit systems operate program or partner with a private operator
Services	Promotion, ridesharing, van acquisition, insurance, maintenance, emergency back-up	Employers buy/lease the vans, insure and maintain the vans, and administer the program	Individual buys/leases a van for vanpooling	Association owned/leased by members of the vanpool	Mainly on public transit service
Fees	Riders pay to recover vehicle, maintenance, fuel, insurance and administration costs	Volunteer driver rides for free, other riders pay a monthly fee	Riders charged for commuting costs; maintenance, insurance costs paid by owners	Employees join and pay membership fees	Same as third party vanpools - employers may help employees pay part of their cost
Size	Most common type of vanpool	Reduced from 20,000 in 1970s to 2,500 in 2000	Concentrated in D.C. and S.F. Bay area	The number is unknown	The number is unknown
Examples	VPSI, Van Pool of New Jersey, Drummond Transportation, EasyStreet, Enterprise Vanpool	Air Canada, Northern Telecom, Mutual Life of Canada, Westinghouse Canada in Ontario, 3M	Virginia Vanpool Association	Association for Commuter Transportation	PACE in Chicago, Centre County Area Transportation Authority in State College, PA
Advantages	Run by contract, flexible	Flexible; employers bear costs	Affordable insurance, adequate coverage, supported by subsidies	Maintain a considerable size and easy to manage	May subsidize part with funding stream; can recover operating costs
Disadvantages	The operation cost for third-party organization could be high	High cost; many employers moved away from this	Reduced with insurance costs in 1980s	Limit to public	Most of public transit services are bus services.

Source:
1. Winters, P. L., and F. A. Cleland (2000).
2. BC Transit (2001).
3. Environmental Protection Agency (2001)
4. Arizona Department of Transportation (2008)

While vanpool operations exist across the U.S., the geography of vanpooling reflects both its history and implementation. Washington State provides the most extensive vanpooling services in the nation; 5 of the 15 largest vanpool agencies in the country are located there (see Table 3). Washington State passed a Commute Trip Reduction Law (CTR) in 1991 and incorporated it into the state's Clean Air Act. Through its CTR, Washington State has been committed to reducing congestion, improving air quality, and reducing gasoline consumption. The Washington State Vanpool Investment Program is the largest in the nation; since 2003 over $12 million has been dedicated to vanpool programs in 20 transit agencies. Washington State's commitment to vanpooling has reduced congestion and improved air quality for regions in the state.

The American Transportation Association (2010) reported that 83 agencies in the National Transit Database operated vanpools in 2008, covering 178 million vehicle miles. While these figures do not include privately-operated vanpool operations, it provides information on the extent and concentration of vanpool operations in public entities (see Table 3).

In Pennsylvania, vanpooling operations are currently on the rise with new state incentives, but vanpooling was not pursued vigorously in the past. The Southwestern Pennsylvania Commission (SPC) - the Metropolitan Planning Organization (MPO) for the greater Pittsburgh region - is the largest agency with vanpool operations in Pennsylvania and is currently ranked 34th in the nation for passenger trips, down from 30th largest in 2007. SPC's vanpooling program ranked 37th in the nation with 5.6 million vanpool passenger miles.[2]

[2] It is important to note that these data represent vanpool operations as reported to the National Transit Database (NTD). These are not necessarily all the vanpool operations currently operating. Some vanpool providers do not report to the NTD, including private and voluntary operations. This is discussed in more detail as it pertains to Pennsylvania in Section 6.

Table 3. Twenty Largest Vanpool Agencies Ranked by Unlinked Passenger Trips and Passenger Miles, 2008 (thousands)

Transit Agency	Urbanized Area (First City and State Names Only)	Unlinked Passenger Trips Thousands	Rank	Passenger Miles Thousands	Rank
King County Department of Transp. (King County Metro)	Seattle, WA	3,138.8	1	61,857.6	4
Metropolitan Transit Auth. of Harris County, Texas (Metro)	Houston, TX	2,462.9	2	60,471.0	5
Pace - Suburban Bus Division (PACE)	Chicago, IL	2,021.2	3	47,581.2	6
San Diego Association of Governments (SANDAG)	San Diego, CA	1,881.7	4	79,116.3	2
Los Angeles County Metropolitan Transportation Authority (LACMTA)	Los Angeles, CA	1,804.2	5	90,702.4	1
Utah Transit Authority (UTA)	Salt Lake City, UT	1,657.7	6	71,371.9	3
Phoenix - VPSI, Inc.	Phoenix, AZ	1,371.6	7	34,371.7	8
Ben Franklin Transit (BFT)	Kennewick, WA	1,140.8	8	44,654.8	7
Marietta - VPSI, Inc.	Atlanta, GA	1,088.2	9	28,736.4	11
Greater Hartford Ridesharing Corp. - The Rideshare Co.	Hartford, CT	863.7	10	32,988.1	9
Snohomish County PTBAC (Community Transit)	Seattle, WA	854.9	11	23,757.5	16
Pierce County Trans. Benefit Area Auth.(Pierce Transit)	Seattle, WA	852.0	12	27,872.9	12
New Jersey Transit Corporation(NJ TRANSIT)	New York, NY	753.2	13	26,681.0	13
Dallas Area Rapid Transit(DART)	Dallas, TX	697.1	14	29,068.3	10
Intercity Transit (I.T.)	Olympia, WA	689.0	15	25,120.4	15
Honolulu - VPSI, Inc.	Honolulu, HI	668.1	16	15,819.9	20
Dallas - VPSI, Inc.	Dallas, TX	613.6	17	25,970.3	14
Miami Lakes - VPSI, Inc.	Miami, FL	603.6	18	13,108.7	24
Kings County Area Public Transit Agency(KART)	Hanford, CA	544.2	19	22,456.8	17
Denver Regional Transportation District(RTD)	Denver, CO	497.0	20	13,955.8	23

Southwestern Pennsylvania Commission (SPC)	Pittsburgh, PA	180.3	34	5,551.8	37

Source: American Public Transportation Association, 2010.

Market for vanpools versus fixed route transit systems

There are many factors that have a bearing on the size of the vanpool market and its growth and decline over the past decades. These factors range from development and growth of employer vanpools in response to the 1970s energy crises to institutional shifts in the industry as it began to expand to other factors changing the demand for vanpool programs over the years.

Market changes produced corporate mergers and closures that reduced demand in some vanpool fleets in particular places in the 1980s. Also in the 1980s, the industry faced liability issues with insurance problems. In the 1990s, as the economy expanded and gas prices dropped, vanpool operations declined further.

Nonetheless, other forces occurred to expand services, often simultaneously. Changes in welfare policy in the 1990s pushed ridesharing as a potential option for spatial mismatches between residences and workplaces not served by public transit (Hwang & Giuliano, 1990). Today, additional federal incentives, longer commutes for many, and rising fuel costs have once again spurred demand for ridesharing in general and vanpooling in particular.

The factors affecting vanpooling decisions align along a number of dimensions, including:

1. Geographic conditions. Geographic conditions are critical in the potential of establishing vanpool operations, as well as affecting individual decisions to join a vanpool. Key among them:

- Long distance commuting - 20 miles to 100 miles roundtrip
- Priorities and incentives set by government agencies
- Agglomeration or concentration of employers in common locations
- Increased congestion
- Regional ridesharing

2. Economic conditions. An interrelated set of economic conditions influences the vanpool decision process, in addition to the obvious cost of fuel:

- Housing markets – rising housing markets expands residence location, lengthening commute distances
- Fuel prices – greater vanpool demand related to rising prices
- Retail growth – rapid growth and job increase positively related to employer-subsidized vanpools in some places
- Positive correlation between ridesharing and firm size

3. Social/demographic characteristics. Surveys of vanpool riders and potential riders, including survey work by PennDOT, reached similar conclusions on prospective vanpool riders:

- Income groups and ranges – results from a recent PennDOT web survey found “drivers with incomes of $25,000-$75,000 are slightly more likely to consider car/vanpools” (Neiman Group, 2008). This finding corroborates results from other areas on income ranges and vanpooling
- White collar workers more common to mid-levels. Certain professional employment found to be negatively associated
- Shift workers without public transit options

- Workers with limited access to personal autos

(Sources: Higgins and Rabinowitz, 2002; Kendall, 1975; Margolin and Misch, 1978; Neiman Group, 2008; Richardson and Young, 1982; Teal, 1987; Giuliano, Levine, and Teal, 1990); Cervero and Griesenbeck, 1988).

Financing and incentives for vanpools

Vanpooling offers a number of incentives and cost savings to both commuters and their employers. It subsequently offers benefits to others in a region through reduced traffic congestion and improved air quality. This section reviews the costs and incentives available through vanpooling.

As shown above, particular factors make vanpooling a possibility for many commuters, including long commutes (20 miles or more each way); exurban or rural residences, farther from large employers and employment centers; and limited transit options, and, often, no transit options other than automobile.

Riders can achieve a number of benefits through vanpooling in a number of different ways: environmental, financial, and time savings. VPSI (2010) reports that a 15 person vanpool reduces CO2 emissions by 136 tons per year, while the individuals collectively save thousands of gallons of gasoline by sharing a van. In addition to gasoline savings, vanpool riders reduce the costs of wear-and-tear on their personal vehicle. In some participant surveys, results suggest a savings of up to $3,000 per year for vanpool commuters (EPA, 2001). High Occupancy Vehicle (HOV) lanes offer vanpoolers an express travel route, cutting time to and from their workplace. Additional benefits come from reduced stress from commuting and other non-pecuniary benefits, such as time for reading, relaxing, or socializing with fellow commuters (Ferguson et al, 1994).

Commuters compare the costs of their travel by different methods. Monthly commuting costs by mode and distance are shown in Table 4. Carpools and vanpools significantly reduce the costs of commuting compared to driving alone, and the benefits achieved increase with the distance traveled. Vanpools offer further cost reductions of 50 percent or greater, even compared to carpools. Recent research has estimated the price elasticity of vanpooling is directly related to other financial incentives, contributing to higher ridership with price decreases (York & Fabricatore, 2001; Wambalaba, Concas & Chavarria, 2004).

Table 4. Estimated Monthly Commuting Costs, by Mode and Distance

Roundtrip Miles	*Drive Alone*	*3-Rider Carpool*	*10-Rider Vanpool*
30	$193	$64	$31
40	$257	$86	$37
50	$321	$107	$43
60	$386	$129	$50
70	$450	$150	$56
80	$514	$171	$63

Source: Victoria Transport Policy Institute, 2000

Generally, ridesharing – and especially vanpooling – offer options for commuters in areas without extensive public transit service and can reduce additional costs related to providing parking facilities and reducing congestion and pollution. On a scorecard used to measure impacts of Transit Demand Management (Victoria Transport Policy Institute, 2008), vanpooling scores high on benefits related to reducing the cost of personal commuting, reducing environmental impacts, creating consumer savings, and expanding transit choice. Its detriment and possible higher costs are related to possibly increasing commute sheds and thus contributing to urban sprawl (Victoria Transit Policy Institute, 2008). While this conclusion can reflect general regional conditions, it might provide a different explanation under conditions of slow growth, flat or declining population change, and limited local employment options, conditions common in many Pennsylvania counties. What will be explored further are decisions to lengthen commutes by vanpooling or ridesharing or switch from personal automobile use because of ridesharing options becoming available.

Local stakeholder views

Our Southwestern Pennsylvania local stakeholders group added important considerations to understanding the costs and benefits of vanpooling, which we brought into our survey of employers.

Our stakeholders confirmed well-known benefits, but added to understanding benefits for employers by emphasizing vanpooling as a means to reduce demand for parking spaces and attract and retain employees living longer distances from the work site. Employees gain additional benefits with the availability of emergency car service through Emergency Ride Home. Local stakeholders also stressed the importance of group dynamics and conflict resolution practices, not usually considered in cost-benefit analyses.

Vanpool program administration is often supported by volunteers. Paid staff can mean more effective - and often – more successful, larger-scale efforts.

Table 5. Benefit Summary

Objective	Rating	Comments
Congestion Reduction	3	Reduces peak-period automobile travel
Road & Parking Savings	3	Reduces peak-period automobile travel
Consumer Savings	3	Provides consumer savings
Transport Choice	3	Increases travel choice
Road Safety	2	Reduces vehicle mileage, but increases vehicle occupancy, so crashes that do occur may have more casualties
Environmental Protection	2	Reduces automobile travel
Efficient Land Use	-1	May encourage longer-distance commutes and urban sprawl
Community Livability	2	Reduces automobile trips
Rating from 3 (very beneficial) to –3 (very harmful). A 0 indicates no impact or mixed impacts.		

Source: Ridesharing Carpooling and Vanpooling, TDM Encyclopedia, Victoria Transport Policy Institute, http://www.vtpi.org/tdm/tdm34.htm

How are vanpools organized and set up by employers? What factors are significant? Employers who offer direct subsidies to vanpools can be effective since they lower commuting costs and subsequently increase vanpool use (Wegmann & Stokey, 1983). In the past, McClelland et al. (1981) found that publicity and convenience incentives were not significantly correlated with increased ridesharing, while financial incentives had a positive effect. Older research found that persuasion was generally not effective, though appeals to altruism (i.e., "you should carpool to help clean air") may generate some volunteers for ridesharing but not likely long-term behavioral change (Bonsall et al., 1984). Nonetheless, with today's Commuter Choice Program and many states now incorporating more significant vanpooling incentives, financial incentives remain for many drivers the strongest push and pull influences impacting vanpooling.

Employers also can offer matching services to help employees find potential rideshare partners. Personalized matching assistance can offer significant increases in the level of ridesharing at firms (Ferguson, 1990a). Firms that add additional services, including commuting coordination, can realize even larger ridesharing among employees. This finding from the literature complements the observations from our local stakeholders, who commented on the amount of volunteer time often needed to set up effective vanpooling operations.

Alternative work hours (AWH), widely used in Transportation Demand Management, can be a hindrance to increased vanpool usage. AWH includes staggered work hours (SWH), compressed work weeks (CWW), and flexible work hours (FWH). While AWH programs are popular with employees, the literature is mixed on their implications for vanpooling, ranging

from more positive associations with adjustments to transit services (Jones & Harrison, 1983; Port Authority of New York and New Jersey, 1975) to AWH as a substitute for ridesharing in suburban areas (Bhatt & Higgins, 1989; Cervero & Griesenbeck, 1988) or in areas with limited transit availability (US FHWA, 1986; Hwang and Giuliano, 1990). Additionally, our local stakeholders found certain industries and sectors more difficult to expand into, owing to shift work and unscheduled overtime. These issues are taken up in the Employer Survey below. Some studies found that cash payment for employer-paid parking was the single most important disincentive to ridesharing (Willson, Shoup & Wachs, 1989).

The Commuter Choice Program is one of the most widely used incentive programs for vanpooling, along with other transit options. Employers benefit from offering employees pre-tax benefits up to $230 per month for vanpool participation. The employer can reduce their corporate income and payroll taxes and offer employees a fairly low-cost benefit that is attractive to many.[3]

The following table summarizes some sources of funds for vanpooling (Table 6).

[3] The Commuter Choice Program is discussed in more detail in the subsequent sections.

Table 6. Source of vanpool funds across agencies

Funding sources	Description	Examples
Passenger fares	Most common source of vanpool programs	Easy Streets (CT) and Ben Franklin Transit (WA) cover all costs through passenger fares
Transit funds	Common source for transit agencies	Ben Franklin Transit, Greater Cleveland
Congestion, Mitigation, and Air Quality (CMAQ)	Used by some to purchase vans and subsidize fares	Community Transit, PACE, TMA Group, Houston METROVAN
Other federal funds	Variety of sources, including grants, TANF, flexible funds for MPOs, Regional Surface Transportation Funds	Nashville's Metro Transit, Whatcom Transit Agency, Space Coast Area Transit, etc.
Other state/local funds	Various	Austin, Houston-Galveston Area Council, Santa Cruz county
Other state/local funds	Chambers of Commerce	Emerald Coast Transportation (Florida), Greater Cleveland Regional Transit Agency, Kibois Area Transit Authority (Oklahoma)
Employer subsidy	Numerous	Community Transit, Pierce Transit, Kitsap Transit, SANDAG, CARAVAN
State contracts	Vehicle and equipment purchases via state contracts	Ben Franklin Transit

Source: Higgins and Rabinowitz, 2002, p. 13.

There are several additional complementary factors related to vanpooling that should be noted. These include employee ridesharing behavior and attitudes and other subjective factors, such as interpersonal rapport among vanpool groups, perceptions of the pooling situation, and constraints on independence. The literature finds these factors to be important in some situations, but when benefits exceed the costs of driving alone, they become less important. One factor from above that becomes of increasing importance over time is the continued increase in time and distance for commuting. Studies of vanpool riders in common commute sheds have found that travel distances and travel times continue to increase and the distribution of origins and destinations of commuting continues to expand. In the absence of expanding public transit over wider geographies, these factors point to a continued need for expanding vanpooling services.

Finally, additional complementary factors for expanding vanpool operations include:

- Flexibility in travel days.
- Empty seat subsidies.
- Fare subsidies (by transit operator or employer).

- Direct marketing.
- Premium service options, including high quality seats, workstations, amenities.
- Promotion in the workplace.
- Commute Trip Reduction law mandatory for large employers (not in Pennsylvania)
- Greening initiatives can be more directly tied to vanpooling. For instance, the Leadership in Energy and Environmental Design (LEED) program offers points toward certification of its green building rating system for alternative transportation.

3. Commuting in Pennsylvania

We begin with an overview of commuting patterns and conditions in Pennsylvania. This material will provide the context for the subsequent sections on survey analysis and results, cost and benefit analysis of vanpooling, and the financing model developed from this information. We conclude with a summary of current vanpooling operations in the Commonwealth.

We reviewed a number of datasets and information to estimate the vanpool population in Pennsylvania. Tracking the incidence of vanpool riders via most secondary data sources is impractical because of the small number of participants in organized vanpool services in the Commonwealth. Nonetheless there is relevant information on commuting patterns that shows the prevalence of vanpooling among select groups of commuters. We compare this to carpool ridership, where the incidence of carpool ridership provides insight into the characteristics of workers likely to consider vanpooling as an alternative means of transportation to work.

A dataset was developed from a number of secondary sources to understand vanpool and carpool ridership across Pennsylvania. Current data relevant for Pennsylvania commuting modes are available from the American Community Survey (ACS) of the U.S. Census Bureau. The data shown here are for 2008. More much detailed commuting by mode data are available for 2000 from the Census. These data are compiled using Census 2000 Public Use Microsample (PUMS) data sets that include information on carpool commuters in Pennsylvania. The PUMS is a dataset of de-identified individual data from the 2000 Census. This data set allows for more detailed cross-tabulation of specific populations that are not available via the Census' other published tables or latest ACS releases.[4]

Commute modes 2000 and 2008

Recent ACS data show that Pennsylvanians, on average, commute by patterns similar to the U.S. as a whole (see Table 8). In 2008, just over three quarters (76.2 percent) of Pennsylvania commuters drove to work alone, compared to 75.5 percent of U.S. commuters. Commuting by public transit and by bicycle also registered similar figures in both Pennsylvania and the U.S. Pennsylvanians were more likely to walk to work (4.0 percent) than the average American (2.8 percent), while less likely to work at home (3.4 percent) than the U.S. average (4.1 percent).

[4] While the 2000 Census data have limitations not reflective of the current period, it is the latest information with this level of commuting detail and provides a strong baseline for comparing our 2010 survey results.

An estimated 575,527 Pennsylvania workers commuted to work as part of a carpool in 2008, representing 9.7 percent of working Pennsylvanians, less than the 10.7 percent figure for the U.S. The majority of those workers (81.5 percent of all PA carpoolers) commuted in groups of 2 persons per vehicle, while approximately 48,404 Pennsylvania carpoolers commuted with 4 or more persons per vehicle, representing 8.4 percent of Pennsylvania carpoolers in 2008.

Table 7. Means of Travel to Work – Workers Age 16 and Over – Pennsylvania and U.S., 2008

	United States		Pennsylvania	
Total:	143,995,967		5,911,642	
Car, truck, or van:	124,177,220	86.2%	5,081,758	86.0%
Drove alone	108,775,532	75.5%	4,506,231	76.2%
Carpooled:	15,401,688	10.7%	575,527	9.7%
2 person	11,846,219	8.2%	456,738	7.7%
3 person	2,087,991	1.5%	70,385	1.2%
4 or more person	1,467,478	1.0%	48,404	0.8%
Public transportation:	7,210,014	5.0%	314,916	5.3%
Bus or trolley bus	3,906,876	2.7%	218,766	3.7%
Streetcar or trolley car	98,733	0.1%	6,877	0.1%
Subway or elevated	2,369,764	1.6%	38,654	0.7%
Railroad	795,003	0.6%	50,157	0.8%
Ferryboat	39,638	0.0%	462	0.0%
Bicycle	786,098	0.5%	24,381	0.4%
Walked	4,060,994	2.8%	235,564	4.0%
Taxicab, motorcycle, other	1,864,219	1.3%	54,109	0.9%
Worked at home	5,897,422	4.1%	200,914	3.4%

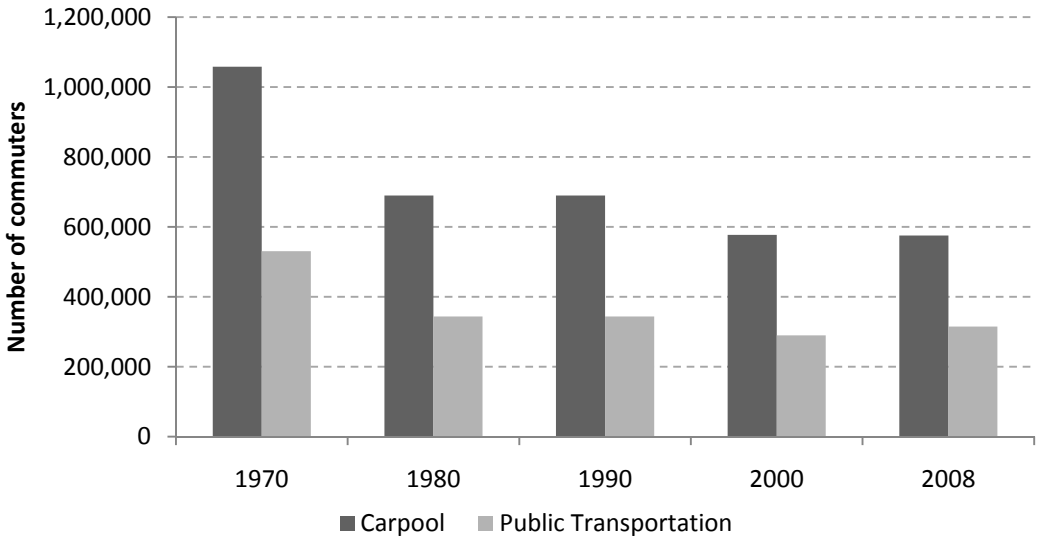
Source: American Community Survey, 2008

The ACS sample is not large enough to distinguish vanpoolers from larger carpool commuters – 4 or more person carpools is the largest category in the ACS. However, turning back to the 2000 Census, data on commuters showed that 7,333 Pennsylvania carpoolers traveled in a vehicle with 7 or more person occupancy in 2000. This figure is estimated to represent a baseline for vanpooling, with the 7+ person carpools representing organized or private vanpooling ventures.

While the number of workers driving alone to work has been increasing in recent decades, the number of workers commuting via public transportation and carpooling has been relatively stable over the past decades (see Figure 1). The most recent estimates of public transportation use show that in 2008, the number of carpool commuters in the state dropped 0.3 percent from 2000. Over the same period, public transit use registered an increase of 8.7 percent to 315,000 commuters in 2008 from just under 290,000 workers in 2000. Nonetheless, public

transit usage and carpooling in Pennsylvania are down significantly compared to earlier decades.

Figure 1. Travel to Work: Carpool vs. Public Transportation, Pennsylvania, 1970–2008



Sources: U.S. Census Bureau. 1970, 1980, 1990, 2000: Decennial Census. 2008: American Community Survey

Carpooling and public transit clearly serve different commuter groups, as well as origin and destination geographies. We next examined the incidence of carpool and public transit usage between occupation groups and industries in Pennsylvania. By occupation, the highest incidence of carpooling is in construction occupations, followed by farming occupations (see Figure 2). Not coincidentally, these two occupations also have the lowest incidence of commuting by public transportation (see Figure 3). Both agriculture and construction have variable, highly changing and diverse work destinations, creating specialized commuting patterns that would not be a prospective for vanpooling.

Other occupations also register higher than average commuting patterns via carpool, without the varying work destinations of agriculture and construction workers. Over 10 percent of Pennsylvania production workers, food handlers, healthcare support, and education and library employees commuted via carpool in 2000. For the remaining occupations, carpooling is an important commute option, carrying between 6 and 9 percent of these commuters to work. Public transportation usage is highest among legal occupations, likely impacted by the concentration of those jobs in urban cores with more public transit services. With nearly 16 percent of legal workers commuting via public transit, it far surpasses other occupational categories; the computer and mathematical occupation follows at just about 9 percent of workers commuting via public transit.

Figure 2. Percent of Pennsylvania Workers Commuting by Carpool by Occupation, 2000

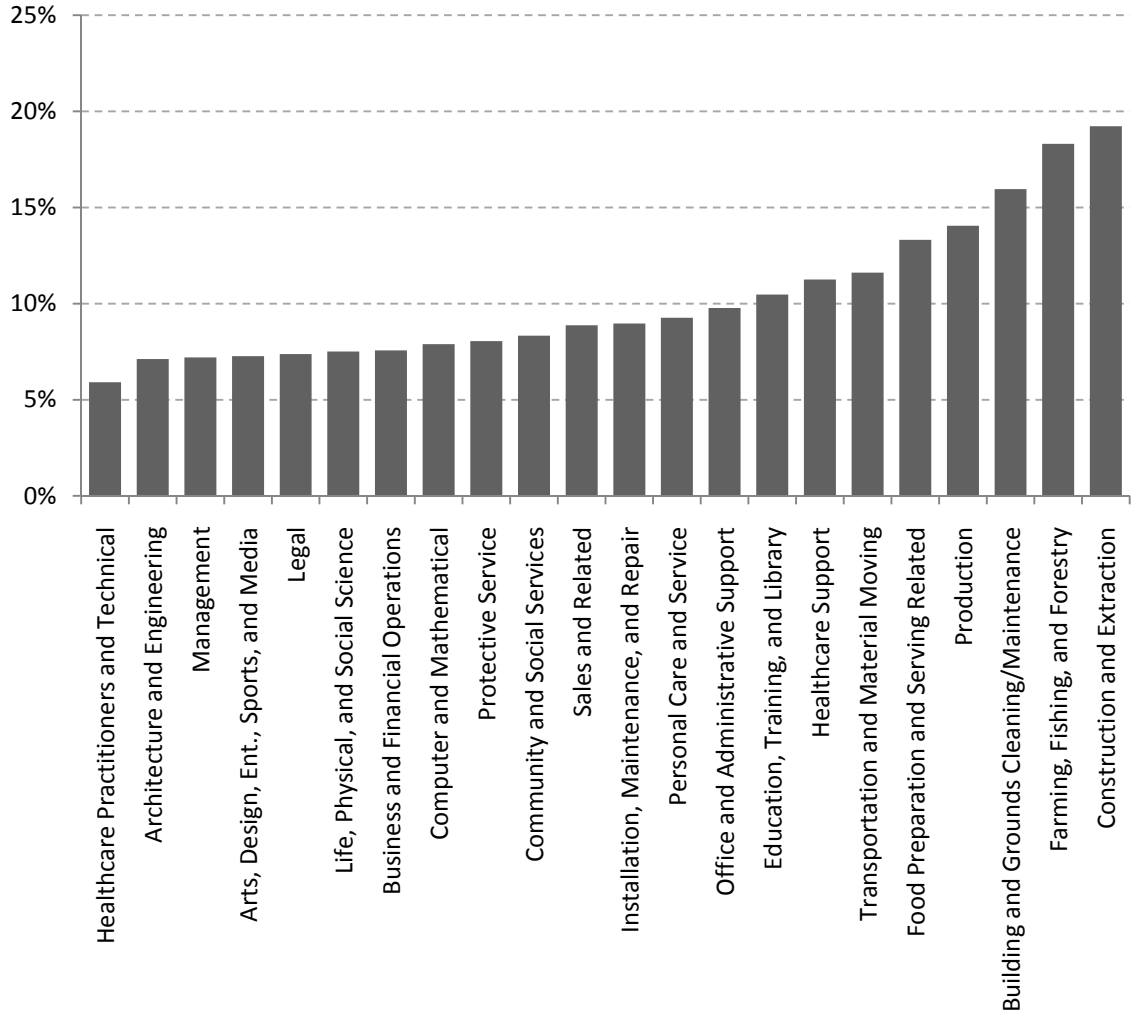
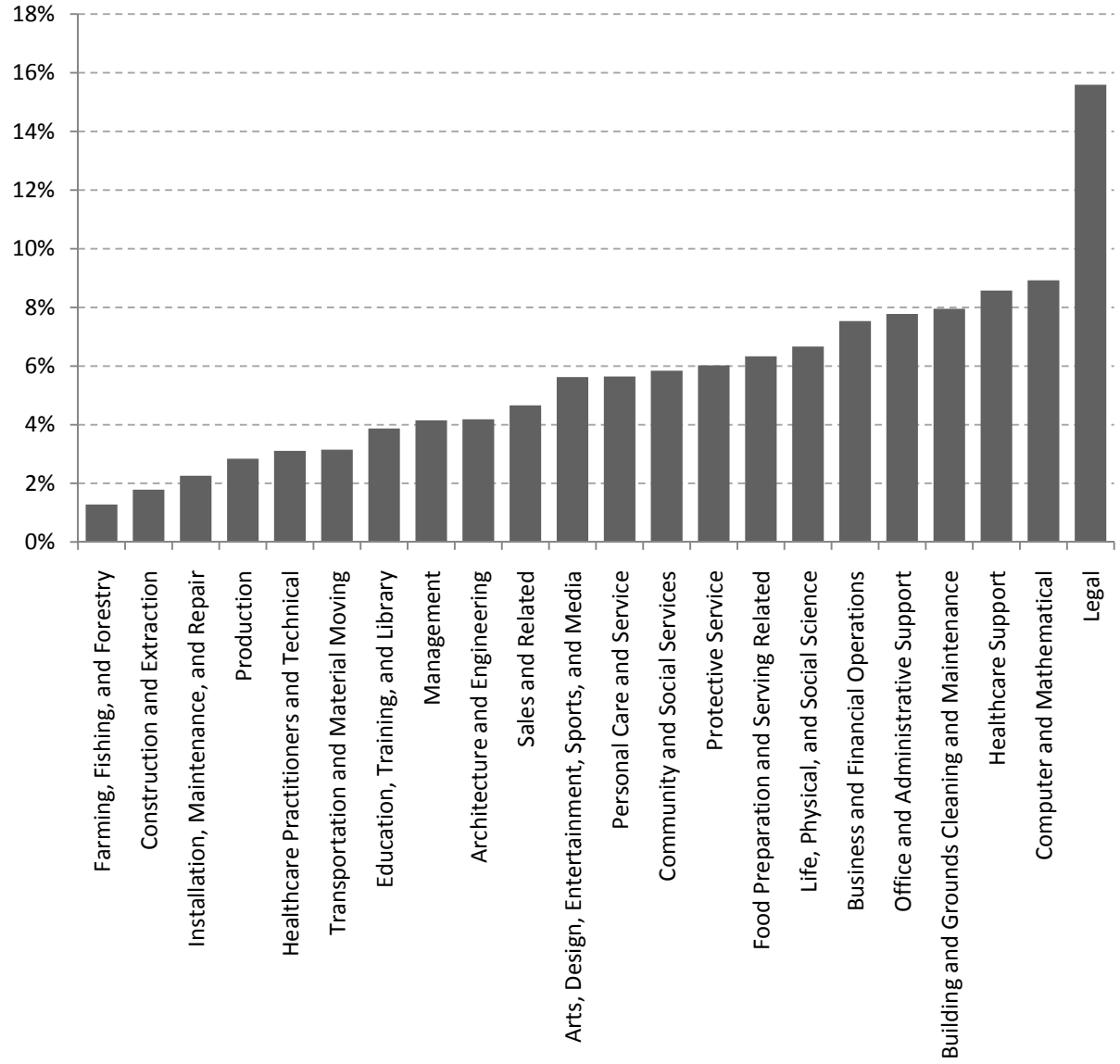


Figure 3. Percent of Pennsylvania Workers Commuting by Public Transportation by Occupation, 2000



Commuting modes are also examined by the industry classification of the commuter from 2000 PUMS data (see Figures 4 and 5). Following the construction industry, workers in the administrative and support industry, accommodation and food industry, management, manufacturing, public administration, and the arts were more likely to commute via carpool than other sectors. Workers most likely to use public transportation by industrial sector are employed by establishments classified as management, followed by workers in finance and insurance industries, again patterns reflective of the concentration of certain jobs and establishments in urban cores with more extensive public transportation service networks.

Figure 4. Percent of Pennsylvania Workers Commuting by Carpool by Industry, 2000

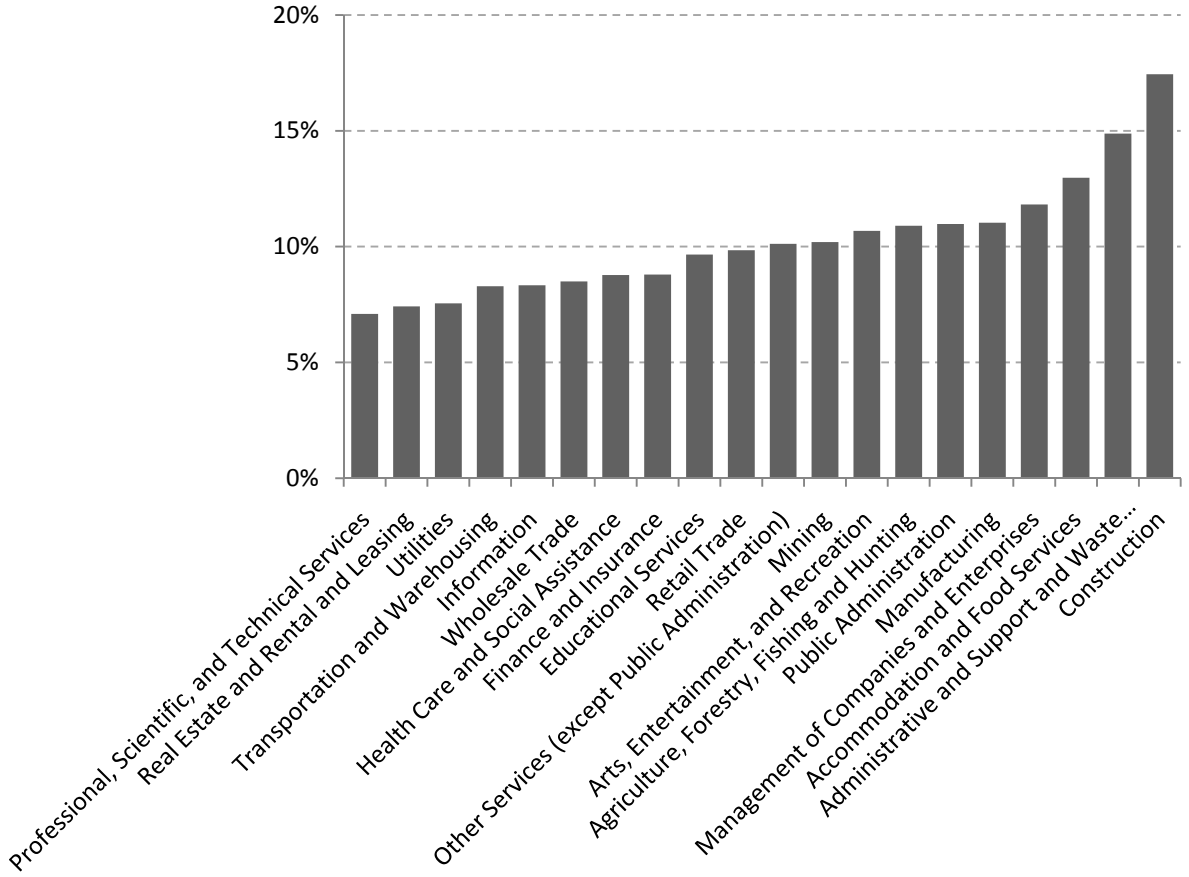
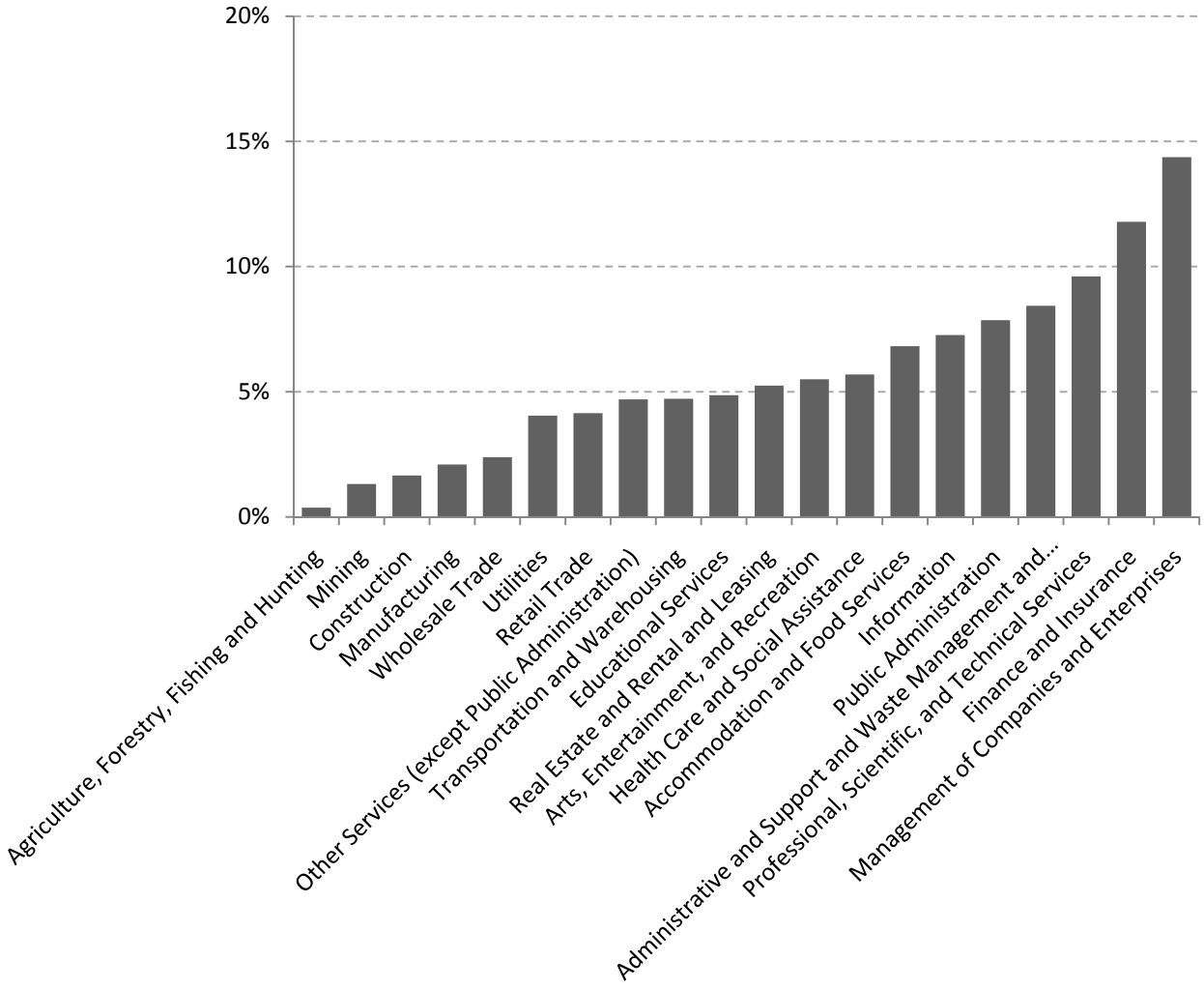


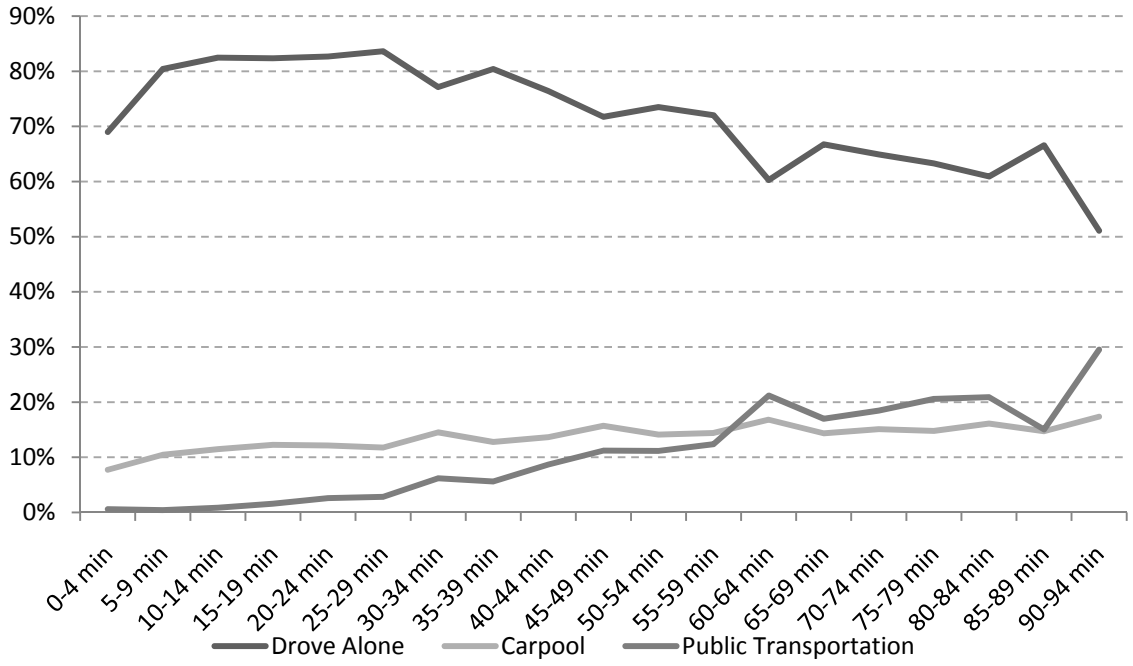
Figure 5. Percent of Pennsylvania Commuting by Public Transportation by Industry, 2000



To sum, whether classified by occupation or by industry, certain sets of workers are more common among commuters using carpool and public transportation commuting modes than other sets of workers. Leaving aside special commuting patterns common among construction and agricultural occupations, we find sets of occupations and industries with more prevalent commuting by carpool than others, including production and maintenance, food, transportation and healthcare workers, and workers in administrative and management positions.

Finally, comparing modes of travel to work by time shows important differences. Though driving alone is by large measure the most common means to travel to work by commuters in Pennsylvania, the percent of commuters driving alone decreases significantly when additional time is added to the commute (see Figure 6). While nearly 80 percent of commuters drove alone for commutes less than 35 minutes in 2000, the proportion falls with longer distances and rises proportionately for carpooling and public transportation. As discussed above, vanpooling also becomes an attractive commuting alternative at these longer distances.

Figure 6. Commuting Mode by Travel Time, 2000



Source: U.S. Census Bureau, Public Use Micro Sample data, 2000 and authors' calculations.

Table 8. Means of Transportation by Occupation, Pennsylvania Workers Age 16 and Over, 2000

Occupation	Total	Drove Alone		Carpool		Public Transportation	
Management	465,351	366,719	78.8%	33,495	7.2%	19,302	4.1%
Business and Financial Operations	224,120	171,390	76.5%	16,962	7.6%	16,881	7.5%
Computer and Mathematical	123,450	92,867	75.2%	9,744	7.9%	11,017	8.9%
Architecture and Engineering	106,624	87,879	82.4%	7,590	7.1%	4,462	4.2%
Life, Physical, and Social Science	54,607	40,992	75.1%	4,100	7.5%	3,639	6.7%
Community and Social Services	96,623	73,385	75.9%	8,055	8.3%	5,643	5.8%
Legal	55,843	38,344	68.7%	4,119	7.4%	8,705	15.6%
Education, Training, and Library	301,884	234,260	77.6%	31,623	10.5%	11,681	3.9%
Arts, Design, Entertainment, Sports, and Media	89,803	60,413	67.3%	6,525	7.3%	5,053	5.6%
Healthcare Practitioners and Technical	305,597	266,407	87.2%	18,067	5.9%	9,502	3.1%
Healthcare Support	127,807	94,200	73.7%	14,383	11.3%	10,960	8.6%
Protective Service	97,374	77,934	80.0%	7,835	8.0%	5,863	6.0%
Food Preparation and Serving Related	281,891	192,849	68.4%	37,531	13.3%	17,846	6.3%
Building and Grounds Cleaning and Maintenance	169,468	113,991	67.3%	27,043	16.0%	13,476	8.0%
Personal Care and Service	134,678	86,587	64.3%	12,481	9.3%	7,599	5.6%
Sales and Related	606,927	469,074	77.3%	53,834	8.9%	28,265	4.7%
Office and Administrative Support	895,270	674,936	75.4%	87,507	9.8%	69,597	7.8%
Farming, Fishing, and Forestry	26,078	14,466	55.5%	4,775	18.3%	334	1.3%
Construction and Extraction	272,700	205,143	75.2%	52,438	19.2%	4,874	1.8%
Installation, Maintenance, and Repair	213,379	178,212	83.5%	19,129	9.0%	4,827	2.3%
Production	511,931	396,643	77.5%	71,930	14.1%	14,537	2.8%
Transportation and Material Moving	390,866	310,082	79.3%	45,389	11.6%	12,316	3.2%

Source: U.S. Census Bureau, Public Use Micro Sample data, 2000 and authors' calculations.

Table 9. Means of Transportation by Industry. Pennsylvania Workers Age 16 and Over, 2000

Industry	Total	Drove Alone		Carpool		Public Transportation	
Agriculture, Forestry, Fishing and Hunting	57,725	27,471	47.6%	6,293	10.9%	213	0.4%
Mining	17,183	14,770	86.0%	1,752	10.2%	226	1.3%
Utilities	55,102	47,544	86.3%	4,160	7.5%	2,231	4.0%
Construction	327,604	249,381	76.1%	57,136	17.4%	5,427	1.7%
Manufacturing	865,472	712,806	82.4%	95,506	11.0%	18,111	2.1%
Wholesale Trade	195,772	161,465	82.5%	16,628	8.5%	4,663	2.4%
Retail Trade	635,968	498,580	78.4%	62,588	9.8%	26,363	4.1%
Transportation and Warehousing	243,631	197,934	81.2%	20,200	8.3%	11,499	4.7%
Information	146,253	110,036	75.2%	12,182	8.3%	10,628	7.3%
Finance and Insurance	287,963	215,900	75.0%	25,315	8.8%	33,949	11.8%
Real Estate and Rental and Leasing	76,570	60,039	78.4%	5,683	7.4%	4,017	5.2%
Professional, Scientific, and Technical Services	305,476	215,257	70.5%	21,668	7.1%	29,350	9.6%
Management of Companies and Enterprises	3,994	2,823	70.7%	472	11.8%	574	14.4%
Administrative and Support and Waste Management and Remediation Services	163,474	109,954	67.3%	24,322	14.9%	13,787	8.4%
Educational Services	495,246	366,750	74.1%	47,832	9.7%	24,078	4.9%
Health Care and Social Assistance	724,987	576,415	79.5%	63,595	8.8%	41,250	5.7%
Arts, Entertainment, and Recreation	70,140	48,108	68.6%	7,492	10.7%	3,855	5.5%
Accommodation and Food Services	310,500	212,368	68.4%	40,293	13.0%	21,177	6.8%
Other Services (except Public Administration)	269,532	192,530	71.4%	27,284	10.1%	12,663	4.7%
Public Administration	230,640	176,757	76.6%	25,313	11.0%	18,128	7.9%

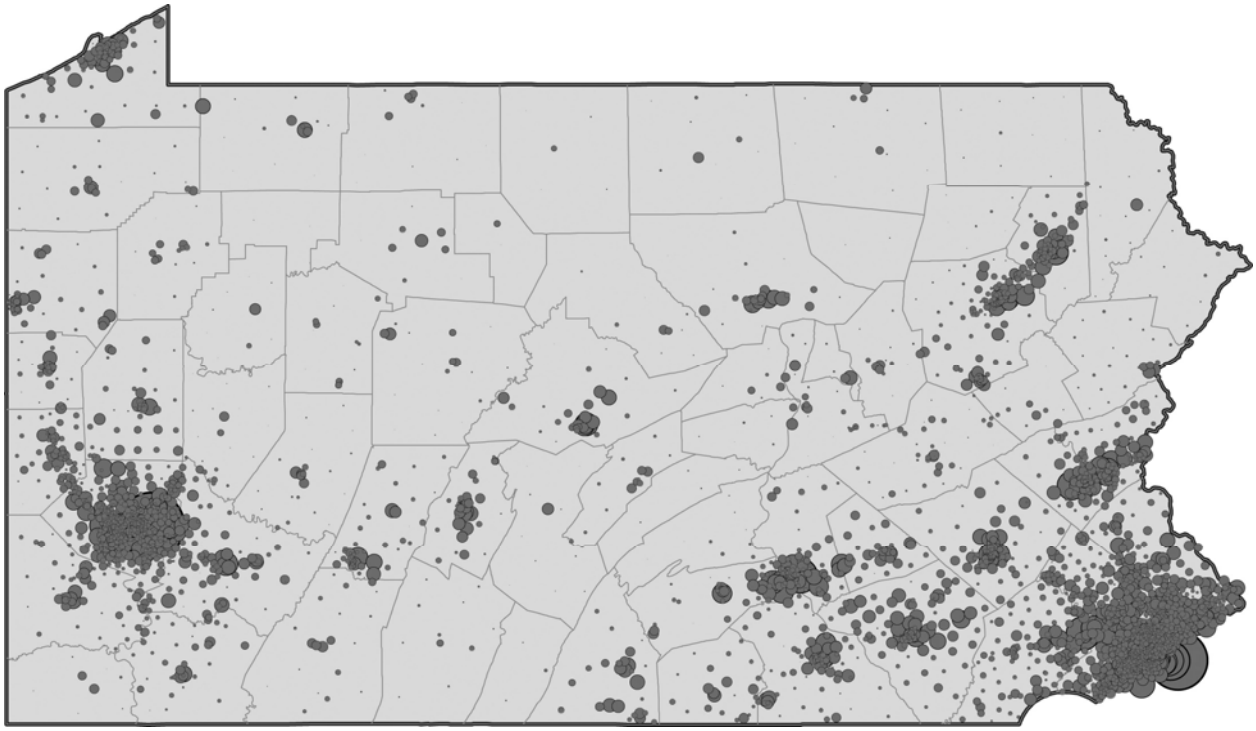
Source: U.S. Census Bureau, Public Use Micro Sample data, 2000 and authors' calculations.

Current commuting patterns across Pennsylvania

In the previous section, commuters in Pennsylvania are considered as a group with breakouts by industry and occupation. This section now examines regional variation by commuting mode in the Commonwealth. We begin examining the spatial patterns of commuting with Census tracts across the state.

When we examine the location by Census tract of workers in Pennsylvania in 2000, not surprisingly considering total population, the Philadelphia region shows the largest and densest number of workers, followed by the Pittsburgh region (see Figure 7). Across the state; however, large employment centers emerge at the Census tract level that extend across county and regional borders. Of particular interest in this study, South Central Pennsylvania exhibits substantial concentrations of employment across the region.

Figure 7. Total Workers by Place of Work by Census Tract, 2000



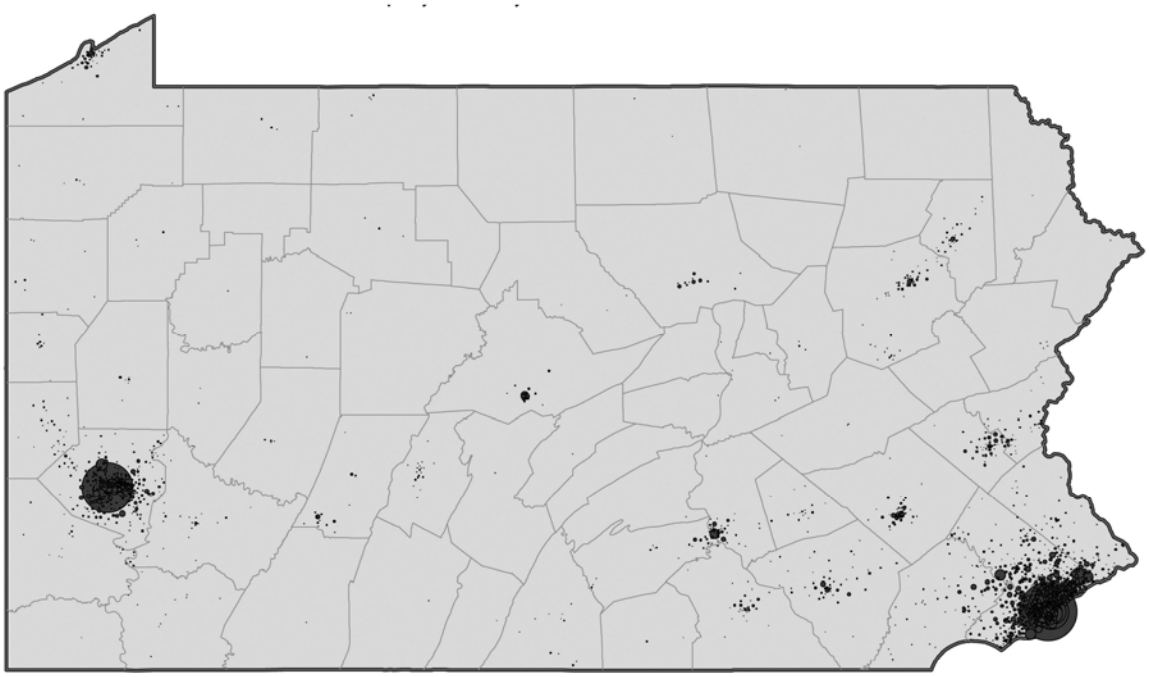
Source: Compiled from Census Transportation Planning Package (CTPP) 2000

How do Pennsylvania workers commute? First, the use of public transportation is concentrated in just a few counties within Pennsylvania (see Figure 8). As expected, public transportation use is highest in Philadelphia and Allegheny County, and only in those two counties does public transit usage exceed carpooling. Of particular note regarding public transit use in Pennsylvania:

- Southeastern Pennsylvania Transportation Authority (SEPTA) is the largest transit system in the state and the sixth largest in the country (APTA 2010), providing service in five counties, with more than 340.9 million trips in 2008, including commuter trains, subways, elevated lines, light rail vehicles, buses of all sizes and paratransit vehicles. SEPTA is also the fourth largest bus agency in the country, with 183 million unlinked passenger trips in 2008. SEPTA ranked fourth in paratransit, fifth in trolley bus agencies and heavy rail, and sixth in commuter rail and light rail.
- Port Authority of Allegheny County (PAT) is the 25th largest transit agency in the nation, with 67.6 million rides annually, two million of which are provided for Port Authority's paratransit system, ACCESS. PAT is also ranked 22nd among bus agencies in the country, 7th among paratransit agencies, 17th in light rail, and 1st in inclined plane, with the Duquesne and Monongahela inclines.
- Other large agencies in Pennsylvania include the Delaware Transit (28th in paratransit), Southwestern Pennsylvania Commission (34th in vanpooling), PennDOT (20th in commuter rail in Philadelphia), Port Authority Transit in Philadelphia (12th in heavy rail), and Cambria County Transit Authority (3rd in inclined plane) (American Public Transit Association, 2010).

While public transit users are concentrated in the Philadelphia and Pittsburgh metropolitan regions, commuting by public transit is much more concentrated within the central cities of both regions. When other parts of the state are included, we can see far fewer public transit options available or used, even with dense employment concentrations. This is particularly noteworthy for the central to southcentral regions of the Commonwealth, an area of focus for this vanpooling study. For instance, more than 50% of the trips provided by Berks Area Reading Transportation Authority (BARTA) are for work purposes, or one and one quarter million work trips annually.

Figure 8. Total Workers Commuting Via Public Transit by Census Tract, 2000

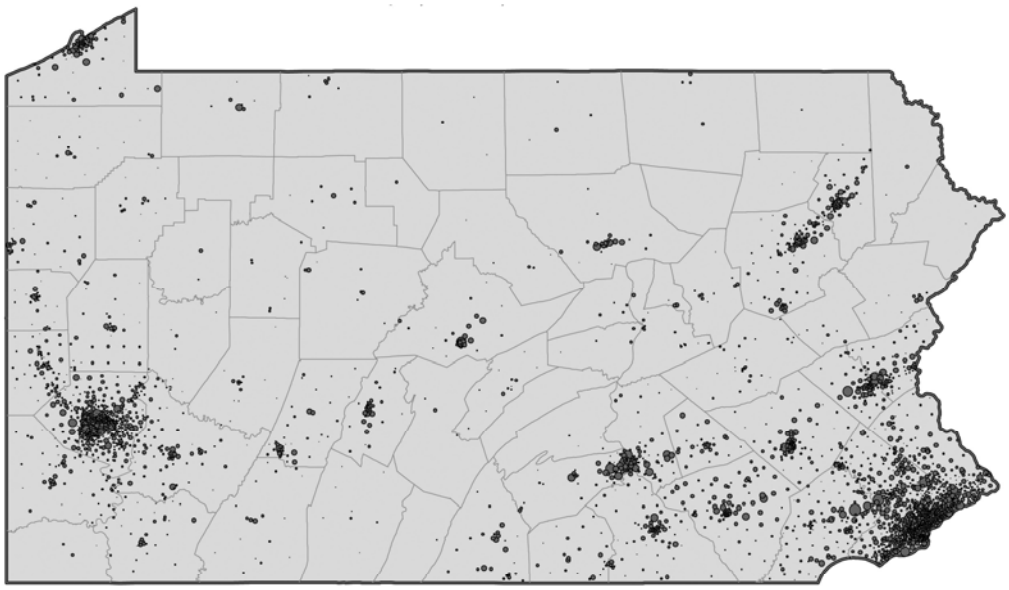


Source: Compiled from Census Transportation Planning Package (CTPP) 2000.

Compared to public transit use, carpooling is far more common across the state, especially in the South Central Pennsylvania region. Carpooling provides a flexible means of ride sharing and can be organized by various groups. As with public transit use, the number of commuters using carpools is highest in the largest metropolitan areas of the state with the most employees, again most concentrated in the Philadelphia and Pittsburgh regions. Unlike transit use; however, it is more dispersed and more common in other metropolitan regions not well serviced by public transit (see Figure 9). Carpoolers also represent larger shares of commuters in these areas. When the incidence of carpooling is examined by the Census tract (see Figure 10), the highest proportion of carpooling commuters are found stretching through the Harrisburg region and spreading outward to Centre County and more rural regions in the center

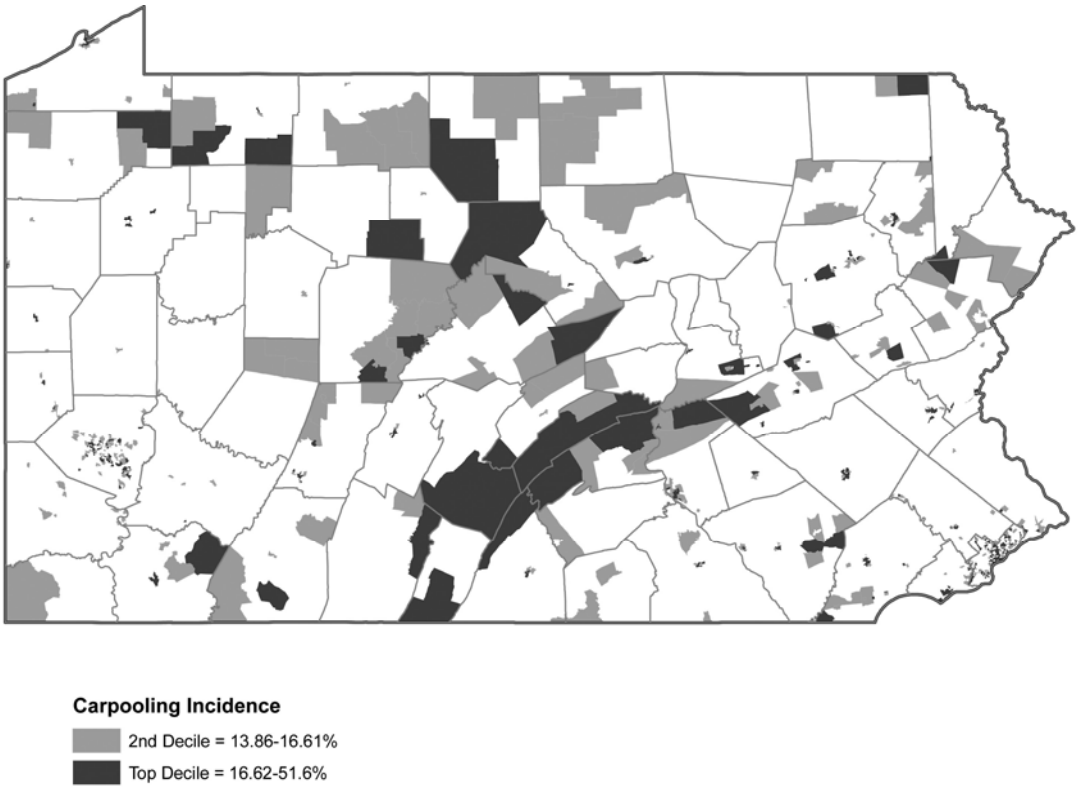
part of the state. This reflects longer distance commuting and lack of other transit options that many in this region face.

Figure 9. Total Workers Commuting Via Carpool, by Census Tract, Pennsylvania, 2000



Source: Compiled from Census Transportation Planning Package (CTPP) 2000.

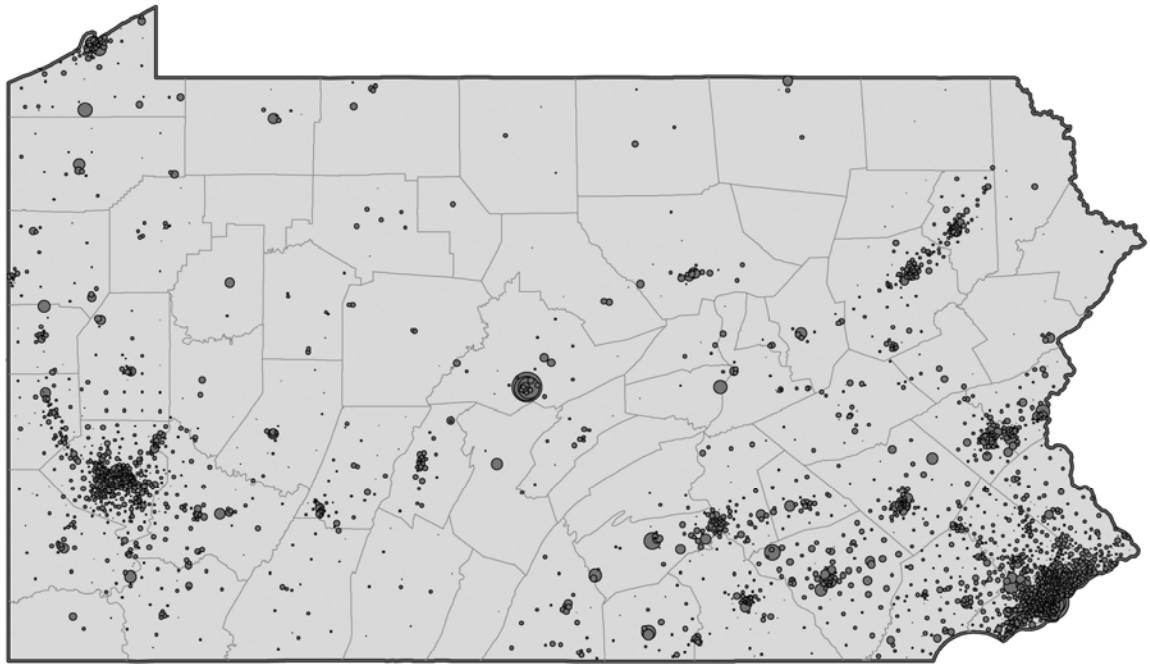
Figure 10. Proportion of Workers Commuting Via Carpool, by Census Tract, Pennsylvania, 2000



Source: Compiled from Census Transportation Planning Package (CTPP) 2000.

Finally, to conclude the commuter profile by mode in Pennsylvania, we examine walking and biking as a choice for commuters to travel to work. As with carpooling, walking and biking are also more diversified across the state as a means of travel compared to public transit, though at much lower levels.

Figure 11. Total Workers Commuting Via Bicycle or Walking, by Census Tract, Pennsylvania, 2000



Source: Compiled from Census Transportation Planning Package (CTPP) 2000.

Current vanpool operations

An analysis of current commuting patterns in the Commonwealth points to opportunities for potential expanded vanpool operations. As discussed in the previous section, a few important factors make vanpooling a possibility for commuters. We can begin to identify some of these through the figures above. Large employment centers across the central and south central regions of the state do not offer transit options or prospects for transit, probably linked to lower density of housing where workers live. There is also evidence of extended commutes for many workers to large employment centers. Current vanpool operations in Pennsylvania reflect these conditions.

Vanpool operations in Pennsylvania cover many regions and many models, with rural vanpooling also growing in the state. Across the state, more and more residents commute longer distances to their workplaces, and this trend is evident in the central and south central regions of the state.

PennDOT has been engaged in increasing its presence in vanpool operations across the state, and particularly in more rural regions of the Commonwealth. PennDOT has helped various vanpool providers with federal funding and more diverse funding options to expand their vanpooling operations.

Natural Gas Vanpools

The University of Pittsburgh initially operated its own vanpool program before the program was transferred to the Southwestern Pennsylvania Commission (SPC). Not only was this an interesting vanpool case study, since a higher education institution and major regional employer operated it, for part of the program, its vans ran on natural gas.

The program began in the 1970s between the University of Pittsburgh and the then named University Health Center (UHCP), with funding from PennDOT through federal sources to support alternative transportation modes during PennDOT's renovation of the Parkway East highway between Monroeville and Pittsburgh. The first phase of the project required a 20 percent match, which reduced to 10 percent in a later phase. The Pitt program was successful in their application because they focused on nontraditional commuters. Pitt selected Van Pool Services, Inc. – now VPSI – as the provider of the vans.

The University continued to fund the project directly when the highway renovation was completed and continued to run the program directly. With the Energy Policy Act of 1992 which required federal fleets to begin to purchase alternative fuel vehicles, the University of Pittsburgh's vanpool program was converted to natural gas in 1996 to comply with federal legislation. The program employed three people, plus assistants to refuel the vans. By the early 2000s, the natural gas vans were at the end of their usefulness and it was turned over to the SPC in 2004.

Today, under SPC, ten vanpools with 113 riders operate to Oakland, plus one to the new Children's Hospital site in Pittsburgh's Lawrenceville neighborhood, with free centrally-located van parking. Including University paid parking fees, riders can save up to $2,731 per year by vanpooling and not driving alone.

Current vanpool operations reflect areas with concentrations of large employers that draw workers from a wider geographic area. The vanpool program in State College, with Penn State University, is one such rural vanpooling program. Others in the east and south central regions of the state include vanpooling to large military employers.

The Philadelphia region, well served by multiple transit options, has fewer vanpool operations developed to date. As in Pittsburgh, the MPO, Delaware Valley Regional Planning Commission, has taken the lead on regional vanpools.

This section summarizes examples from Pennsylvania regarding transit services that may be more strongly related to vanpooling. Vanpool services in the Commonwealth of Pennsylvania are provided in a number of regions and through various agencies. These are:

1. *Centre County Area Transportation Authority (CATA*): Public Transit Authority

CATA is a joint municipal authority among communities in Centre County. Among its many programs, including its transit operations, CATA operates its vanpool program, which began with 6 vanpool groups in October 2007. In just three years, it has expanded to 15 vanpool groups serving State College, from Lewistown, Lock Haven, Philipsburg, and Tyrone. CATA recommends the vanpool program for groups of commuters with a travel distance of at least 40 miles per day. CATA also offers the Guaranteed Ride Home Program (non Penn State commuters pay an extra $10 per month for the service).

CATA is an example of a public transit authority operating the program and owning the vans. CATA bills the van group for its share of the cost of the operation, and CATA receives funds from the Congestion Management/Air Quality (CMAQ) program and Centre County Metropolitan Planning Organization.

2. *Delaware Valley Regional Planning Commission (DVRPC*): Metropolitan Planning Organization (MPO)

DVRPC is the MPO in the Philadelphia region. As of 2009, DVRPC operated 2 vanpools in conjunction with Southeastern Pennsylvania Transportation Agency (SEPTA), the main transit provider in the Philadelphia region. The service is available for those who work in the 5-county Southeastern Pennsylvania region.

3. *Commuter Services of Pennsylvania*: Nonprofit Partnership

Commuter Services of Pennsylvania now operates the South Central Pennsylvania region's vanpooling program. It currently coordinates 8 vanpools in the South Central region, including 2 to Fort Meade in Maryland, 3 to the Navy Depot, 1 to a federal employee site in New Cumberland, and 2 to the Army War College in Carlisle from the Shippensburg-Chambersburg areas. Their vanpool operation began 5 years ago with outreach and interest from commuters. Rabbittransit, the York County transit agency, identified potential vanpool riders through a commuter survey aimed at commuters traveling from the York region to Maryland. That vanpool began in February 2008 with 2 vans from Shrewsbury, PA, to Fort Meade, with VPSI vans.

Commuter Services of Pennsylvania is funded by PennDOT and the Federal Highway Administration. Commuter Services is also looking into using JARC money, which can be used for a capital lease, such as a van cost, for groups who do not have public transit options. They note that in many places, including Gettysburg, Chambersburg, and Northeast Pennsylvania, there is substantial cross county long distance commuting that could benefit from JARC assistance to lower costs. JARC funds could be for a capital lease to subsidize the cost of the van.

Commuter Services is unique as a nonprofit partnership model, but is valuable for other regions considering such an approach. They coordinate across seven MPOs and rural planning organizations, seven Chambers of Commerce, and six transit agencies in the region. We return to Commuter Services below for the employer survey. Commuter Services also now has a Vanpool Outreach Manager to continue coordination and expansion of the vanpooling efforts.

4. *VPSI:* Private Operator

There are many private vanpool operators in the state. VPSI is one and plays a major role in vanpooling in Pennsylvania – as the operator of vanpooling operations with MPOs or nonprofit partnerships, such as with SPC and Commuter Services, above. VPSI also operates more than 700 military vanpools across the U.S. and federal facilities make up half of the total VPSI fleet, with military the largest part of their federal market. In Pennsylvania, VPSI vanpools are in service in several military locations and have expanded recently. Military vanpooling of VPSI includes:

- Carlisle Barracks, U.S. Army facility, Carlisle, PA – two vans from Shippensburg with 27 employees. The program began in December 2008.

- Navel Support Activity Mechanicsburg, Naval Supply Systems Command, Mechanicsburg, PA – 5e vans from York and Chambersburg, with 35 employees.
- Tobyhanna Army Depot, Tobyhanna, PA – first VPSI van from Scranton in July 2010, with a second forming in fall 2010. The site has 5,600 federal employees and contractors, with many other private vanpool providers in service, including Gene Tranovich, Archbald, and Propst. Many riders are cross state commuters.
- Fort Detrick, Frederick, MD – one vanpool from Franklin County began June 2010.
- Navy Service Center, Northeast Philadelphia, PA – relocated site for some operations with vanpool from Delaware County.

The military vanpools offer employees the full $230 per month Commuter Choice benefit, that has been available since 2000 through the U.S. Department of Defense (DoD) Mass Transportation Benefit Program (MTBP). Currently this program has been extended through the end of the stimulus bill in December 2010. The MTBP program allows any active duty military member or DoD civilian employee to received up to the full $230 for eligible transportation costs, including vanpool.

Rural vanpooling – Iron Mountain

One interesting example of rural vanpooling is the Iron Mountain facility in Boyers, Butler County, Pennsylvania. Boyers is the site of the Iron Mountain storage facility, located in a former limestone mine, where among other tenants, the U.S. governments maintains secure records facility storage, including Office of Personnel Management and Social Security records.

There are approximately 3,000 workers at the Iron Mountain facility, with 140 commuters in 13 SPC vanpools from 6 different counties and covering the region from Edinboro, PA to West Virginia. Federal workers are eligible for Commuter Choice benefits, though the amounts differ by agency. Since workers at the site enter the mine from one entrance and walk from an extensive parking lot to the entrance, vanpool riders benefit from arriving nearby the entrance with vanpool parking nearby. The site also reduced its parking needs with these vanpool riders. The program has been so popular that one group of OPM workers relocated to a new OPM facility in Slippery Rock, PA set up the vanpool to go to the new facility.

5. *Southwestern Pennsylvania Commission (SPC):* Metropolitan Planning Organization

SPC is another example of an MPO coordinating vanpooling efforts. SPC also played a central role as a local stakeholder for this report.

Vanpool operations in Southwestern Pennsylvania are centered on the work of the SPC, which is the federally designated Metropolitan Planning Organization (MPO) for the 10-county, Southwestern Pennsylvania region. SPC is unusual but not unique among MPOs offering vanpooling services.

SPC, as the former Southwestern Pennsylvania Regional Planning Commission, entered the promotion of ridesharing in the 1973-74 energy crisis, and its vanpool program is now 37 years old.[5] The program, *CommuteInfo,* is a partnership of SPC and transportation management, operators, businesses, and organizations to promote ridesharing in the region. SPC leases its vans from a private company, VPSI Inc. SPC has expanded its vanpool services over time and absorbed the University of Pittsburgh's vanpooling operations (see sidebar box above).

SPC operates 43 vanpools with over 500 participants to four different locations: the University of Pittsburgh in the Oakland neighborhood of the City of Pittsburgh; the Golden Triangle in the Central Business District in downtown of the City of Pittsburgh; Boyers, Butler County, PA, site of Iron Mountain federal office site; and a new location with U.S. Office of Personnel Management in Slippery Rock, PA (see sidebar box). Vans average 9 commuters per van. With a long history now in vanpool operations, SPC reported strong continuity and consistency among its vans, with one vanpool of commuters using the van for 25 years, and one van and driver together for 30 years.

Key benefits for riders of programs such as SPC include:

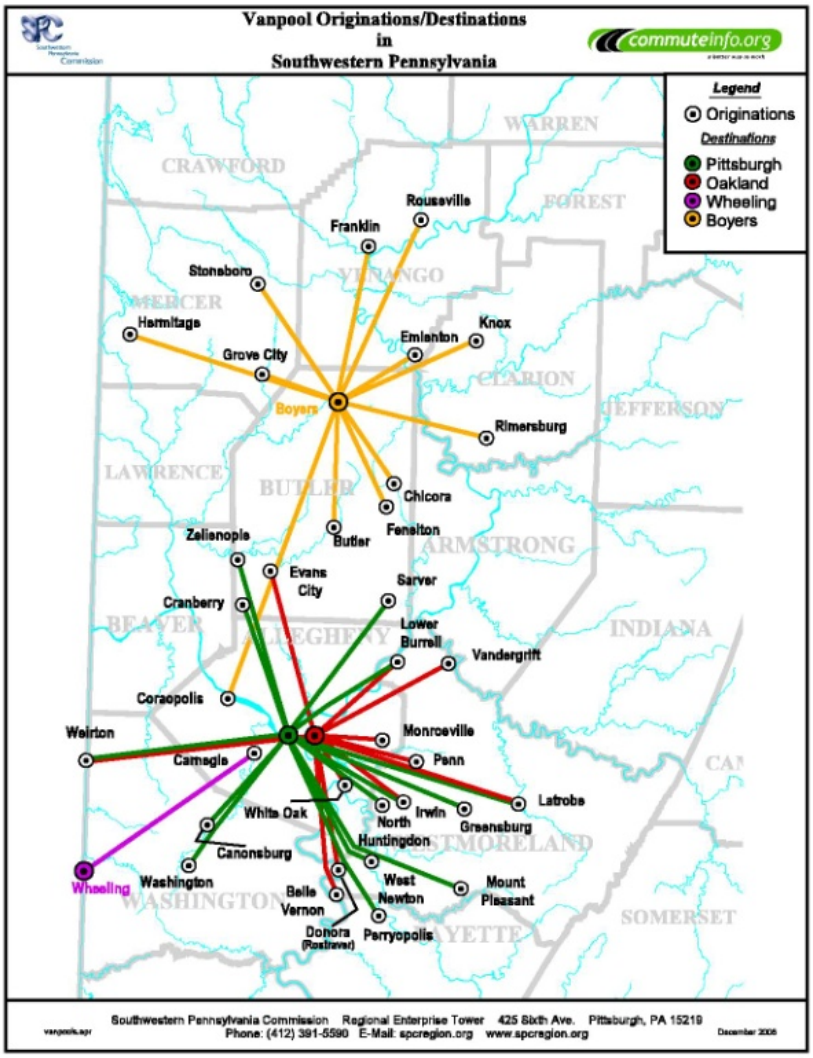
- Full service vanpool information and operations for both commuters and employers interested in setting up a new program.
- Staff dedicated and committed to providing ridesharing services and commuting options in the region and expanding services.
- Web site that provides entry, applications and information for both workers interested in joining or forming a vanpool and employers seeking information.

Other important conclusions to draw from the SPC case study:

- Results of vanpool riders in the Commute Info Program are similar those of riders from studies across the country - most vanpools operate with long-distance commuters whose alternative commuting choice is driving alone.
- Related services contribute to program success, including Emergency Ride Home services and parking options for flexibility.
- As with other programs, two of the biggest obstacles for vanpooling are finding volunteers to be van drivers and finding local money to match federal dollars to support the program.

[5] SPC was renamed from the former Southwestern Pennsylvania Regional Planning Commission.

Figure 12. Vanpool Originations/Destinations in Southwestern Pennsylvania (Southwestern Pennsylvania Commission)



Source: Southwestern Pennsylvania Commission (SPC)

The examples from SPC, other Pennsylvania case studies, and local stakeholders' analysis show the importance of and need for rural commuting options that vanpooling can address. Rural Pennsylvania contains active and important components of public transit and ridesharing. Twenty-one rural Pennsylvania transportation systems carried almost 3.7 million riders in 2003, but many rural commuters travel routes that are not part of any transit system. This offers an opportunity for expanding vanpooling across the state.

In many areas, the largest employers in rural Pennsylvania are often hospitals, manufacturing plants, correctional facilities, and institutions of higher education. Stakeholders identified a number of critical issues that might be related to these sets of employers:

- Scheduling: Shift work and unscheduled overtime are common among firms and operations in these sectors and sometimes difficult to work around, unless other parking/vehicle options are available for adding flexibility to a program.
- Leadership: Supervisors, owners, and prison wardens make a difference at a workplace. Interest from the top in commuting options for employees can expand vanpooling for commuters. Additionally, other spokespeople and supporters add to program success, as well as direct contact to employers of potential vanpooling commuters.
- Benefits: Federal operations, including federal prisons, offer Commuter Choice benefits, with many at the maximum allowable federal level. These are important incentives for setting up programs.
- Shared knowledge: The work on this study and subsequent efforts can contribute to greater sharing of knowledge of vanpool experiences across providers across the state.

Finally, vanpooling for people with disabilities is regulated under Title I of the Americans with Disabilities Act (ADA). Employers who provide vanpools or shuttle services for employees, whether leased, purchased, or otherwise subsidized by the employer, must provide that service to all employees, including anyone with a disability (as defined by the ADA) (Winters & Cleland, 2000). For public entities, Title II of the ADA also covers such services. In general, to meet ADA requirements is to be able to respond “promptly” when requests for accessible van transportation are made.

4. Employer Survey Results

An employer survey was developed to analyze employers' views on vanpooling, current practices, incentives, and prospective development. Previous research has shown that vanpool success is enhanced with strong employer involvement (Mielke, 2006). Vanpool programs have often been developed by employers, and existing public funds for vanpooling offer financial incentives for employers to engage in vanpooling programs for their employees. Different types of vanpooling programs offer sets of incentives for employers. Therefore, the central focus of this survey was to determine the level of engagement and potential engagement of employers in vanpooling efforts.

The employer survey was developed for the South Central region of Pennsylvania. This area shows a variety of commuting patterns across a number of counties and transit authorities, as depicted above from Census commuting data, and extends beyond the boundaries of PennDOT District 8. The data also show limited public transit usage, compared to the larger urban centers in the state, and a relatively higher incidence of carpooling. With a large number of commuters, including long distance commuters, and transit largely limited to local bus service, South Central Pennsylvania represents a smaller market where many commuters can benefit from alternatives to long distance driving available with vanpooling.

PennDOT has been involved in projects in the region through the Susquehanna Regional Transportation Partnership (SRTC), a nonprofit organization dedicated to improving transportation and reducing congestion in South Central Pennsylvania. SRTC receives PennDOT and federal Congestion Mitigation & Air Quality (CMAQ) funding. The SRTC covers a 9-county region, with board members from 7 Metropolitan and Rural Planning Organizations (RPOs and MPOs), 7 Chambers of Commerce, and 6 transit authorities. SRTC operates the Commuter Services of America program, which helps commuters and employers in the region improve daily commuting, reduce commuting costs, improve air quality, and match riders to commuter services, including vanpooling.

Methodology

The survey employed standard methods to reduce bias and ensure validity. The survey instrument was developed by the University Center for Social and Urban Research (UCSUR), with input from local stakeholders, PennDOT, and organizations participating in the survey. A web-based survey was selected since the respondents would be SRTC members with lists of email addresses. This method is also more cost effective than other survey methods and allowed skip patterns for respondents to limit their time commitment.

Employers to be surveyed were members of SRTP board organizations. UCSUR first contacted one board member, suggested by PennDOT, to assess interest in the project and review a draft of the survey. The survey and time frame were presented to SRTP board members to gain support for the project and establish access to their members as potential survey respondents. Most SRTC organizations agreed to have their members participate in the survey.

UCSUR *requested that participating organizations agree to provide their email lists* of members to improve the quality of the survey delivery, deliver repeat survey requests, and obtain information about participants' response rates. SRTP *board members would not agree to give UCSUR contact lists or direct access to their mailing lists*, but would *distribute access to the web-based survey through their electronic contact systems.*

UCSUR developed a web-based survey for participating organizations. One Chamber of Commerce did not agree to participate and the metropolitan and rural planning organizations in SRTC did not participate in the survey. Initially, Commuter Services and 6 Chambers of Commerce agreed to have their members participate in the survey. The survey was announced by individual organizations to their members through a variety of electronic mail mechanisms. Only Commuter Services provided information on the number that received the survey.

Survey links were delivered to 150 Commuter Services members and the 6 Chambers of Commerce; however, no responses were received by the survey deadline from two chambers.[6] Organizations participating in the survey include:

- Commuter Services (sent to 150 employers)
- Gettysburg Adams Chamber of Commerce
- Greater Reading Chamber of Commerce and Industry
- Harrisburg Regional Chamber and Capitol Region Economic Development Corporation (CREDC)
- Lancaster Chamber of Commerce and Industry

UCSUR delivered survey contact information to each point-of-contact at participating organizations, who then delivered the survey contact information to their members. Because individual organizations distributed the survey web link, UCSUR did not control the direct survey delivery in ways that would make response rates possible. For example, we did not know how many total survey links were sent to members of the Chambers of Commerce. Nonetheless, the final sample size of more than 400 employers of varying size, location, and

[6] Lebanon Chamber results were received from 13 respondents; however, because the survey deadline had passed, the results are not included here. Commuter Services of Pennsylvania offered additional "prizes" for participants, which increased the number of responses and resulted in a response rate of 46.7 percent.

other characteristics does allow for meaningful exploratory analyses of potential interest in vanpooling.

The survey was conducted through the web and the following returns were secured:

Table 10. Employer Survey Returns, by Organization

Organization	Surveys returned	Percent of total returned
Commuter Services	70 (46.7% RR)	16.0
Gettysburg Adams Chamber of Commerce	77	17.6
Greater Reading Chamber of Commerce & Industry	230	52.6
Harrisburg Regional Chamber & CREDC	35	8.0
Lancaster Chamber of Commerce & Industry	25	5.7
Total	437	100.0

The overall Chamber of Commerce response rates could not be determined because of the nature of the distribution of the survey and the extensive email lists most Chambers of Commerce employed (with hundreds and thousands of members and contacts). As noted above, the responses represent a range of employers, across different size firms and sets of industries. Despite the fact that this was not a probability sample survey, the results still present a compelling preliminary summary of vanpooling options for the South Central Pennsylvania region. In addition, the 46.7 percent response rate for Commuter Services survey respondents suggests adequate representation of this key employer group.

Survey respondents and firm description

The employer survey focused on a number of critical interrelated issues:

- Employer industry, size and location
- Commuting patterns among employees
- Provision of parking and other commute costs
- Cost reduction incentives

The largest number of firms responding to the survey was manufacturing companies, representing 13.3 percent of respondents, or a total of 58 companies (see Table 11). Other services, professional, scientific and technical services, and finance and insurance services represented the next largest number of respondents. In general, the respondents represent a solid cross-section of firms in the South Central Pennsylvania regional economy and give good industrial and firm size differences for targeting vanpooling efforts.

Table 11. Primary industry, survey respondents

Industry	Number of firms	Percent
Agriculture, Forestry, Fishing and Hunting	7	1.6
Mining, Quarrying, and Oil and Gas Extraction	1	.2
Utilities	10	2.3
Construction	18	4.1
Manufacturing	58	13.3
Wholesale Trade	7	1.6
Retail Trade	19	4.3
Transportation and Warehousing	22	5.0
Information	3	.7
Finance and Insurance	48	11.0
Real Estate and Rental and Leasing	15	3.4
Professional, Scientific, and Technical Services	51	11.7
Management of Companies and Enterprises	3	.7
Administrative and Support and Waste Management and Remediation Services	2	.5
Educational Services	27	6.2
Health Care and Social Assistance	43	9.8
Arts, Entertainment, and Recreation	13	3.0
Accommodation and Food Services	13	3.0
Other Services (except Public Administration)	53	12.1
Public Administration	20	4.6
Total respondents	433	99.1
No answer	4	.9
Total	437	100.0

Firm respondents, on average, were larger employers. Nearly 20 percent of firms employed over 500 people (see Table 12) by total firm size. For firms with more than one location, the survey asked for the number of employees at the survey location. Of these establishments, 55 percent of respondents employed fewer than 100 workers at their South Central Pennsylvania establishment (see Table 13).

Manufacturing firms were more prevalent among the medium-to-larger employers. Over one-third of the manufacturing firms in the survey employed between 100–499 employees at that location and nearly 20 percent employed over 500 workers. Not surprisingly, the other industries with firms tending to be larger employers were *educational services* and *health care and social assistance*, though not, on average, as large as manufacturing establishments. The sectors *other services*, *finance and insurance*, and *professional, scientific and technical services* tended to be in smaller than average-sized establishments.

Table 12. Number of firms by total employment size [7]

No. of employees	No. of firms	Percent	Cumulative percent
Less than 25	126	30.7	30.7
25-49	51	12.4	43.2
50-99	44	10.7	53.9
100-499	80	19.5	73.4
500-999	30	7.3	80.7
1,000 or more	79	19.3	100.0
Total	410	100.0	

Table 13. Number of firms by employment size by survey establishment (for firms with more than one establishment)

No. of employees	No. of firms	Percent	Cumulative percent
Less than 25	55	28.4	28.4
25-49	29	14.9	43.3
50-99	22	11.3	54.6
100-499	59	30.4	85.1
500-999	11	5.7	90.7
1,000 or more	18	9.3	100.0
Total	194	100.0	

[7] Response rates are determined by the number of firms responding to a question, not total firms in the survey. Total responses per question are recorded for each question shown.

Commuting patterns

The following transportation modes choices were included in the survey to determine what percentage of firms' workforces use each one:

- Drive alone
- Public transit
- Bike
- Walk
- Carpool
- Vanpool
- Other means (less than 5 percent of firms listed "other means," and most of these reflected employees using mixed modes)

As expected, driving alone is by far the most common means to travel to work, as reported by firms in the survey. Eighty percent of the firms in the survey reported that 90 percent or more of their workers commuted to work by driving alone. A significant number of firms – 166 or 38 percent of respondents – reported that 100 percent of their employees drove to work alone.

Firm size has a strong relationship to modes of commuting by employees. Employees at the smaller sized firms were far more likely to drive alone than the largest firms. Two-thirds of firms with fewer than 25 employees reported that 100 percent of their workers drove to work alone, while only 2.4 percent of workers at firms with 500 employees or more drove to work alone.

Conversely, workers at larger firms were far more likely to take public transit than workers at smaller firms. Two-thirds of firms with more than 500 workers reported at least some share of their workers commuted by public transit, while 90.7 percent of the smallest firms with fewer than 25 workers reported that none of their workers commuted by public transit.

As with public transit, commuting by biking, walking, or carpooling was also more prevalent with workers in larger establishments than in smaller size establishments. Nonetheless, fully one-third of respondents reported at least some of their employees engaged in carpooling for their work trips. The prevalence of carpooling is also positively related to size of firm, with 70 percent for the largest establishments (over 500 employees) reporting some carpooling to their establishment.

These results across various modes confirm that employees at larger establishments are less likely to drive alone to work than employees at smaller establishments and more likely to commute by various other modes, including biking, walking, and carpooling.

Finally, the patterns reported above are not as strong or as prevalent with vanpooling among firms surveyed because only 8 firms reported any vanpooling among their employees. Nearly all of them were among the largest establishments.

Telecommuting, by contrast, is fairly common across firms by size of establishment. Overall, 116 firms, or 29.3 percent of respondents, indicated that their employees are able to telecommute. This ranged from 22 percent of firms with between 50-99 employees to one-third of firms with fewer than 25 employees. However, who can telecommute is typically limited to certain types of works and certain types of firms. Though telecommuting is possible for some employees, 40 percent of firms reported that approximately only 5 percent of their employees were able telecommute. So while telecommuting is possible for employees at many firms, the share of the establishment's employees who can telecommute is often restricted.

Firms were asked about the incidence of overtime in their establishment and the possibility of unscheduled overtime. The incidence of overtime is typically a hindrance in establishing vanpools. If overtime is required, workers in vanpools need the flexibility of other forms of transportation being available to them, especially if overtime is unscheduled. Nearly three-quarters, or 72.7 percent, of respondents reported that their firms' employees work overtime, while 44 percent required employees to stay for unscheduled overtime. This turns out to be an interesting factor in the predictive models of willingness to participate in vanpooling presented below.

One of the most important factors and incentives for vanpooling is the distance someone travels to work. The survey results confirm that there are significant differences by size of establishment in the distances employees travel to work. Employees at larger-sized establishments are far more likely to travel longer distances to work than employees at smaller-sized establishments.

Vanpooling is most appropriate for longer distances travelled with no transit options available, such as light or heavy rail, typically. In South Central Pennsylvania, there are few travel options outside of driving for virtually all commuters traveling longer distances and making inter-municipality trips. Once again, the size of the establishment is positively related to the distance workers commute. The smallest establishments with fewer than 25 employees reported employees traveling the shortest distances. Forty of these smaller-sized firms reported all their workers commuting short distances, and 75 percent or 102 of the smallest sized establishments

reported that none of their workers travelled over 30 miles each way to their work destination. On the other hand, 65.8 percent of the largest firms reported that 5 to 10 percent of their employees travel over 30 miles one way to their jobs.

Factors encouraging employees into vanpooling arrangements include the cost of driving one's own vehicle, the time involved in driving, and other factors related to commuting to their place of work. In the survey, 54.1 percent of firms reported that 10 percent or more of their employees reported experiencing some transportation problems getting to work. For those reporting any employee problems, well over half, or 57.8 percent, reported only a minor problem. Nonetheless, over one-third of those firms reported this was a moderate problem, and 11 firms found it to be a severe problem.

Parking

The survey included a number of questions directly related to parking to estimate the impacts of the costs of providing parking for firms versus employees using other transportation options.

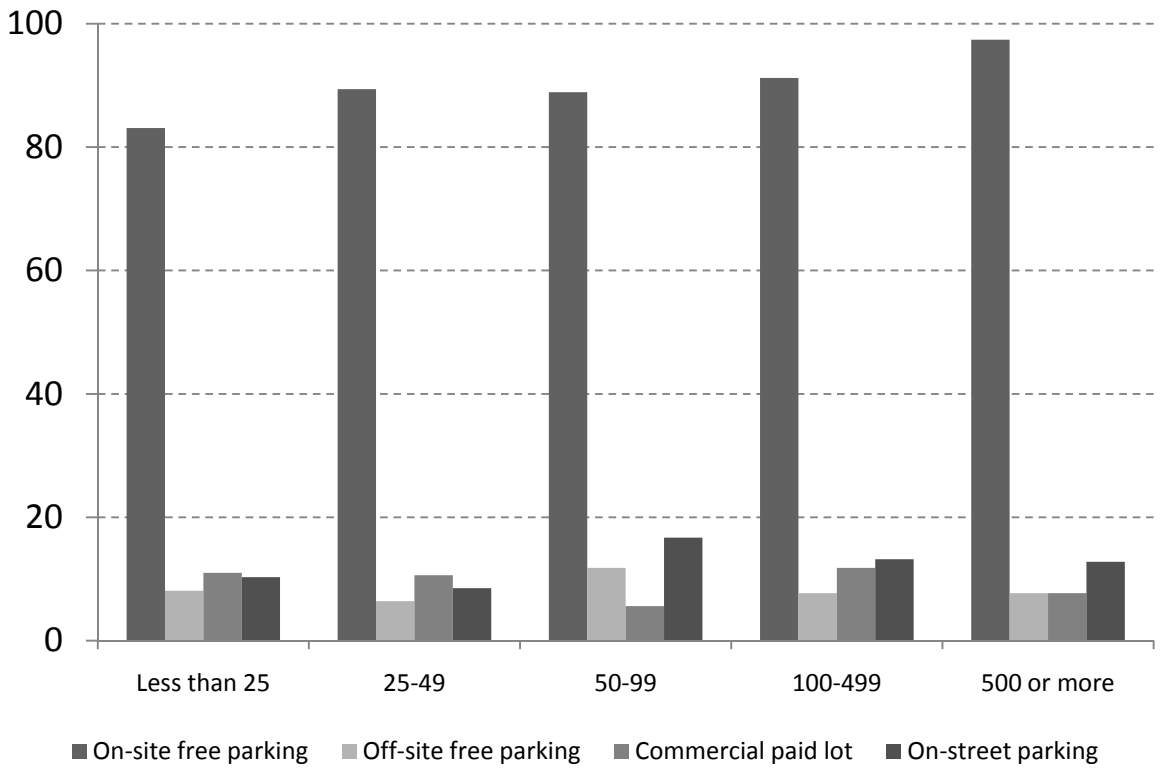
First, nearly all survey respondents (96.1 percent) reported that parking was conveniently located for most of their employees. A similar figure (93.0 percent) reported that there was adequate parking for their employees. There were no significant differences by size of firm on either of these questions. When queried about types of parking options available to employees, size of firm did matter (see Table 14). Larger firms were more likely, not unexpectedly, to provide on-site free parking for their employees. Differences by size for other parking types were not as large. On-street parking was used by nearly 12 percent of the employees of the surveyed firms. Nonetheless, 92 percent of firms reported that commonly used parking lots have adequate spaces for their employees who drive to work.

Table 14. Percent of firms using different types of parking, by size of firm

Type of parking	Size of firm by number of employees at survey location					
	Less than 25	25-49	50-99	100-499	500 or more	Total
On-site free parking	83.1	89.4	88.9	91.2	97.4	88.0
Off-site free parking	8.1	6.4	11.8	7.7	7.7	8.9
Commercial paid lot	11.0	10.6	5.6	11.8	7.7	10.1
On-street parking	10.3	8.5	16.7	13.2	12.8	11.7

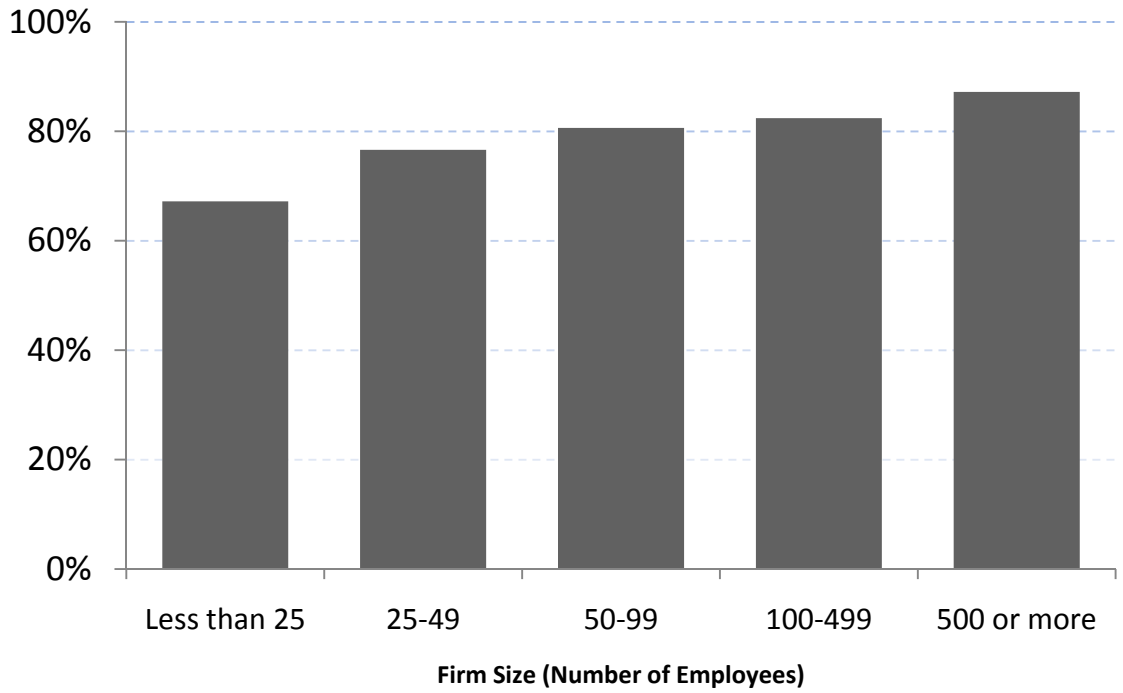
Numbers may not add up to 100.0 – respondents checked all that applied.

Figure 13. Percent of firms using different types of parking, by size of firm



Numbers may not add up to 100.0 – respondents checked all that applied.

Figure 14. Percent of firms that provide parking lots or lease parking space for their employees



Additional questions then focused on the firm's provision of parking lots. Over three quarters (76.3 percent) of firms provide parking lots or lease parking spaces for their employees, ranging from 67.2 percent of the smallest firms (less than 25 employees) to 87.2 percent of the largest establishments (500 or more employees). This group was then asked if they were interested in reducing the costs associated with providing parking. Twenty-five percent of respondents were interested in reducing their costs of providing parking for employees, with the largest firms expressing even higher levels of interest (38.2 percent).

Firm responses to questions about transit provide a different perspective when compared to parking. Even though 65 percent of surveyed firms reported that their location is within a ¼ mile of a transit stop, only 30 percent of respondents found that transit was convenient for their employees. The nearby transit stop may not have convenient routes or times or schedules that would be convenient for workers commuting. And though parking costs, parking availability, and tolls were not factors interfering with recruiting employees (all < 5%), travel time and lack of transit were factors for 16 percent of surveyed firms. Twenty percent of firms promoted commuting alternatives to their employees, and 20 firms had employees who worked specifically on transportation coordination.

Commuter Choice

Commuter Choice, the nationwide program to improve commuting for employers and employees, remains an underused and, in many cases, unknown program for employers in South Central Pennsylvania. Commuter Choice focuses on improving a set of commuting choices and challenges, including mode, time, route, and location of travel. For employers, Commuter Choice allows them to offer tax-free benefits to employees not driving alone to work, up to $230 monthly, with employers gaining a tax deduction.

The survey focused mainly on the mode of travel and the tax incentives available to employers and their employees, with vanpooling one of the modes that qualify for tax incentives (transit, vanpool, and bike/walk/skate). Only 13 firms in the survey participated in Commuter Choice (4 percent of survey respondents), and nearly all of them were large establishments. Fully 30 percent of surveyed firms indicated that they were not familiar with Commuter Choice. Another 23 percent of firms did not answer the Commuter Choice question.

Table 15. Does your firm participate in Commuter Choice for your employees?

Choice	No. of firms	Percent
Yes	13	3.0
No	196	44.9
Not familiar with Commuter Choice	129	29.5
Total	338	77.3
Did not answer	99	22.7
Total	437	100.0

The responses by mode of choice found that the carpooling benefit was offered most frequently (9 firms), followed by transit (8 firms). Six firms reported Commuter Choice benefits for biking and 4 for vanpooling. These small numbers suggest that the benefits of Commuter Choice are not known to survey respondents, and the advantages of Commuter Choice are not yet recognized by most survey respondents.

Finally, of the 13 firms currently participating in Commuter Choice, 11 have more than one location. This suggests that not only are larger firms more likely to take advantage of the Commuter Choice Program for their employees, firms with more locations are also more likely to use the Commuter Choice benefit. Additionally, 25 firms offered other non-Commuter Choice transit benefits. These results also confirm findings from the Southwestern

Pennsylvania Commission (SPC). The SPC found that in the western Pennsylvania region, just 2 percent of firms are employing Commuter Choice (SPC, 2009).

Table 16. Firms Participating in Commuter Choice, by Single Establishment or Multi-establishment Locations

Participating in Commuter Choice	No. of firms			
	More than one location	One location only	Total	Percent
Yes	11	2	13	3.8
No	104	92	196	58.0
Not familiar with Commuter Choice	73	56	129	38.2
Total	188	150	338	100.0

A final set of questions about vanpooling was included in the survey. They will not be summarized here; only 5 firms in the survey currently offer any vanpool options representing 1 percent of the respondents.

Predictive model of employer support for vanpool operations

To focus on potential employer support of a vanpool program choice, the survey results were modeled to estimate a binomial model of choice of vanpool versus all other modes of transportation. Because the cost of using each mode of transportation varies widely across the region and was not requested in the employee survey, the cost variables were constructed based on a set of assumptions. The cost components of each mode are described below.

The key question is to gain a greater understanding of what factors could potentially induce employers to support or sponsor vanpool operations at their firms. To get at this question a model of the survey responses was constructed to predict the answer to Question 24, which was “Would your firm consider sponsoring vanpooling for employees?”

While the ideal model would predict what factors lead to actual vanpool formation, the number of respondents who indicated that their firms currently have operating vanpools was so low as to preclude such a predictive model. Of all respondents, only five indicated their firm had operating vanpools.

Therefore, the model developed examined the factors related to greater likelihood of considering or adopting vanpooling in the future. The following questions from the survey that express support for vanpooling or continued interest toward supporting vanpooling were examined:

- *Model 1:* You indicated that your firm does not currently support vanpool operations. Would you firm consider sponsoring vanpooling for employees? (Q24)
- *Model 2*: If it would reduce your firm's costs of providing parking, would your firm be more likely to adopt vanpooling for employees? (Q24_A)
- *Model 3*: In addition to the federal incentives for vanpooling under Commuter Choice, if Pennsylvania offered additional incentives, would your firm be more likely to adopt vanpooling for employees? (Q24_B)
- *Model 4*: Do you have any employees who would be interested in services that match potential ride-sharing partners, as provided by Commuter Services of Pennsylvania? (Q25)
- *Model 5*: Would you like to see the state form a task force on vanpooling? (Q26)

The models were tested using logistic regression analyses, where predictive variables were selected using bivariate Chi-Square tests of potential predictors across the five outcomes. Variables consistently related in the bivariate tests, and thus selected as model predictors include:

Table 17. Potential Predictors of Employer Support for Vanpool Services

Variable	N	Description
Q3a	410	Number of employees
Overtime	417	Do employees work overtime?
Telecommute	396	Are employees able to telecommute?
Parking/Adequate	359	Is there adequate parking available for your employees?
Q15	346	How convenient is public transit? Meets our needs
TransRecruiting	338	Is the availability of transportation a factor in employee recruitment?

Results

Model 1: You indicated that your firm does not currently support vanpool operations. Would your firm consider sponsoring vanpooling for employees? Parameter results are shown in Table 18. The table displays the results of the first model with regressors, standard errors, Wald chi-squared values and Odds ratios [Exp(B)] included (see Table 19).

Table 18. Regression Results, Model 1: Would your firm consider sponsoring vanpooling for employers?

Variables in the Equation

Step 1[a]	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
							Lower	Upper
Number of employees	.330	.084	15.508	1	.000	1.391	1.180	1.638
Do employees work overtime?	1.148	.452	6.447	1	.011	3.152	1.299	7.646
Can employees telecommute?	-.463	.341	1.847	1	.174	.630	.323	1.227
Is there adequate parking?	-.642	.489	1.723	1	.189	.526	.202	1.372
Public transit meets needs			1.200	2	.549			
Public transit is not adequate	-.267	.328	.664	1	.415	.765	.402	1.456
Public transit is not available	-.465	.454	1.049	1	.306	.628	.258	1.530
Availability of transportation is related to employee recruitment	1.145	.316	13.107	1	.000	3.144	1.691	5.844
Constant	-2.695	.689	15.319	1	.000	.068		

a. Variable(s) entered on step 1: Q3a, overtime, telecommute, ParkingAdequate, Q15, TransRecruiting.

Factors positively affecting firms' decisions to consider sponsoring vanpooling for their employees include size of firm, supporting preliminary data analysis from the survey results. Additional strength was shown in greater availability of transportation as a factor in employee recruitment. The relation with telecommuting and adequate parking was negative, implying that telecommuting options and adequate parking for employees will negatively affect firms' decisions to support vanpooling, though not strongly significant. The relation to public transit was not significant, suggesting that public transit is not a substitute for vanpooling among respondent firms.

The adjusted R^2 shows that the model explains approximately 22 percent of the variation in the dependent variable considering sponsoring vanpooling.

When the dependent variable is changed to a firm's consideration of adopting vanpooling if it would reduce costs of providing parking for employees, the results do not differ significantly for dependent variable 1. Adequate parking is more strongly related to a negative outcome and significant in the model.

Table 19. Regression Results, Summary Table, Models 2-5

Variables in the Equation

	Model 2 (reduce parking costs)		Model 3 (additional incentives from Pennsylvania)		Model 4 (match ridesharing partners)		Model 5 (task force on vanpooling)	
Step 1	B	S.E.	B	S.E.	B	S.E.	B	S.E.
Number of employees	.179[b]	.082	.240[b]	.073	.425[b]	.081	.133	.071
Do employees work overtime?	.485	.381	.837[b]	.337	.427	.373	1.068[b]	.346
Can employees telecommute?	-.927[b]	.369	-.692[b]	.297	-.389	.323	-.719[b]	.296
Is there adequate parking?	-1.110[b]	.461	-1.388[b]	.497	-.772	.467	-.819	.452
Public transit meets needs								
Public transit is not adequate	-.082	.329	-.296	.297	-.019	.316	-.087	.295
Public transit is not available	-.291	.444	-.125	.382	-.668	.446	-.564	.389
Availability of transportation is factor in employee recruitment	.630[b]	.313	1.076[b]	.292	1.108[b]	.308	.609[b]	.283
Constant	-1.061	.611	-.535	.609	-1.963	.619	-.862	.578

a. Variable(s) entered on step 1*: Q3a, overtime, telecommute, ParkingAdequate, Q15, TransRecruiting.*
b. Significant at 5% level (p< .05)

Model 2: If it would reduce your firm's costs of providing parking, would your firm be more likely to adopt vanpooling for employees?

Model 3: In addition to the federal incentives for vanpooling under Commuter Choice, if Pennsylvania offered additional incentives, would your firm be more likely to adopt vanpooling for employees?

Model 4: do you have any employees who would be interested in services that match potential ride-sharing partners, as provided by Commuter Services of Pennsylvania?

Model 5: Would you like to see the state form a task force on vanpooling?

The regression results confirm important issues about vanpooling. The larger-sized establishments are positively related to all dependent variables above and significant (except the state task force on vanpooling with p value = 0.06), suggesting that size is one of the singularly important factors related to support of vanpooling in the South Central Pennsylvania region. This is not to suggest that this finding is universal; indeed, we know from other research and results from SPC's CommuteInfo program that dense, urban locations can be vanpool destinations for long distance commuters. Nonetheless, in a region with large employers and long distance commuters, firm size matters.

The relation between transportation and recruiting employees was also positively related to the dependent variables in all the models. Thus for many firms in South Central Pennsylvania, it is not sufficient to say current transportation patterns are adequate; transportation availability is important for firms to recruit new employees and is significantly related in all the models above. Vanpooling clearly can be part of the palate of options.

Results on overtime are somewhat in conflict with existing literature, with overtime – and especially unscheduled overtime – generally negatively associated with vanpooling prospects, though our results gave a positive relation. It could be that the two were viewed as somewhat related by survey respondents, or that lacking experience with vanpooling and establishing vanpool groups, survey respondents have not encountered overtime as a hindrance to vanpooling. The results are comparable across the model specifications.

Qualitative data results

Survey respondents were given the opportunity to reflect on the survey and their views of transit and the survey. Specifically, the survey ended with an open-ended question to provide additional comments.

Please provide any comments regarding this survey here:

The open-ended data obtained was then analyzed and coded by UCSUR's Qualitative Data Analysis Program (QDAP). Open-ended survey responses were coded by two independent coders using ATLAS.ti 6.0, a qualitative data analysis program that facilitates multi-coder projects. The constant comparative method of analysis (Glaser, 1965) was employed. Originating out of grounded theory methodology (Glaser & Strauss, 1967), constant comparison is a method in which each response is compared to other responses within the dataset. Comparisons are made to determine commonalities and differences within and between individual responses. In this iterative fashion, the codebook is developed into a final and thorough version.

At the outset, the coders and a project manager read responses to identify potential codes, and each drafted a codebook. Next, the coding team consolidated their three versions into an initial codebook. Then they applied these codes to a sub-set of the data. The project manager measured inter-rater agreement using Fleiss' kappa (Fleiss, 1971); (Fleiss, 1973). The resulting kappa scores served to guide the coding review and arrive at the final iteration of the codebook. The coders then each coded the remaining responses. The project manager reviewed the coded transcripts and determined that the instances of themes missed by one coder were annotated by the other coder. Hence, the themes were fully identified in the dataset.

The following themes were identified through the qualitative data analysis, marking the major areas of concern and comments through the open-ended question option at the end of the survey:[8]

1. Alternative Transportation Support
2. Convenience of Driving
3. Cost
4. Geographic Logistics
5. Improve Roads and Infrastructure
6. Mass Transit Improvements
7. Off-Site Work
8. Parking Issues
9. Politics and Government Spending
10. Variable Shifts
11. Other

The qualitative data results underscore the findings from the regression results and general survey analysis. These also become important in the cost-benefit analysis and financing model.

- Short distance commuters are not potential vanpool riders and not interested in vanpool options.
- Mobile workers with varying destinations are clearly not vanpool riders and not interested in vanpool options.
- Federal workers qualify for Commuter Choice benefits, but in some federal employment locations, vanpools have not been promoted. Federal employment locations and installations mark an important area to pursue with additional information.

[8] Comments by category are included in Appendix 4.

- There seems to be a general lack of knowledge of what vanpooling can provide firms.

Survey Conclusions

The survey and regression analyses point to a number of conclusions that underscore our knowledge of vanpooling in general and the conditions in South Central Pennsylvania in particular.

- Size matters: Regardless of the form of the question, the larger the firm, the greater the support for vanpooling. Larger firms were also more closely linked to support for additional incentives developed by the state for vanpooling and ride sharing services provided by Commuter Services of Pennsylvania.
- Telecommuting and adequate parking for employees are inversely related to interest in vanpooling. Firms with greater concern about parking costs will be more likely to engage in vanpooling efforts than those whose costs are not as much a firm concern.
- Convenience and access to public transit were not significant and thus are not strongly related to a firm's support for vanpooling. This fits the general lack of a variety of public transit in much of the South Central Pennsylvania region. Public transit serves limited urban destinations tied to population density and existing use and is unlikely to cover the dispersed geographic locations of many large South Central Pennsylvania employers.
- Commuter Choice is not used extensively in the South Central Pennsylvania region. Not only were most firms not using Commuter Choice, more were not familiar with it. The tax benefits available through Commuter Choice could be more widely promoted in Pennsylvania.

5. Cost-Benefit Analysis of Vanpooling

In this section, we examine important issues related to the costs and benefits of vanpooling. Examples of costs and benefits of vanpooling as a mode of transit are given to demonstrate the feasibility of expanded vanpool operations in Pennsylvania. The comparisons include both direct and indirect costs and benefits to the major stakeholder groups: vanpool riders, their employers, and the community. The results show net benefits to each of these three groups for vanpooling in comparison to driving alone; however, the proportion of the benefits that accrue to the individual vanpool rider or consumer is generally a fraction of the overall benefit once community and employer benefits are factored in.

Also detailed are some of the cost-benefit comparisons of vanpooling compared to the public transit operations in Pennsylvania. Using data from the National Transit Database, the per rider and per mile cost comparisons of both current and notional expanded vanpool operations are shown to be significantly cost effective compared to any public transit system.

The low usage of vanpooling as a mode of commuting makes detailed cost-benefit analysis to other transit and transportation modes difficult on a social benefit level. The small scale of most vanpool operations makes administrative and overhead costs either difficult to compute or prohibitive when allocated in their entirety to per rider costs.

Vanpool Stakeholders - Employers

The transportation problems employers are faced with center around their need to find and retain an adequate workforce for their establishments. The vast majority of workplace commuting is by workers who travel via automobile or public transit. Less than 4 percent of the national workforce, and less than 5 percent of the Pennsylvania workforce travel to their place of employment either on foot or bicycle. For the remainder, means of transportation to work can play a factor in the recruitment of a firm's workforce and their retention. These factors are underscored in the employer survey results.

Employers looking to improve transportation options for their workers often have few options. Direct subsidization of automobile usage is not an option available via federal tax regulations. Options do exist for employers to indirectly subsidize driving as a means of commuting, generally through enhanced parking availability for their workers.

Fostering increased usage of public transit is mostly available to a limited number of firms which operate in areas providing regular public transit service to their specific locations. While public transit availability in some regions does expand over time, especially in the short term, few employers can plan for expanded transit options as a means to improve commuting options for their employees.

In the long run, employer impact on commuting costs is derived from site selection for their establishment locations. Not all firms have significant freedom in where they can locate their primary establishment, but for those that do have options the specific selection of geographic location can have significant impacts on their employer commuting costs. Locations near primary highway nodes can significantly alter commuting times along with monetary and time costs of commuting. Locations near major public transit routes can directly impact the viability of public transit as a means of commuting for a firm's workers.

Workers

The dominant mode of commuting remains driving alone, and the costs associated with driving to and from work are specific to the worker. Workers incur direct expenses resulting from their choice in mode of commuting and are also impacted by their preferences among alternative modes of transportation. Not all commuters have the options among all the possible modes of transportation. While both public transit users and individual drivers are comprised of both captive and choice riders, i.e. those who do not have alternative options for commuting and those who do, vanpooling is almost always a choice option for the individual commuter. Few vanpool riders have no alternative means of commuting to their place of employment. Thus for individual workers, the cost benefit of vanpool choice must provide them with a distinct advantage over alternative choices they have for mode of transportation. This advantage can result from direct monetary advantages, but also must account for user preferences.

Community

Public costs and benefits accrue because of greater vanpool usage, thus reducing congestion, improving air quality, and mitigating some infrastructure costs. Public costs and benefits result from cost savings or expenditures that do not accrue to any of the specific stakeholders in the vanpool operations. Public benefits can result from decreased congestion and lowered commuting times as vanpools displace private automobile commuting. Decreased pollution resulting from decreased vehicle use can have a benefit to regional quality of life. Costs of vanpooling can include the imputed cost per taxpayer where public subsidies are directed toward vanpool operations. Subsidies directed toward vanpool operations will exert an opportunity cost on expenditures that cannot be directed toward other uses.

Cost/Benefit Analysis

Can vanpool be an effective means of traffic mitigation that produces net benefits to stakeholders: employers, workers and the community? To compute these benefits, both direct and indirect costs need to be quantified to the best degree feasible. Direct costs are generally much easier to quantify. For employers and employees, these direct costs include the capital costs of their mode of travel, system operation, maintenance, fuel, management, etc. Indirect

costs are much harder to calculate and generally include a range of external costs imposed on third parties. These would include for state and local governments the cost of road construction and maintenance, and the more general community costs based on air quality.

Further, marginal costs for expanding existing vanpool operations can be significantly less than average costs. Starting a new vanpool operation incurs startup costs that will in most cases not be recoupable to per rider charges when overall program usage is low. A significant part of the startup costs are essentially fixed costs. Additional riders on a given vanpool which has space capacity, or the incremental van supported by a regional operation, will incur much smaller incremental costs than the average per rider, or per vanpool operating costs. Here the notional operating costs for what are considered existing vanpool operations are considered.

Vanpool costs and benefits can expand well beyond the program area that sponsors an individual program. Vanpools are used more by commuters with longer commuting distances. It is not uncommon for vanpool routes to extend past the boundary of a specific county or even metropolitan area. Cross-state vanpooling is also growing as a mode of commuting, as evidenced by current vans to Maryland. While the costs and benefit calculations for these long distance vanpools can be computed, allocating those costs and benefits to specific areas becomes more difficult.

Direct costs of vanpooling include personnel (driver), purchase/lease, fuel, and maintenance costs; subsidies paid to drivers/passengers; vehicle and related liability insurance; additional costs resulting from vehicle accidents; and the administrative costs of organizing and operating the vanpool system. An internal cost to vanpoolers is reduced flexibility in travel arrangements.

External costs for vanpooling result from necessary increases in the transportation infrastructure to support additional van traffic and in the difference between the basic costs and the prices of automotive fuels. As vanpool operations across Pennsylvania are generally small in scale and displace individual drivers, there is no projected cost in this analysis for any additional infrastructure investment needed to support current or expanded vanpool demand across the state. Individual employers can support vanpool usage by providing parking. Such employers may incur incremental costs as vanpool operations expand, especially in areas with limited parking availability for vans.

Vanpooling benefits to employers can include many of the above elements, with the exception of decreased office move rates and office space savings. Internal benefits to telecommuting employees include decreased work related costs (clothing, food, automobile insurance, maintenance and fuel) and various psychological benefits, such as decreased stress; increased availability of discretionary time; increased quality of home life; and increased feeling of "self-empowerment”. Internal benefits to vanpoolers are largely those related to decreases in automobile expenses.

Indirect and external benefits for vanpooling include reduced traffic congestion and proportional decreases in air pollution and energy consumption.

In the following sections, we shall examine these costs and benefits in more detail, using empirical data. In particular, the vanpool data is derived from active vanpool programs operating in Pennsylvania. The limited number of current vanpool operations is not intended to define the entire range of possible vanpool usage and benefits in the future. In particular, current vanpool programs in Pennsylvania support only a limited number of vans. These existing programs would have different costs associated if their operations were expanded and they operated at larger scales. This analysis is intended to provide an outline of what the costs would be for existing vanpool programs operating at incrementally larger scales.

Current vanpool operations in Pennsylvania are generally sponsored by public organizations. These include Metropolitan Planning Organizations, as is the case with the Southwestern Pennsylvania Commission (SPC), transit agencies such as the Centre Area Transit Authority (CATA), or large public employers such as the vanpool operations at the Tobyhanna Army Depot, run by private companies. These organizations support from 2-25 individual vanpools.

Typical vanpool size of an individual vanpool includes 7-12 riders, and the distances they cover range from 10-40 miles for their typical one-way commuting distances. Most vanpools support riders who work for a specific place of employment, while some bring riders to a location with dense employment locations where riders work for separate employers. Here the costs and benefits for a notional vanpool with 10 current riders using a standard 12-person van are compiled. Here vanpool operations are assumed to support 25 vans with one dedicated full-time equivalent staff person providing overall program administration. Additional assumptions on notional vanpool operations are detailed in the specific sections for each of the itemized costs and benefits.

Each of these factors are variable across vanpool operations. The notional vanpool operation here is actually far larger than most vanpool programs currently operating in Pennsylvania, though smaller than the vanpool programs in some other states. With a vision of what expanded vanpooling in the state could entail, this larger vanpool program size is considered as a model for the future. Costs are broken out for the direct and indirect costs of individual vanpool riders, the costs or benefits to employers who have employees using vanpools as a means of commuting, and community and program costs and benefits resulting from vanpool operations.

Individual vanpool costs

The primary costs that accrue to the individual vanpool rider include vehicle leasing or capital costs they are charged with, vanpool operations including fuel and maintenance where applicable, and tolls and parking charges in certain circumstances. Each of these costs are considered separately.

Vehicle Lease. This is the largest capital cost item, with the actual figures depending on the amenities (such as air conditioning) provided per van and the average annual vehicle mileage. The calculation of vehicle costs will be different for organizations that purchase vehicles directly for vanpool operations and those that operate as leases. Because the prevalent mode of Pennsylvania based vanpools is to lease vans from a 3rd party provider, only this operating model is considered.

Third party van leasing costs typically covers the van, insurance, maintenance, repair, registration, tax and license, and roadside assistance. Thus the per month fee typical covers both the capital purchase costs of the vehicles and a large part of the routine maintenance and administrative overhead associated with maintaining a vanpool operation. For smaller organizations, a third party vanpool service provider would be the only practical way to support vanpool operations. Only larger operations, with a significant number of vans, could efficiently support the fixed overhead costs and maintain the services typically received by a third party vendor.

Vehicle Operation. Most vanpool operations in Pennsylvania use a third party leasing option for the provision of vans. Third party leasing typically provides turnkey support for a vanpool program which reduces administrative and overhead costs elsewhere. Turnkey operations will typically cover expenses for vehicle insurance and routine maintenance which would either need to be covered by individual vanpools or overall vanpool program administration.

Vanpool leasing costs will vary with the size of van and other choices. Vanpool riders typically have an option to lease standard or luxury outfitted vans at marginally higher costs. The typical monthly lease provides for the capital expense of the van itself but also routine maintenance. Leasing also eliminates most costs associated with vehicle acquisition and turnover. Lease rates will vary by size of van, from 7-person minivans to 15-person luxury vans. For a 10-person vanpool using a 12-person van, lease rates will typically range from $800-$1,000 per month.

With leasing, individual vanpools will incur additional vehicle operation costs which will be attributed to their member-riders. These costs will include fuel as the largest expense. The example used here assumes an annual van usage of 15,000 miles (250 days at 60 miles per day), fuel efficiency of 12 miles per gallon, fuel cost of $2.85 per gallon per van resulting in fuel costs of $3,562 per year. With a $900 monthly lease total, operating costs for an individual vanpool comes to $14,362 or $120 per rider per month. Additional costs will be incurred if paid parking is required, along with any tolls or indirect costs passed on to individual vans to support program administration.

Vanpool Program Administration

The administrative portion of the vanpool operation averages one full-time staff person per 20 to 30 vans. It is possible for one person to support a larger number of vans if relying on third

party vanpool service provision, but there are few vanpool operations in Pennsylvania currently with a significantly greater number of vans. If a regional vanpool operation did grow to a larger scale, the administrative costs calculated here would be expected to decline on a per van or per rider allocation.

With a notional cost of one full-time equivalent staff person per 25 vans with minimal additional overhead, administrative and marketing costs work out to slightly more than $2,996 per year per individual van.[9] With an average vanpool having 10 riders, per rider costs work out to an average of just over $359 per rider annually and just under $30 monthly. A minimal 10 percent incremental expenditure is presumed for basic program administration costs and generally assumes a vanpool program can be supported within an existing organization with minimal incremental overhead costs. These costs do not include expenditures for new program startup or major costs, such as marketing expenditures, that would be needed to support program expansion.

Administrative costs could be significantly higher if program administration is responsible for additional services associated with vanpool operation. This estimate for program administration assumes third party leasing which provides turnkey vanpool support. These costs can vary significantly across vanpool programs and should be considered a general metric for support necessary for sustained and effective vanpool operations. Guaranteed ride home services would be one major cost in addition to the calculated program costs here. Other typical administrative costs, such as on-road services and certain maintenance costs, are assumed to be included in the third party vanpool service provider costs.

Employer Vanpool Benefits

Increased Employee Effectiveness.

Vanpooling as a mode of commuting has the potential for increased worker productivity, or to aide in recruiting and retention of employees.

How vanpooling can improve worker recruiting and retention efforts involve several factors. Most workers choosing vanpool commuting are making a choice among alternative forms of commuting. Workers who do not have the option of public transit, or do not have regular access to a personal vehicle, may rely on vanpool as their only means of commuting to a particular place of employment, In those cases the option of vanpool operation directly increases the potential labor force available to a particular employer in a particular location.

[9] For Pennsylvania the reported average annual wage for workers in the occupation "Human Resources, Training, and Labor Relations Specialists, All Other" category was $59,070 in 2009. State and local government workers are estimated to incur benefit costs of 52% of their base salary for a total cost of $89,909 for one full-time worker. No other administrative costs are assumed. If other administrative overhead was incurred, these administrative costs would be higher, but it is assumed wages and salaries make up the large majority of program administration costs.

For more workers the choice of vanpooling is made despite their being potential options for either public transit or personal vehicle commuting. In those cases, workers choosing vanpool operation must prefer their choice and derive incremental value as a result. That benefit could be based on the costs associated with alternative means of commuting, or be based on other intangible preferences. Whatever the reason, the option of vanpooling as a choice can only increase their overall satisfaction compared to the situation without a vanpool option.

Costs of vanpooling can be incurred by employers. Vanpool riders are subject to more stringent workday scheduling. It is possible that vanpool riders are less likely to work past nominal quitting time because of vanpool schedule demands, with corresponding negative productivity impacts. Guaranteed ride home programs, plus other supportive transportation services, such as SPC's Emergency Ride Home service, have additional costs and benefits. In most cases guaranteed ride home programs are designed for more limited or emergency use. In some programs the guaranteed ride home programs are not supported by dedicated vehicles or riders, but rely on third party services to include local taxi services.

Another potential benefit of vanpooling may be an enhanced ability to attract or retain skilled employees by reducing the strains of commuting. A counter effect may be that friction among the vanpool passengers can offset some or all of the strain reduction on one hand. On the other hand, researchers have found that social satisfaction is a perceived benefit of vanpooling, including conversing, meeting people, and companionship (Ferguson et al, 1990).

Some research has documented situations where employers felt they had retained valued employees because of vanpooling (Wegmann, 1986). Therefore, in the example below, we have set the retention rate as one percent of the vanpool population. This retention would result in savings from recruiting expenses. With the average compensation level among all workers in Pennsylvania for 2009 being $54,554, the per worker benefit accrued to employers would amount to $555 annually.

Reduced Parking Requirements.

Vanpool services in Pennsylvania are generally impacted by parking availability and costs. Employers and riders may also see value derived from vanpool operations as either a means to mitigate individual per employee parking costs or as a means to reduce the costs with providing incremental on-site parking facilities. Vanpools reduce the need for vehicle parking to the extent that their riders would otherwise be driving their cars to work.

Incremental parking provision can be a major cost for employers. Costs to build surface parking spaces can amount to over $14,000 per space with additional costs for ongoing maintenance. Table 20 summarizes research on the total per month per space costs for parking incurred for various forms of parking operations. These costs range from a low of $56/month for suburban

surface lots built on essentially free land to a high of $334/month for spaces in an underground facility in a central business district.[10]

Table 20.Typical Parking Facility Financial Costs

Type of Facility Land Cost	Land Cost Per Acre	Annualized Land Cost Per Space	Annualized Construction Cost	Annual O&M Costs	Total Annual Costs	Total Monthly Cost
Suburban, On-Street	250,000	$94	$326	$345	$765	$64
Suburban, Surface, Free Land	0	$0	$326	$345	$671	$56
Suburban, Surface	250,000	$215	$326	$345	$885	$74
Urban, On-Street	1,200,000	$453	$543	$345	$1,341	$112
Urban, Surface	1,200,000	$944	$543	$575	$2,062	$172
Urban, 3-Level Structure	1,200,000	$315	$1,954	$575	$2,844	$237
Urban, Underground	1,200,000	$0	$2,714	$575	$3,289	$274
CBD, On-Street	6,000,000	$2,265	$543	$460	$3,268	$272
CBD, Surface	6,000,000	$4,357	$543	$460	$5,359	$447
CBD, 4-Level Structure	6,000,000	$1,089	$2,171	$575	$3,835	$320
CBD, Underground	6,000,000	$0	$3,776	$575	$4,007	$334

Source: Victoria Transit Policy Institute (2010)[11]

Commercial parking options incur costs that are generally borne as part of the vanpool operations. Those costs will normally be incurred to the individual vanpool riders and calculated as part of their costs. For the example below we assume that parking demand is reduced on average by 10 spaces (that is, van capacity minus 2) for each fully operational pool van. This can be reflected either as reduced demand for employer-provided or for commercial parking facilities.

[10] Transportation Cost and Benefit Analysis II – Parking Costs. Victoria Transit Policy Institute (www.vtpi.org). 15 October 2010. Page 5.4-10.
[11] ibid

Imputing cost savings resulting from reduced parking facilities of riders will depend significantly on whether vanpool riders displace individual automobile commuters or those using public transit, which does not incur parking requirements on individual employers. Assuming no more than half of vanpool riders are potential public transit riders, a 10-person van will displace the need for 5 parking spots with a net decrease in four parking spaces. These four spaces would, according to Table 20, incur in the long run monthly costs of between $224 and $1,336 per vanpool. Parking is less likely to be provided as a free benefit to workers in dense urban environments. For firms that do not provide parking, parking costs would incur to the vanpools themselves and not directly accrue a benefit to the firms. Firms that do provide parking will in the long run accrue benefits from the lower parking demand that results from vanpool usage. So as an employer benefit, vanpool induced parking savings are assumed to be on par with the costs of the suburban surface parking provision, or $224 per month. For a notional 10-person vanpool an equivalent of $24 per vanpool rider.

Community Vanpool Benefits

Reduced Energy Consumption, Air Pollution and Traffic Congestion.

Both pollution and peak hour traffic congestion are reduced roughly in proportion to the extent of modal shifting from cars to vans. Energy consumption is reduced in proportion to the vehicle-miles replaced by the vans, as modified by the differing fuel consumption rates of the vans and employee cars and by the extent to which the vans replace automobile travel. We can also include the infrastructure energy costs in this category. For example, petroleum refining, vehicle manufacturing, retail sales, repair facilities, etc., are proportionately reduced (Hirst, 1972; Hirst, 1974).

Hirst estimates that these infrastructure costs, at least in energy terms, are about 87 percent of the direct fuel costs. For pollution reduction impacts, we use the composite estimate of pollution costs derived by Boghani et al. (1991). For the example below we assume average mileage of the automobiles displaced by vans at 22.6 miles per gallon.[12]

Reduced Automobile Operating Costs.

Vanpool riders can reduce their automobile operating costs in proportion to the extent that vanpooling diverts their automobile use. In cases where an automobile was otherwise used entirely for commuting-and the owner shifts entirely to vanpooling, the total cost of the automobile can be avoided. In the example below we are including only the changes in operating costs, assuming the vehicle is retained and that insurance premiums are unaltered.

[12] Average miles per gallon for passenger cars in the U.S. in 2008 according to National Transportation Statistics 2010. Table 4-23: Average Fuel Efficiency of U.S. Table Passenger Cars and Light Trucks. Bureau of Transportation Statistics. Bureau of Transportation Statistics.

Individual operating costs for automobile usage range from 15-20 cents per mile. Additional capital and licensing costs are associated with automobile ownership, but the assumption is that use of vanpooling as a commuter option does not save the individual participant from the costs associated with car ownership. Only the marginal operating costs resulting from driving as a part of commuting are calculated to be a savings accruing to the individual vanpool rider as a result of vanpooling. Assuming a daily roundtrip commute of 30 miles, total miles commuting over the course of a year would come to 15,000 miles and an annual savings of between $2,250 and $3,000 per rider. These savings would be directly proportional to the distance of the average daily commute. For the calculations that follow, the lower end of this range of savings is assumed as a conservative estimate of the per rider benefit resulting from vanpool use.

Table 21 summarizes the net costs for national vanpool operation from each set of stakeholders. Because parking costs result in one of the major discriminating factors in the overall net benefit calculation, several parking scenarios are considered. One scenario is for vanpooling to a location where parking is provided by the employer at no charge. This free parking scenario applies to both the van and the notional parking for each individual rider, which is assumed to be free if they chose to drive to the same firm location. A second scenario considers commuting by vanpool to a location that requires paid commercial parking in a dense urban location. Dense urban locations typically are central business districts, or other areas where parking is generally more expensive than regional averages. These locations would include downtown Philadelphia or Pittsburgh and certain other locations which are also some of the densest employment concentrations in the state. A third scenario considers commuting by vanpool to a location which requires paid commercial parking at a more moderate price than the CBD in a major city. This scenario would be appropriate for smaller urban centers in the state, or certain suburban locations which have limited space for free parking.

Direct vs. Indirect Costs.

Note the distinction in direct and indirect costs for each of the major stakeholders. Direct costs and benefits refer to those items that will result in specific monetary cost savings to an individual or an organization. Indirect costs do not directly impact the budget and planning factors of specific stakeholders, but are typically costs or benefits that impact the community as a whole, impacting those who are not stakeholders in any specific vanpool program. In some cases these costs or benefits may directly translate into specific monetary amounts, as may be the case when subsidies for a vanpool program are apportioned to taxpayers. In other cases the benefits may be indirect and result in benefits that do not translate into specific monetary amounts. These indirect costs and benefits could include benefits to quality of life through reduced pollution, or reduced congestion impacting commuting times.

The distinction between direct and indirect costs and benefits is important to the individual and employer decisions affecting vanpool demand and usage. While the total benefits of vanpool operation include significant indirect benefits, most of the costs with vanpooling directly impact budgets of individual stakeholders. This divergence of direct and indirect costs may be a factor

in explaining relatively low demand for vanpool services among individual workers or low support for vanpool programs among employers.

Aside from the overall comparison of costs and benefits, there is the possibly more important issue of who pays the costs and who gets the benefits. Vanpool programs range from entirely employee-subsidized to the more common situation in which the employer covers the organizational expenses, some van purchase or lease costs, and the salaries of the vanpool coordinator(s), but van operating costs are covered by rider fares.

Table 21.Per Rider Annual Costs (Benefits) of Vanpool Usage

	Paid Parking - High Cost Urban	Paid Parking - Moderate Costs	Free Parking
a) Program Administration	-$300	-$300	-$300
Individual Costs			
b) Leasing	-$1,080	-$1,080	-$1,080
c) Fuel	-$400	-$400	-$400
d) Tolls	*variable*	*variable*	*variable*
e) Parking	*-$204*	*-$60*	*$0*
Employer Costs			
f) Parking	*$0*	*$0*	-$224
Individual Benefits			
g) Automobile operating costs	$2,250	$2,250	$2,250
h) Parking Savings	*$2,040*	*$600*	*$0*
Employer Benefits			
i) Turnover reduction	$555	$555	$555
Community Benefits			
j) Pollution Abatement	$800	$800	$800
k) traffic abatement/infrastructure savings	*	*	*
Net Benefit/Cost Vanpooling, includes all categories	*$3,102*	*$1,806*	*$1,042*
Direct Benefit/Cost to participant(benefit) b,c,d,e	*$2,606*	*$1,310*	*$770*
Direct Benefit/Cost (benefit) to employers	*$555*	*$555*	*$331*
Community Benefit/Cost (benefit)	$300	$300	$300

6. Financing Model of Vanpool Operations

Vanpool operations exist as business models at several levels. Vanpool operations are supported by regional organizations or employer specific programs that provide overall administration and support. These programs require funding to maintain consistent services that allow vanpool operations to survive. Individual vanpools are themselves micro-business operations with revenues and expenditures accruing to the members of a single vanpool and providing a service which must in the end be chosen against competing options just as consumers choose among competitive choices for other goods and services.

Both the overall program administration and individual vanpools are impacted by a myriad of factors that influence their financing models. Sustainability and expansion of vanpooling depends on the success of both business models. For vanpooling, public policy and public financing play a key role in the long run sustainability of vanpool operations that exist across the United States. Public support for vanpooling is not unique among transit and commuting options in use by American workers. Public transit is heavily subsidized across virtually all transit systems in the nation. Private vehicle operators benefit from regular and sustained investment in highway infrastructure that is mostly in the form of public access non-toll roadways.

Financing models of vanpooling are focused on making optimal use of existing public financing available to support vanpool programs and enhance the competitiveness of vanpools as a choice for individual workers. Financing methods can directly impact the costs of vanpool services to the individual rider. As a business model, absolute and relative costs of vanpool services are a key determinant of the demand for vanpool services and thus a key factor in the long run sustainability of individual vanpools or vanpool programs.

Regional or organizational vanpool programs require a baseline level of financial expenditures. Overall program administration is an essential part of any successful vanpool program, but ongoing ride matching, marketing and technical support are all key factors in program success.

Research has shown that the demand for vanpool services does indeed behave similarly to other markets with a price elasticity estimated to be -0.73 (Concas et al., 2005). That level of price elasticity means that a 10 percent increase in vanpool price is associated with a 7.3 percent decrease in its demand, and vanpool demand is relatively inelastic with respect to fare changes. While considered a relatively inelastic demand function, it does indicate that there is a potential to increase vanpool usage through lowered costs to the individual, and that vanpool usage will go down if those costs increase.

To be price competitive with other modes of commuting, vanpooling must actually provide service not at a comparable level of cost, but be significantly less expensive. Overall levels of subsidies for public transit, when calculated per rider or per mile, far exceed any public support for vanpooling across the nation. Consumer preferences for driving a private vehicle are

reflected in the high usage of personal automobiles as a mode of commuting. So even at a comparable cost to the consumer, many choose to drive rather than carpool or vanpool.

The price point that is significant is reflected in the greater usage of vanpools by Federal workers who can normally take advantage of Commuter Choice benefits available to them. With a potential subsidy of $230 per month payable for vanpooling, the preponderance of Federal workers as vanpool participants indicates this level of subsidy could induce workers to choose vanpools over other commuting options. In many cases, if subsidies to individual workers were available, the costs per rider of participating in a vanpool can be minimal or in some cases zero.

The source of funding for vanpool operations range from passenger fares to a variety of internal and external sources (see Table 22). Passenger fares are a dominant source of vanpool financing, especially for those workers at firms that do not other financial incentives. Few programs also do not rely on public subsidies directly or indirectly via program administration and support operations.

The purpose of this section is to help transit agencies and employers understand the financing options available to support vanpool startup costs, sustain ongoing vanpool programs at the regional level, and enhance the competitiveness of vanpools as a mode of commuting for individual workers. Toward that goal a model of statewide vanpool operations is presented. The Washington State Vanpool Investment Program is highlighted as an ideal case of statewide policy. It also provides a key benchmark for the level of statewide expenditures required to substantially increase vanpool ridership.

Table 22. Source of vanpool funds across agencies

Funding sources	Description	Examples
Passenger fares	Most common source of vanpool programs	Easy Streets (CT) and Ben Franklin Transit (WA) cover all costs through passenger fares
Transit funds	Common source for transit agencies	Ben Franklin Transit, Greater Cleveland
Congestion, Mitigation, and Air Quality (CMAQ)	Used by some to purchase vans and subsidize fares	Community Transit, PACE, TMA Group, Houston METROVAN
Other federal funds	Variety of sources, including grants, TANF, flexible funds for MPOs, Regional Surface Transportation Funds	Nashville's Metro Transit, Whatcom Transit Agency, Space Coast Area Transit, etc.
Other state/local funds	Various	Austin, Houston-Galveston Area Council, Santa Cruz county
Other state/local funds	Chambers of Commerce	Emerald Coast Transportation (Florida), Greater Cleveland Regional Transit Agency, Kibois Area Transit Authority (Oklahoma)
Employer subsidy	Numerous	Community Transit, Pierce Transit, Kitsap Transit, SANDAG, CARAVAN
State contracts	Vehicle and equipment purchases via state contracts	Ben Franklin Transit

Source: Higgins and Rabinowitz, 2002, p. 13.

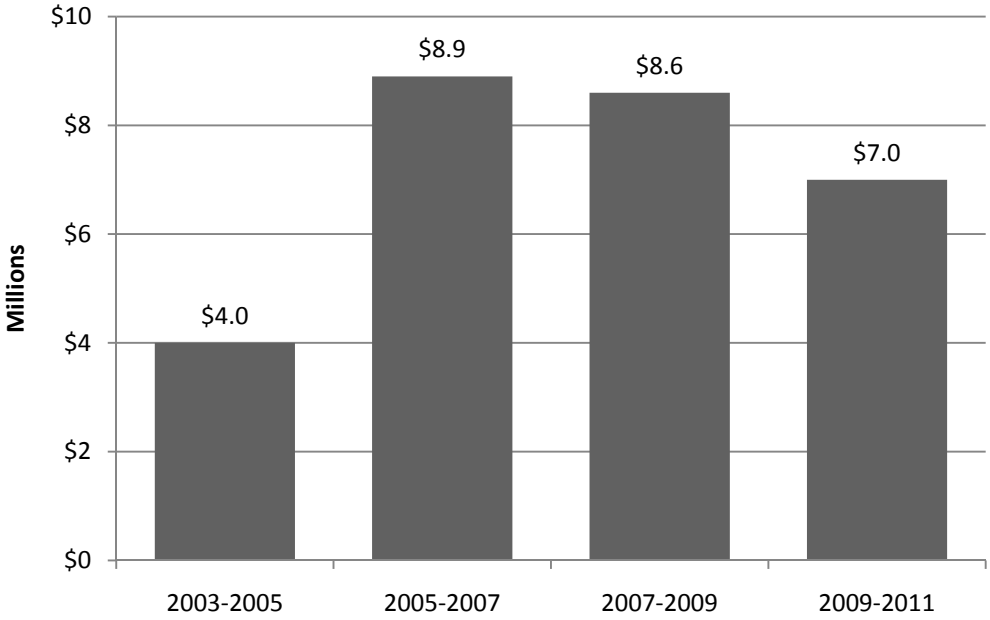
Model statewide vanpool policy: The Washington Vanpool Investment Program

Washington State has developed a focused investment program to encourage and support the use of vanpools across the state. Policies in Washington State have encouraged what is now the largest public vanpool fleet in North America. Factors that have contributed to the dramatic growth in vanpooling include supportive policies, incentives, strong local programs, high gas prices, enhanced collaboration and partnerships, and legislative investments.

Washington State is chosen as a model to provide a key example of a state-level program that has been successful at generating increased vanpool ridership over an extended period. In 2003, the Washington State legislature developed a 10-year transportation plan allocating $30 million in grant funds to expand the vanpool program statewide. The funds were designated for public transit agencies and can only be used for capital costs associated with placing new vans on the road, or incentives for employers to increase employee vanpool use. Since 2003, over $12 million has been invested to purchase 577 vans for 20 transit agencies. The Vanpool Investment Program was funded at $4 million for 2003-2005. Initially, the legislature provided $5 million to purchase vans, and subsequently added $3.9 million in 2006 for a total of $8.9 million. Figure 15 shows the history of state expenditures for the Washington State Vanpool Investment Program since inception.

A comparison between June 2007 and June 2003 shows a 40 percent increase in operating vehicles (totaling 2,222, including the 577 purchased by the Washington State Department of Transportation) and a 41 percent increase in ridership. The growth rate between 2005 and 2007 was double that between 2003 and 2005 biennium. The program has a goal of sustained growth and achieving by 2013 3,180 operating vans.

Figure 15. Washington State Biennial Appropriations to Vanpool Investment Program



In its most recent appropriations, Washington State's 2009-2011 Transportation Budget, the Public Transportation Division was provided $7 million to support:

> "a vanpool grant program for: (a) Public transit agencies to add vanpools or replace vans; and (b) incentives for employers to increase employee vanpool use. The grant program for public transit agencies will cover capital costs only; operating costs for public transit agencies are not eligible for funding under this grant program. Additional employees may not be hired from the funds provided in this section for the vanpool grant program, and supplanting of transit funds currently funding vanpools is not allowed. The department shall encourage grant applicants and recipients to leverage funds other than state funds. At least $1,600,000 of this amount must be used for vanpool grants in congested corridors."

For 2010-2011, the Washington State Vanpool Investment program primarily focused on capital grants to transit agencies that operate vanpool programs. The grants are provided for both

expansion and replacement vans, cannot supplant transit funds currently funding vanpools, and will require a local cash match as leverage to state subsidies.

In the Washington State program, the cash match for both expansion and replacement vans will be 20 percent. Transit agencies are reimbursed 80 percent of the cost of a van (to a maximum total cost $26,000); total reimbursement shall not exceed $20,800 per van. Transit agencies that have already entered into an agreement for expansion vans in 2010 may have an option of having their contract amended to include the 20 percent cash match or remain with the requirement for a 25 percent match over four years.

The overall Washington State Vanpooling program incorporates more than just financial support for regional vanpool programs. Current strategies for the program are outlined in Table 23. Statewide efforts focus on financial support of regional vanpool programs with funding of capital equipment purchases; it also incorporates statewide marketing efforts and providing technical assistance and other program support for regional programs.

The success of the Washington State Vanpool investment program provides a benchmark not only for program design, but for the scale of expenditures that has proven successful at promoting vanpool usage. On average, the Washington State Vanpool Investment program has received $3.5 million annually since its inception. With that as a long range goal, the following sections will address potential current and new funding sources that could provide that level of support for the expansion of vanpool programs in Pennsylvania.

Table 23. The Washington State Vanpool Investment Program, Strategic Vision, 2007

Vanpool Investment Program – Growing the Program	
Strategy	**Rationalization**
Meet expansion demand with additional funding for capital equipment	WSDOT projected a need of $12 million to meet expansion demands statewide for the 2007-2009 biennium, the legislature funded the program at $8.6 million.
Continue to increase awareness and stimulate demand with statewide promotional campaigns and incentives.	Vanpool operators would like to continue implementation of "Freewheeling", a statewide marketing campaign that began in 2005. The campaign allowed agencies to leverage resources by sharing marketing materials and media purchases. There is also a need to promote RideshareOnline.com in all areas of the state.
Provide technical assistance to help agencies get started, identify program improvements, and review policies and practices to ensure these factors do not hinder expansion.	Peer review, mentoring and training are crucial for expansion and continued success. These activities build upon the successful local programs and provide an opportunity to review individual agency policies and practices to grow, adapt and ensure continued success.
Make technology improvements to benefits for customers and agencies.	Electronic data gathering and reporting will lead to more efficient operations, mobility management and system monitoring.

Source: Vanpool Investment Program, CTR 2007 Report to the Washington State Legislature. Washington State Commute Trip Reduction Board.

Financing statewide vanpool program

Supporting a statewide vanpool operation would require new and dedicated funding to match the level of state support in programs such as the Washington State Vanpool Investment program. Such funding cannot be assumed to be available as discretionary expenditures via that general fund. It is assumed core support for any new or expanded expenditures supporting vanpool programs would have to come from external sources.

Several federal programs sponsored by the Federal Transit Administration have funding available to support vanpool programs. These funding sources include:

- Federal Transportation Agency Urbanized Area Formula Program (§ 5307)
- Job Access and Reverse Commute (JARC) Program Funding (§ 5316)
- Formula Grants for Other than Urbanized Areas (§ 5311)
- Congestion Mitigation Air Quality Funding (CMAQ)

Also currently available via the American Recovery and Reinvestment Act (ARRA) is additional funding that can be used for transit and commuting programs. This funding can be used for subsidies to pay for up to $230/month for a commuter highway vehicle (vanpool) or public transit pass, up to $230/month for qualified parking benefit provided by employer or to access transit or vanpool, or up to $20/month for bicycle commuting expenses. Because these ARRA specific benefits are currently only available until December 31, 2010, they are not included here among the options for potential funding in the future.

Table 24 summarizes the available uses and program criteria for four separate programs. Each of these programs is addressed in the following sub-sections.

Table 24. Federal Funding Sources Available for Vanpool Operations

	FTA Section §5304	FTA Section § 5307	FTA Section § 5311	FTA Section § 5316
Rural population less than 50K			X	X
Population more than 50K but less than 200K	X	X		X
Large urban area 200K	X	X		X
Planning	X	X	X	
Vehicle Purchases		X	X	X
Maintenance		X	X	X
Service Delivery		X	X	X
Administration		X	X	X
Safety and security	X	X	X	X
People and Freight	X			
Clean Air Act environmental	X	X	X	
Facilities & Equipment rental		X	X	X
Promoting and coordinating	X	X	X	X
Funding availability	1 to 3 years	1 to 4 years	1 to 3 years	1 to 3 years
Federal/Local share (%)	80%/20%	80%/20%	80%/20%	50%/50%
Federal funding for ADA portion of program	90%	90%	90%	
Maximum federal share for operating assistance		90%	90%	
Maximum federal share for capital and admin			90%	

Source: Bradshaw (2008)

Federal Transportation Agency Urbanized Area Formula Program (§ 5307)

A strategy being attempted by transit agencies across the nation is to capture existing and future vanpool ridership via reporting to the Bureau of Transportation Statistics' National Transit Database (NTD). The goal of this new reporting is intended to increase funding available via § 5307 earnings from the Federal Transit Administration (FTA). The Urbanized Area Formula Funding program (49 U.S.C. 5307) makes Federal resources available to urbanized areas, and to governors for transit capital and operating assistance in urbanized areas and for transportation related planning. An urbanized area is an incorporated area with a population of 50,000 or more that is designated as such by the U.S. Department of Commerce, Bureau of the Census.

The NTD is the Federal Transit Administration's (FTA) primary database for statistics on the transit industry. Congress established the NTD to "help meet the needs of the public for information on which to base public transportation service planning" (49 U.S.C. 5335). Currently, over 700 transit providers in urbanized areas report to the NTD through an Internet-based reporting system. Each year, performance data from these submissions are used to apportion over $6 billion of FTA funds under the Urbanized Area Formula (Section 5307) Grants and the Fixed Guideway Modernization Grants Programs. These data are made available on the NTD Web site at http://www.ntdprogram.gov for the benefit of the public, transit systems, and all levels of government. These data are also used in the annual National Transit Summaries and Trends report, the biennial Conditions and Performance Report to Congress, and in meeting FTA's obligations under the Government Performance and Results Act. Reporting requirements are governed by a Uniform System of Accounts (USOA) and an Annual Reporting Manual that is issued each year. Both the USOA and the Annual Manual are available for review on the NTD Website at http://www.ntdprogram.gov. Additionally, urbanized area transit systems also make monthly reports to the NTD on safety and security incidents through the NTD Safety & Security Module.

With certain restrictions, § 5307 funds may be used for Administrative, Operations and Capital costs within the transit program. Administrative costs are eligible for an 80 percent federal share and include salaries for project director, secretary and bookkeeper, office supplies and marketing costs. Depending on the size of the UZA, operations costs may be eligible for a 50 percent federal share and include costs of driver's salaries, mechanic and dispatcher salaries as well as fuel, oil and replacement tire costs. Capital costs are eligible for an 80 percent federal share and include vehicle purchase, facility construction and other categories as defined by the FTA. Costs associated with providing Americans With Disabilities Act (ADA) services are eligible for a 90 percent Federal share.

The challenge for capturing §5307 funding in Pennsylvania is the limited operation of vanpools by public transit agencies. Transit agencies are the organizations that regularly report data to the national transit database. The operation of Pennsylvania vanpool operations are generally outside of public transit agencies and are not currently being captured by the National Transit Database. Thus, there is the potential that §5307 funds are not being captured.

Only three vanpool operations in Pennsylvania reported vanpool statistics in 2009 to the National Transit Database: Southwestern Pennsylvania Commission (SPC) based in Pittsburgh; RabbitTransit based in York (now under Commuter Services); and the Centre Area Transit Agency (CATA) in State College. These three vanpool operations reported a total of 53 vanpools in operation at maximum service in the 2009 National Transit Database.

Reporting of vanpool operations is not limited to public transit agencies or metropolitan planning organizations. Voluntary reporting into the NTD is possible. Potential increased reporting can come from several large public organizations such as the Tobyhanna Army Depot in Monroe County, PA, as well as other regional organizations supporting vanpool operations such as the Delaware Valley Regional Planning Commission (DVRPC).

Vanpool operations do not need to be operated by transit agencies. Several vanpool operations in the nation have reorganized to report as independent transit organizations. Examples of these vanpool-specific organizations include "VPSI-Miami" and "VPSI-Houston". Currently proposed changes to NTD reporting will impact and expand potential reporting of vanpool operations by private operators. Current NTD guidelines already facilitate greater reporting of vanpool operations.

Vanpool characteristics from the National Transit Database

Twenty-seven states have organizations reporting vanpool operations (see Table 25). Washington State has the most vanpools reported via the National Transit Database, with 2,532 in total as of 2009 followed by California (1,598) and Texas (1,167). Pennsylvania ranks 17th with 53 total vanpools being reported across the state.

A total of 67 individual organizations report vanpool operating statistics and financial data to the National Transit Database (NTD). This reporting is counted toward allocations under the FTA's § 5307 Urbanized Area Formula Program. The agency with the most reported vanpools is King County Metro Transit in Seattle, WA, with 1,114 total vans. There are four more agencies reporting over 500 vanpools (San Diego, Los Angeles, Houston, and Arlington Heights, IL in suburban Chicago), and 18 agencies reporting between 100 and 400 vanpools. Table 26 lists all 67 organizations currently reporting vanpools in operation along with the total number of vehicles operated by these organizations at maximum capacity.

The NTD shows that vanpools have the lowest operating expenses, the highest fare box recovery rates, the lowest passenger fare per mile, and the lowest subsidy per mile of any mode of transit. Figure 16 shows the decided southern and western geography of these vanpool agencies.

Table 25. States Reporting Vanpool Operations into the National Transit Database 2009

Ranked by Total Vehicles (Maximum Service)

State	Organizations	Total Vehicles (Maximum Service)
Washington	11	2,532
California	5	1,598
Texas	7	1,167
Illinois	2	815
Georgia	4	481
Utah	1	458
Arizona	2	398
Florida	6	365
Connecticut	2	294
Hawaii	1	277
North Carolina	3	204
Colorado	2	187
New Jersey	1	178
Virginia	2	117
Iowa	1	91
Minnesota	1	71
Pennsylvania	3	53
Alaska	2	52
Alabama	1	42
Missouri	1	30
Michigan	2	25
Mississippi	1	25
Tennessee	1	21
Oregon	2	16
Wisconsin	1	16
Vermont	1	4
South Carolina	1	1

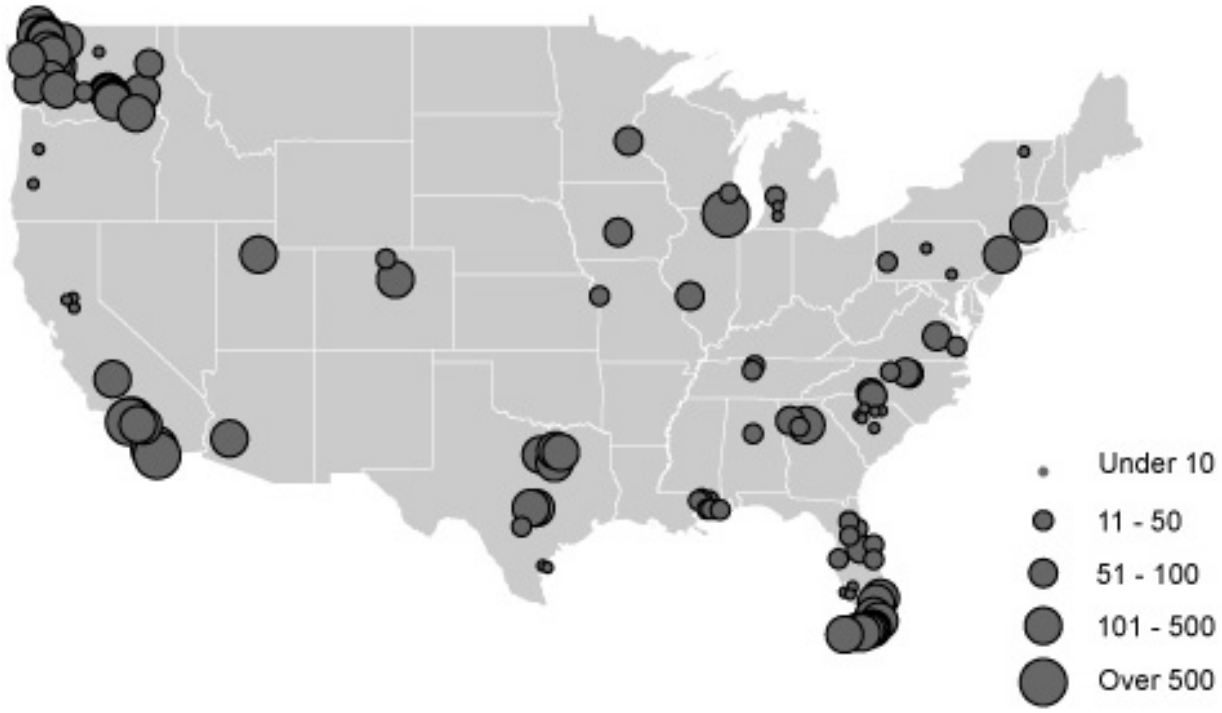
Table 26. Organizations Reporting Vanpooling into the National Transit Database 2009

Organization, Location, Number of Vanpools (Maximum Service)

King County Department of Transportation - Metro Transit Division	Seattle, WA	1,114	Douglas County Rideshare	Douglasville, GA	58
Pace - Suburban Bus Division	Arlington Heights, IL	725	VPSI, Anchorage	Anchorage, AK	52
Metropolitan Transit Authority of Harris County, Texas	Houston, TX	656	Georgia Regional Transportation Authority	Atlanta, GA	50
Los Angeles County Metropolitan Transportation Authority	Los Angeles, CA	615	VIA Metropolitan Transit	San Antonio, TX	49
San Diego Association of Governments	San Diego, CA	596	Transportation District Commission of Hampton Roads,: Hampton Roads Transit	Hampton, VA	46
Utah Transit Authority	Salt Lake City, UT	458	Regional Planning Commission of Greater Birmingham	Birmingham, AL	42
Phoenix - VPSI, Inc.	Glendale, AZ	398	Southwestern Pennsylvania Commission	Pittsburgh, PA	41
Marietta - VPSI, Inc.	Marietta, GA	373	Piedmont Authority for Regional Transportation	Greensboro, NC	39
Snohomish County Public Transportation Benefit Area Corporation	Everett, WA	365	Skagit Transit	Burlington, WA	38
Ben Franklin Transit	Richland, WA	295	Space Coast Area Transit	Cocoa, FL	37
Pierce County Transportation Benefit Area Authority	Tacoma, WA	291	Hillsborough Area Regional Transit Authority	Tampa, FL	35
Honolulu - VPSI, Inc.	Honolulu, HI	277	Transform	Fort Collins, CO	30
Greater Hartford Ridesharing Corporation - The Rideshare Company	Windsor, CT	267	Kansas City Area Transportation Authority	Kansas City, MO	30
Orange County Transportation Authority	Orange, CA	205	2Plus Partners in Transportation, Inc	Rocky Hill, CT	27
Miami Lakes - VPSI, Inc.	Miami Lakes, FL	198	County of Volusia,: VOTRAN	South Daytona, FL	27
Intercity Transit	Olympia, WA	193	Yakima Transit	Yakima, WA	26
Dallas - VPSI, Inc.	Arlington, TX	186	Coast Transit Authority	Gulfport, MS	25
New Jersey Transit Corporation	Newark, NJ	178	Regional Transportation Authority	Nashville, TN	21
Kings County Area Public Transit Agency	Hanford, CA	172	Interurban Transit Partnership	Grand Rapids, MI	19
Denver Regional Transportation District	Denver, CO	157	Milwaukee County Transit System	Milwaukee, WI	16
Capital Metropolitan Transportation Authority	Austin, TX	145	Placer County Department of Public Works	Auburn, CA	10
Kitsap Transit	Bremerton, WA	131	Centre Area Transportation Authority	State College, PA	10
Dallas Area Rapid Transit	Dallas, TX	129	Lane Transit District	Eugene, OR	8
Charlotte Area Transit System	Charlotte, NC	95	Salem Area Mass Transit District	Salem, OR	8
Des Moines Area Regional Transit Authority	Des Moines, IA	91	Lee County Transit	Fort Myers, FL	6
Madison County Transit District	Granite City, IL	90	Kalamazoo Metro Transit System	Kalamazoo, MI	6
Spokane Transit Authority	Spokane, WA	77	Chittenden County Transportation Authority	Burlington, VT	4
Metropolitan Council	St. Paul, MN	71	York County Transportation Authority	York, PA	2
Greater Richmond Transit Company	Richmond, VA	71	Corpus Christi Regional Transportation Authority	Corpus Christi, TX	2
Research Triangle Regional Public Transportation Authority	Research Triangle Park, NC	70	Link Transit	Wenatchee, WA	2
Central Florida Regional Transportation Authority	Orlando, FL	62	Santee Wateree Regional Transportation Authority	Sumter, SC	1

Figure 16. Vanpool Operations Reporting to the National Transit Database, 2009

Number of Vehicles (Maximum Service)

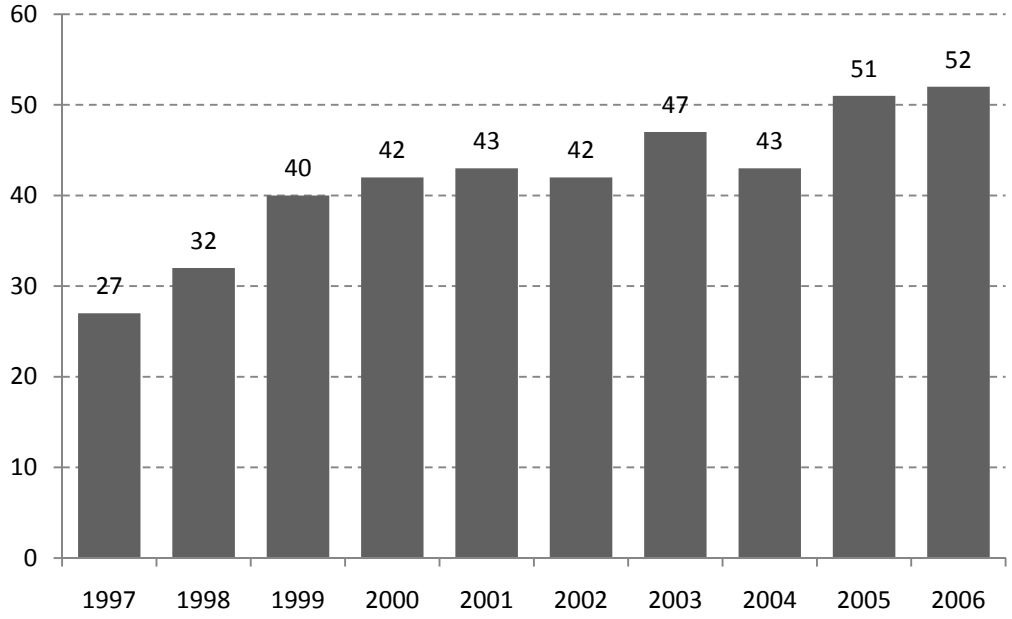


NTD reporting of vanpool operations is increasing across the nation. The current 67 reporting organizations is a 57 percent increase since 1997. See Figure 17 for the growth trend in the number of organizations reporting vanpool operation to the National Transit Database. Figure 18 shows the larger growth in total vehicle miles of reported vanpool programs.

The § 5307 formulas especially reward vanpools because of their low operating costs and their high passenger miles traveled. In Northern Virginia, where 650-750 active vanpools are in operation, the failure to sponsor and report vanpools has been estimated to represent a net opportunity loss of between $6 and $8 million annually.[13] That lost revenue translates to approximately $10,000 annually per van and is a benchmark on the potential gain Pennsylvania could accrue if already existing vanpool operations were being reported to the National Transit Database.

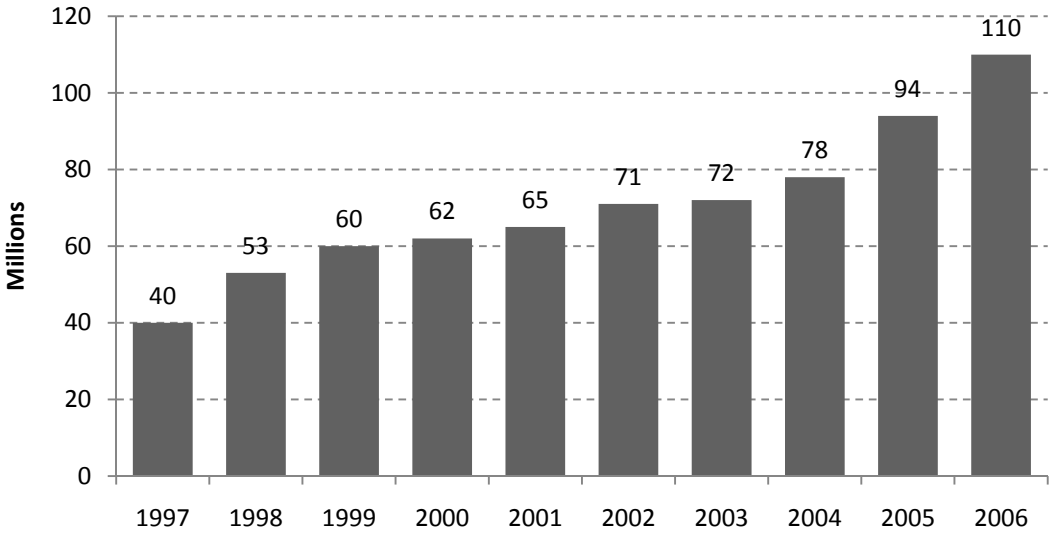
[13] *FTA § 5307 Formula Earnings Potential from Vanpools in the DC Metropolitan Region*, Northern Virginia Transportation Commission. August 7, 2009.

Figure 17. National Transit Database - Number of Vanpool Reporting Agencies 1997-2006



Source: National Transit Database, 2006 National Transit Summaries and Trends

Figure 18. National Transit Database – Vehicle Miles of Vanpool Reporting Agencies 1997-2006



Source: National Transit Database, 2006 National Transit Summaries and Trends

Proposed Changes in Eligibility of Vanpools for the National Transit Database[14]

A current proposal by the Federal Transit Administration is currently soliciting responses. Currently, FTA requires vanpools to have a public sponsor in order to be included in the NTD. This does not capture vanpool service being provided as public transportation by the private sector. In other cases, the mere existence of a public sponsor for vanpool service has allowed some vanpools to be reported to the NTD without adequate assurances that the vanpool is in fact public transportation.

FTA proposes to change its requirements for reporting vanpool service to the NTD as follows: To be included in the NTD, a sponsor of vanpool service must demonstrate: (1) That it is open to the public and that any vans that are restricted a priori to particular employers and which do not participate in the ride-matching service of the vanpool are excluded from the NTD report; (2) that it actively engages in the following activities: advertising the vanpool service to the public, matching interested members of the public to vanpools with available seats, and reasonable planning to increase its service (when funding is available) to meet demand from additional riders; (3) that the service is open to individuals with disabilities, in accordance with the Americans with Disabilities Act of 1990; and (4) that it has a record-keeping system in place to collect and report fully-allocated operating costs for the service.

Reporting fully-allocated operating costs means that the vanpool can report on the total cost of the service, including: (1) any fuel, insurance, and maintenance costs paid by vanpool participants; (2) all advertising and promotion costs; (3) costs paid by any third parties to support the vanpool program; and (4) any contract administration costs borne by the vanpool sponsor.

Finally, NTD IDs for vanpool programs will be assigned on the basis of the entity that is sponsoring the vanpool, and is defining the eligibility requirements for participation in the vanpool. FTA will require all existing vanpool services in the NTD to recertify their approval to report to the NTD based on the new criteria for the 2011 Report Year.

These proposed changes have a comment period closing December 6, 2010. If implemented as proposed, greater options will be available for the reporting of vanpool operations via the National Transit Database and capturing of additional §5307 funding via the Department of Transportation.

[14] Federal Register, October 5, 2010: National Transit Database: Amendments to the Urbanized Area Annual Reporting Manual and to the Safety and Security Reporting Manual; A Notice by the Federal Transit Administration on 10/05/2010.

Congestion Mitigation Air Quality Funding

The purpose of the CMAQ2 program is to fund transportation projects or programs that will contribute to attainment or maintenance of the national ambient air quality standards (NAAQS) for ozone, carbon monoxide (CO), and particulate matter (PM). The two goals of improving air quality and relieving congestion were strengthened under SAFETEA-LU by a new provision establishing priority consideration for cost-effective emission reduction and congestion mitigation activities when using CMAQ funding.

SAFETEA-LU directs states and MPOs to give priority to diesel retrofits and other cost-effective emission reduction activities, taking into consideration air quality and health effects, and to cost-effective congestion mitigation activities that provide air quality benefits. In addition, any transportation control measures identified in State Implementation Plans for Air Quality (SIPs) must receive funding priority. CMAQ funds may be invested in all 8-hour 3 ozone, CO, and PM nonattainment and maintenance areas. Funds also may be used for projects in proximity to nonattainment and maintenance areas if the benefits will be realized primarily within the nonattainment or maintenance area. Under SAFETEA-LU, CMAQ funds may be invested in former 1-hour ozone areas that were not designated under the 8-hour standard but where the 1-hour standard has been revoked. Since these areas are required to file maintenance plans, they are considered eligible for CMAQ funding under the provisions of SAFETEA-LU.

Congestion Mitigation Air Quality (CMAQ) provides specific guidance regarding fare subsidies. CMAQ allows the funds to be used to subsidize regular vanpool fares, but only if the reduced or free fare is part of an overall program for preventing exceeding national air quality standards during periods of high pollutant levels. Examples include metropolitan areas that have implemented voluntary mobile source emission reduction programs that promote a range of measures that individuals can take to reduce ozone-forming emissions. "Ozone-action" programs, designed to avoid exceeding standards when ozone concentrations are high, are bolstered by more permanent measures aimed at discouraging single occupant vehicle (SOV) driving.

According to the guidance provided by FHWA, “(t)he implementation of a vanpool operation entails purchasing or leasing vehicles and providing a transportation service. Therefore, proposals for vanpool activities such as these must be for new or expanded service to be eligible and are subject to the 3-year limitation on operating costs [paid by CMAQ funding]”.

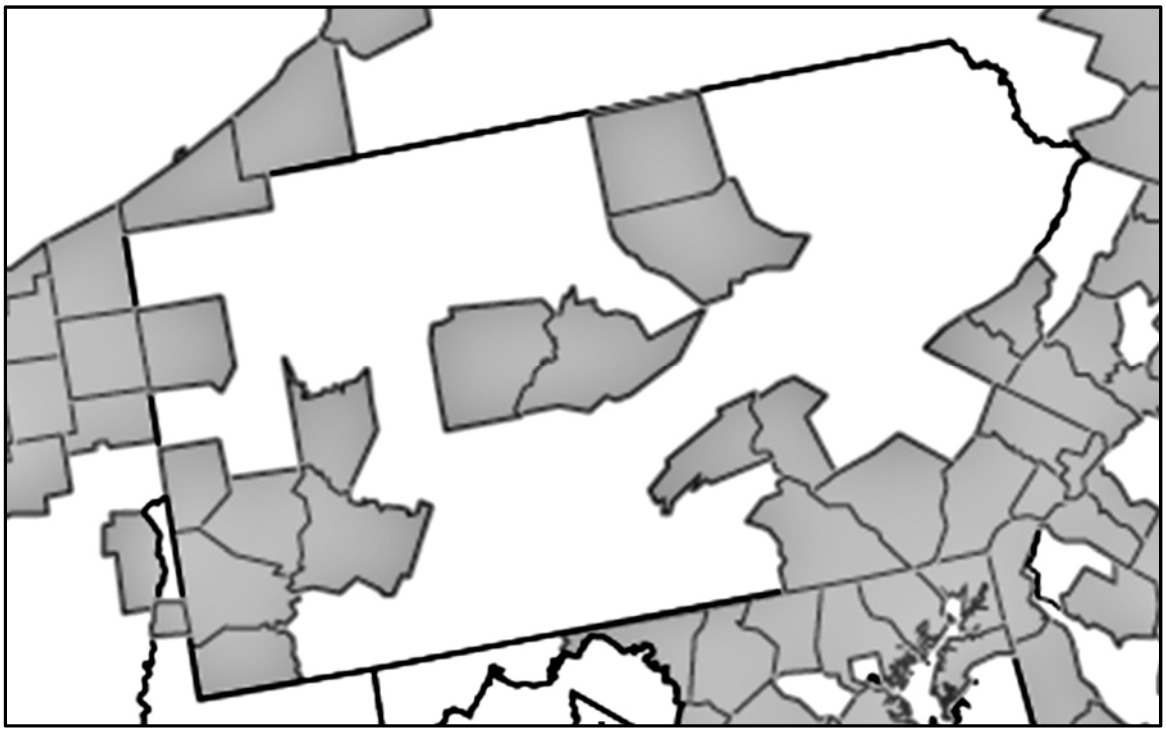
The purchase price of a publicly-owned vanpool vehicle does not have to be paid back to the Federal Government. Furthermore, the guidance states “CMAQ funds should not be used to

buy or lease vans that would be in direct competition with and impede private sector initiatives." States and metropolitan planning organizations (MPOs) are advised to consult with the private sector prior to using CMAQ funds to purchase vans. If local private firms have "definite plans to provide adequate vanpool services," then CMAQ funds should not be used to "supplant that service" (see Figure 19).

The CMAQ program also allows funding for user fare or fee subsidies in order to encourage greater use of alternative travel modes (e.g., carpool, vanpool, public transit, bicycling, and walking). This policy has been established to encourage areas to take a more comprehensive approach—including both supply and demand measures—in reducing transportation emissions. CMAQ funds to subsidize fares or fees for vanpools were explicitly identified in the guidance as an eligible use. These uses include a program subsidizing empty seats during the formation of a new vanpool and reduced fares for shuttle services within a defined area, such as a flat-fare taxi program.

The intent of the fare/fee subsidies under the CMAQ program is to provide short-term incentives, so there is a time limit. The intent of this time limit provision is to support experimentation but always with the goal of identifying projects that are viable without the short-term funding assistance provided by the CMAQ program. Thus, the subsidy must be used in conjunction with reasonable fares or fees to allow the greatest chance of holding on to "trial" users. While the fare/fee subsidy program itself is not limited in time, specific groups or locales targeted under the program must be rotated, and the subsidized fare/fee must be limited to any one entity or location for a period not to exceed 3 years.

Figure 19. CMAQ Eligible Counties in Pennsylvania



Job Access and Reverse Commute (JARC) Program Funding

The Job Access and Reverse Commute (JARC) program was established to address the unique transportation challenges faced by welfare recipients and low-income persons seeking to obtain and maintain employment. Many new entry-level jobs are located in suburban areas, and low-income individuals have difficulty accessing these jobs from their inner city, urban, or rural neighborhoods. In addition, many entry level-jobs require working late at night or on weekends when conventional transit services are either reduced or non-existent. Finally, many employment related-trips are complex and involve multiple destinations including reaching childcare facilities or other services.

States and public bodies are eligible designated recipients. Eligible sub-recipients are private non-profit organizations, state or local governments, and operators of public transportation services, including private operators. Capital, planning, and operating expenses for projects that transport low income individuals to and from jobs and activities related to employment, and for reverse commute projects are potential JARC participants.

While the aforementioned options exist for financing the vanpool vehicles, some groups have sought methods of financing the customer. Tax incentives are used by some states to spur investments in vanpools. The following summarizes the programs in three states. Until the legislation unsettled, California allowed vanpool riders to claim 40 percent of their vanpool fares (up to $480/year) as a state tax credit, among other tax credits for commuters. Commuters were eligible if they met the following criteria: (1) vanpool was not employer sponsored; (2) the employee worked at least 10 hours per week; (3) the vanpool had 7 or more passengers; and (4) the individual rode in the vanpool at least 3 days a week or 15 days per month for at least 6 months of the year. The law that allowed this tax credit expired at the end of the 1995 tax year.

In New Jersey, NJ TRANSIT offers a statewide Vanpool Sponsorship Program, which provides a financial incentive for vanpooling in areas where public transportation is neither available nor feasible. Each vanpool group may be eligible for $150 per month of sponsorship support. Those vanpool groups that take advantage of one of New Jersey's High Occupancy Vehicle (HOV) lanes, during hours of operation, can qualify for an additional $150 of monthly sponsorship support. Newly forming or existing vanpool groups that obtain their vehicles from a participating vanpool provider can apply for NJ TRANSIT sponsorship through the Transportation Management Association (TMA). There is an application process, along with other reporting requirements to ensure that the vanpool group meets eligibility standards. To be eligible for sponsorship, the vehicle must be from a vanpool provider that participates in NJTRANSIT's program. The vehicle must have a seating capacity of 7-15 passengers, including the driver who is an unpaid commuter. The vanpool group must have a New Jersey work site as its final destination. To avoid skimming ridership from existing transit service, vanpool groups that duplicate an existing public transit route may not be qualified.

The process requires coordination with the local group responsible for assisting in the formation of the vanpool. The group must complete a Vanpool Application form and each participant, including the driver, must complete an Individual Application form. The forms are submitted, as a package, to the Transportation Management Association (TMA) for the county in which the vanpool group works.

Financing the customer also includes strategies for financing the employer customer.
In Oregon, employers can get a tax credit for purchasing vehicles for vanpooling or carpooling. The vanpool or carpool must consist of 3 or more employees and reduce vehicle miles traveled for the work commute at least 150 days per year. The Oregon Legislature made vanpool and carpool projects eligible for the state Business Energy Tax Credit to encourage alternatives to drive-alone commuting. The stated purpose of the Business Energy Tax Credit is to “encourage investments in energy conservation, recycling, renewable energy resources and less polluting

transportation fuels." The tax credit is 35 percent of eligible project costs taken over five years, 10 percent in the first and second years, and 5 percent each remaining year. Any business that pays Oregon income taxes is eligible for the tax credit. The Oregon Office of Energy administers the tax credit program. Businesses must apply and receive approval for the tax credit before starting the program or project.

In Washington State, the state government provides tax credits to major employers that participate in a commute trip reduction program and provide financial incentives to their employees to ride-share. This credit is an incentive for employers to encourage their employees to reduce the number of single passenger vehicles on Washington State roads by carpooling or vanpooling.

The credit is equal to one half (50%) of the financial incentive paid to each participating employee. It is limited to $60 per employee and $200,000 per calendar year per business. The credit is limited to $2 million per calendar year statewide.

To qualify for the tax credit, the employer must have a commute trip reduction program for a worksite(s) in one or more of the 8 counties subject to the Commute Trip Reduction law. The employer must have 100 or more employees working at the same location (worksite) starting work Monday through Friday between 6:00 AM and 9:00 AM in one or more of those counties. However, smaller sites in a qualified county may be included in the program as long as one site in any qualifying county has 100 or more employees. Employees must carpool or vanpool in vehicles containing 4 or more passengers and receive a financial incentive from their employer. The employee must directly receive the financial incentive or the employee must be named when payment is made on behalf of the employee. For example, if 10 parking places are purchased, employee names must be recorded to show who will use each parking place. A blanket statement of "employee parking places for ride-sharing" will not meet the criteria. The employer is eligible for credits only for incentives paid to employees who carpool or vanpool at least 50 percent of the time.

FTA Section §5311 Funding

The Formula Grants For Other than Urbanized Areas (§5311) is a rural program that is formula based and provides funding to states for the purpose of supporting public transportation in rural areas, with a population of less than 50,000. The goal of the program is to provide the following services to communities with a population of less than 50,000:

- Enhance the access of people in non-urbanized areas to health care, shopping, education, employment, public services, and recreation.
- Assist in the maintenance, development, improvement, and use of public transportation systems in non-urbanized areas.

- Encourage and facilitate the most efficient use of all transportation funds used to provide passenger transportation in non-urbanized areas through the coordination of programs and services.
- Assist in the development and support of intercity bus transportation.
- Provide for the participation of private transportation providers in non-urbanized transportation.

The Rural Transit Assistant Program and the Tribal Transit Program are funded as a takedown from the Section §5311 program.

Section 3013 (s) of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) amends eligible recipients to include a State or Indian tribe that receives a Federal transit program grant directly from the Federal Government. A sub-recipient of the program includes a state or local governmental authority, a nonprofit organization, or an operator of public transportation or intercity bus service that receives federal transit program grant funds indirectly through a recipient.

An eligible recipient may use the funding for capital, operating, and administrative expenses for public transportation projects that meet the needs of rural communities. Examples of eligible activities include: capital projects, operating costs of equipment and facilities for use in public transportation, and the acquisition of public transportation services, including service agreements with private providers of public transportation services.

The state must use 15 percent of its annual apportionment to support intercity bus service, unless the Governor certifies, after consultation with affected intercity bus providers, that the needs of the state are adequately met.

7. Conclusions and Policy Options

This report analyzed the current conditions of vanpooling in Pennsylvania with a set of tasks summarized below.

For Task 1, the literature review and summary of the market for vanpool uses was completed. The existing programs in Pennsylvania were identified and summarized. In Task 2, we collected input from local stakeholders for further survey development. The survey was completed under Task 4. This information was also used for the cost-benefit analysis of Task 3 and financing model developed under Task 5.

Based on all of these individual sections, the following conclusions are drawn from the report:

1. Current vanpool usage is extremely low across the state. As a result, efforts to expand existing vanpool programs or promote the creation of new vanpool demand must be focused on the firms and workers that are most likely to adopt vanpooling.
2. Qualitative analysis revealed that there seems to be a general lack of knowledge of what vanpooling can provide firms.
3. Knowledge of existing programs supporting vanpool usage is also extremely low. Marketing existing programs to potential users is needed. For example, Commuter Choice, which provides the option of pre-tax transportation benefits to workers, is shown to be a key factor influencing the choice of commuting mode for many workers. Low levels of public knowledge of this program need to be overcome in order for any incentive program aimed at vanpooling to be effective.
4. Until the critical mass of vanpool usage across the state increases, general public marketing is likely to have only a limited impact. Current efforts at expanding vanpool usage in the state are best served by focusing on key employers within the state that are most likely to promote and support vanpool operations. Employer support for vanpooling is found to be a key and consistent determinant of successful vanpool programs currently operating within the state.
5. Certain factors about firms are critical to their support for vanpooling. Central here is size of firm – vanpooling is mostly supported by larger establishments. Related here is distance travelled – commuters to larger establishments travel longer distances and are most appropriate for targeted information on vanpooling.
6. Statewide vanpool programs have shown success at expanding vanpool usage. Washington State provides a model statewide vanpool program that can be used to expand vanpool operations statewide in Pennsylvania. The Washington State Vanpool Investment Program (VIP) was initiated in 2003 and has received on average $3.56 million annually since its inception. The results have been that since 2003 Washington

State has seen a 41 percent increase in vanpool ridership. This scale of investment could produce significant increases in vanpool ridership in Pennsylvania.

7. Pennsylvania can expand its Federal Transportation Agency Urbanized Area Formula Program (§5307) funding available via greater reporting of existing vanpool operations. Only certain vanpool programs within the state currently report. Greater reporting of existing private vanpool operations could increase funding allocated to Pennsylvania. As other states expand their reporting of vanpool operations, Pennsylvania risks lower appropriations in the future.
8. Current changes being proposed in the §5307 program and vanpool reporting into the National Transit Database will increase options for incorporating existing and new vanpool operations into NTD reporting. The potential for greater public/private partnerships in supporting new vanpool operations exist as rules governing the reporting of private vanpool operators are expanded. New §5307 revenues along with existing federal funding sources could potentially generate revenues comparable to the level Washington State's successful VIP program has received.

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Appendix 1: Advisory Group

The members of the advisory group represent the following organizations:

Table 27. Southwestern Pennsylvania Stakeholders/Advisory Group, 2009

Provider, coordinator, rider	Services provided/used	Web site
1. Southwestern Pennsylvania Commission: CommuteInfo	Vanpool program	www.spc.org
2. OTMA (Oakland Transportation Management Association)	Promote public transportation, linked with above transit agencies and SPC's *CommuteInfo* program to promote ride sharing	www.otma-pgh.org/abt/index.asp
3. University of Pittsburgh staff members with current or past involvement in program	Transportation management association, partner in SPC's *CommuteInfo* rideshare matching program	hwww.pts.pitt.edu/Commuting/vanpooling/
4. VSPI	Vehicle acquisition, maintenance, driver check, data collection	www.vpsiinc.com/Home/index.asp?OID=261
5. Iron Mountain Federal government vanpool coordinator	Volunteer role in promoting vanpooling and groups at Iron Mountain site	
6. Drivers and riders at University of Pittsburgh site	Van, group and ride	

Appendix 2: Timeline of Vanpool Milestones in North America and Pennsylvania

YEAR	ITEM	SUMMARY
1940s	First carpool	Carpooling first appeared on the U.S. policy scene in the 1940s during WW II, when oil and rubber shortages occurred
After WW II	Carpool fell out of favor	
1956	The National Defense Highway Act	The National Defense Highway Act launched a massive public works project, which initially included four primary routes in PA, including Interstates 80, 81 and 79
Mid-1960s	First vanpool in North America	Vanpooling in NA began in Sarnia, Ontario's "chemical valley"
1973	3M in Minneapolis began vanpooling in the U.S., “the father of vanpooling TDM	3M started program to reduce demand for parking; earliest TDM established at large employer sites in response to energy crisis
1970s	OPEC oil embargo creates shift to vanpooling; employer-sponsored vanpool programs emerge; carpools re-appear	Most employer-sponsored vanpool programs formed in response to oil embargos; carpools in response to national policy of transit ridership stabilization
1974	Federal Aid Highway Act	MPOs started under the Federal Aid Highway Act of 1974, mandating that all urbanized areas with a population of over 50,000 people establish a continuing, cooperative and comprehensive process
1977	USAA (United States Automobile Association)	USAA (United States Automobile Association) in San Antonio, Texas, an insurance and financial services firm, ran an extensive vanpool program
1977	VPSI established and headquartered in Troy, Michigan	
1978	Wisconsin vanpool program	The Wisconsin vanpool program is operated by the WDOT; currently have 72 15-passenger vans in its fleet
1979	Seattle began a vanpool program	Largest publicly-owned vanpool program in NA, now is operated by King County Metro
1980	The Rideshare Company - one of the third-party vanpool operators	Rideshare Company founded
1980	The Transportation Act	Act served to facilitate some forms of fare-paying work-bus (bus pool) operations by exempting them from the need for road service licensing
1980s	Reduced need for vanpools for liability and insurability problems	

YEAR	ITEM	SUMMARY
1982	Intercity Transit (WA) founded	
Late 1970s - mid 1980s	North Dakota program	Commuter vanpool program
1980s	Washington State DOT vanpool arena	Department of Transportation begins vanpool programs
Mid-1980s	Car sharing was first developed in Europe	
Mid 1980s	Decline in vanpooling and carpooling	Gasoline prices declined and economic conditions improved
1990s	Abandonment of vanpool programs	
1990	Share of carpooling to work declined	Remained 13.4% in U.S.
1990	Gulf War	
1991	ISTEA: Intermodal Surface Transportation Efficiency Act	ISTEA passed and extended for six months; promotes mass transit
1991	ESC: European Car Sharing Association	Five car sharing companies organized to form the ESC, umbrella organization that includes 40 operators of shared cars for 56,000 members in more than 550 towns
1992	City of Boulder initiated vanpool program	
Early 1990s	Pennsylvania was criss-crossed by thousands of miles of roads, few of which were paved	
Mid-1990s	Vanpooling rises again	Conventional transit and rail service does not respond to commuting changes
1995	METROVan	METROVan sponsored by METRO and Houston Galveston Area Council
1996	Temporary Assistance for Needy Families (TANF), Personal Responsibility and Work Opportunity Reconciliation Act, Welfare Reform Act, replaced previous programs (AFDC)	Need to connect workers with jobs; Job Access Reverse Commute (JARC) tied to TANF
1997	Taxpayer Relief Act of 1997	
1998	JARC: Job Access Reverse Commute	Section 3037 of TEA-21
1998	TEA-21: The Transportation Equity Act for the 21st Century	Changes to Internal Revenue Code to give vanpool benefits in addition to compensation or in lieu of compensation, allowing pre-tax income set aside for vanpooling
1999	Cost of traffic congestion $78 billion in the U.S.	Average commuter spent 36 hours each year stuck in traffic
2000	Regional Job Access Reverse Commute Work Group in PA	January 2000 formally convened the Regional Job Access Reverse Commute Work Group
2001	WorkLink	WorkLink free van transportation service that began operating on February 5, 2001
2001	RPO: Rural Planning Organization	First RPO Chartered in August 2001
2001	Community Transit (Washington State)	Community Transit (created in 1986) was the third-largest vanpool fleet in the U.S. in 2001
2001	RapidVan	RapidVan was launched

YEAR	ITEM	SUMMARY
2002-2003	Rural public transportation systems spent $18.96 million to operate their systems	
2001	Commuter Choice	CC program provision of the Internal Revenue Code26 USC 132(f) that permits an employer to offer tax-free commuting benefits other than by driving alone
2003	21 rural Pennsylvania transportation systems carried almost 3.7 million riders	
2003	RPO: Rural Planning Organization	Last RPO Chartered in January 2003
2005		Renewed - Section 5316 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act, a Legacy for Users (SAFETEA-LU)
2005	ATWIC: Access To Work Interagency Cooperative	The ATWIC was officially formed in September 2005 as a three-year venture to improve the structure and progress for access to work activity in Southwest Pennsylvania

Appendix 3. Employer Survey Results

Respondents by Organization

Organization	Frequency	Percent
Commuter Services	70	16
Gettysburg Adams Chamber of Commerce	77	17.6
Greater Reading Chamber of Commerce & Industry	35	8
Harrisburg Regional Chamber & CREDC	25	5.7
Lancaster Chamber of Commerce & Industry	230	52.6
Total	437	100

Question 1: What is your firm's primary industry?

	Frequency	Percent	Percent (excluding non-answers)
11 Agriculture, Forestry, Fishing and Hunting	7	1.6	1.6
21 Mining, Quarrying, and Oil and Gas Extraction	1	0.2	0.2
22 Utilities	10	2.3	2.3
23 Construction	18	4.1	4.2
31 Manufacturing	58	13.3	13.4
42 Wholesale Trade	7	1.6	1.6
44 Retail Trade	19	4.3	4.4
48 Transportation and Warehousing	22	5	5.1
51 Information	3	0.7	0.7
52 Finance and Insurance	48	11	11.1
53 Real Estate and Rental and Leasing	15	3.4	3.5
54 Professional, Scientific, and Technical Services	51	11.7	11.8
55 Management of Companies and Enterprises	3	0.7	0.7
56 Administrative and Support and Waste Management and Remediation Services	2	0.5	0.5
61 Educational Services	27	6.2	6.2
62 Health Care and Social Assistance	43	9.8	9.9
71 Arts, Entertainment, and Recreation	13	3	3
72 Accommodation and Food Services	13	3	3
81 Other Services (except Public Administration)	53	12.1	12.2
92 Public Administration	20	4.6	4.6
Total Answers	433	99.1	100
No answer	4	0.9	
Total	437	100	

Question 2: Does your firm have more than one location?

	Frequency	Percent	Percent (excluding non-answers)
1 yes	248	56.8	56.8
2 no	189	43.2	43.2
Total	437	100	100

Question 3a: How many people does your firm employ?

	Frequency	Percent	Percent (excluding non-answers)
1 less than 25	126	28.8	30.7
2 25-49	51	11.7	12.4
3 50-99	44	10.1	10.7
4 100-499	80	18.3	19.5
5 500-999	30	6.9	7.3
6 1000 or more	79	18.1	19.3
Total	410	93.8	100
No answer	27	6.2	
Total	437	100	

Question 3b: How many people work at your location?

	Frequency	Percent	Percent (excluding non-answers)
1 less than 25	55	12.6	28.4
2 25-49	29	6.6	14.9
3 50-99	22	5	11.3
4 100-499	59	13.5	30.4
5 500-999	11	2.5	5.7
6 1000 or more	18	4.1	9.3
Total	194	44.4	100
No answer	243	55.6	
Total	437	100	

Question 3c: How many locations does your firm have in Pennsylvania?

	Frequency	Percent	Percent (excluding non-answers)
1 1	13	3	5.6
2 2	68	15.6	29.2
3 3	37	8.5	15.9
4 4	18	4.1	7.7
5 5 or more	97	22.2	41.6
Total	233	53.3	100
No answer	204	46.7	
Total	437	100	

Question 3d: How many locations does your firm have in South Central Pennsylvania?

	Frequency	Percent	Percent (excluding non-answers)
1 1	50	11.4	21.4
2 2	67	15.3	28.6
3 3	29	6.6	12.4
4 4	16	3.7	6.8
5 5 or more	72	16.5	30.8
Total	234	53.5	100
No answer	203	46.5	
Total	437	100	

Question 4: Do your employees work overtime?

	Frequency	Percent	Percent (excluding non-answers)
1 yes	303	69.3	72.7
2 no	114	26.1	27.3
Total	417	95.4	100
No answer	20	4.6	
Total	437	100	

Question 4a: Are your employees required to stay for unscheduled overtime?

		Frequency	Percent	Percent (excluding non-answers)
	1 yes	132	30.2	44
	2 no	168	38.4	56
	Total	300	68.6	100
	No answer	137	31.4	
Total		437	100	

Question 5a: Estimated percentage of employees who commute to work by the following means: DRIVE ALONE

		Frequency	Percent	Percent (excluding non-answers)
	0	1	0.2	0.3
	10	1	0.2	0.3
	35	1	0.2	0.3
	40	1	0.2	0.3
	45	2	0.5	0.5
	50	9	2.1	2.4
	60	2	0.5	0.5
	65	4	0.9	1.1
	70	3	0.7	0.8
	75	15	3.4	4
	80	17	3.9	4.5
	85	20	4.6	5.3
	90	51	11.7	13.6
	95	83	19	22.1
	100	166	38	44.1
	Total	376	86	100
	No answer	61	14	
Total		437	100	

Q5a Estimated percentage of employees who commute to work by the following means: DRIVE ALONE

	Frequency	Percent	Percent (excluding non-answers)
0	1	0.2	0.3
10	1	0.2	0.3
35	1	0.2	0.3
40	1	0.2	0.3
45	2	0.5	0.5
50	9	2.1	2.4
60	2	0.5	0.5
65	4	0.9	1.1
70	3	0.7	0.8
75	15	3.4	4
80	17	3.9	4.5
85	20	4.6	5.3
90	51	11.7	13.6
95	83	19	22.1
100	166	38	44.1
Total	376	86	100
No answer	61	14	
Total	437	100	

Question 5b: Estimated percentage of employees who commute to work by the following means: PUBLIC TRANSIT

	Frequency	Percent	Percent (excluding non-answers)
0	290	66.4	77.1
5	57	13	15.2
10	18	4.1	4.8
15	1	0.2	0.3
20	4	0.9	1.1
25	3	0.7	0.8
30	1	0.2	0.3
45	1	0.2	0.3
80	1	0.2	0.3
Total	376	86	100
No answer	61	14	
Total	437	100	

Question 5c: Estimated percentage of employees who commute to work by the following means: BIKE

	Frequency	Percent	Percent (excluding non-answers)
0	328	75.1	87.2
5	42	9.6	11.2
10	4	0.9	1.1
15	1	0.2	0.3
40	1	0.2	0.3
Total	376	86	100
No answer	61	14	
Total	437	100	

Question 5d: Estimated percentage of employees who commute to work by the following means: WALK

	Frequency	Percent	Percent (excluding non-answers)
0	310	70.9	82.4
5	48	11	12.8
10	6	1.4	1.6
15	2	0.5	0.5
20	4	0.9	1.1
25	3	0.7	0.8
50	2	0.5	0.5
100	1	0.2	0.3
Total	376	86	100
No answer	61	14	
Total	437	100	

Question 5e: Estimated percentage of employees who commute to work by the following means: CARPOOL

	Frequency	Percent	Percent (excluding non-answers)
0	253	57.9	67.3
5	79	18.1	21
10	24	5.5	6.4
15	6	1.4	1.6
20	8	1.8	2.1
25	2	0.5	0.5
30	1	0.2	0.3
35	1	0.2	0.3
50	2	0.5	0.5
Total	376	86	100
No answer	61	14	
Total	437	100	

Question 5f: Estimated percentage of employees who commute to work by the following means: VANPOOL

	Frequency	Percent	Percent (excluding non-answers)
0	368	84.2	97.9
5	4	0.9	1.1
10	2	0.5	0.5
15	1	0.2	0.3
50	1	0.2	0.3
Total	376	86	100
No answer	61	14	
Total	437	100	

Question 5g: Estimated percentage of employees who commute to work by the following means: OTHER MEANS

	Frequency	Percent	Percent (excluding non-answers)
0	359	82.2	95.5
5	10	2.3	2.7
10	5	1.1	1.3
15	1	0.2	0.3
25	1	0.2	0.3
Total	376	86	100
No answer	61	14	

Total	437	100	

Question 5goth: OTHER MEANS, SPECIFIED

	Frequency	Percent	Percent (excluding non-answers)
	422	96.6	96.6
bike/walk in good weather - use public trans in bad weather	1	0.2	0.2
Car Pool - Public Transit	1	0.2	0.2
catch rides from friends; family; co-workers	1	0.2	0.2
combination of b; c; d	1	0.2	0.2
commute/ride on motorcycles	1	0.2	0.2
Family member; motorcycle	1	0.2	0.2
friends; parents etc	1	0.2	0.2
Golf Cart	1	0.2	0.2
I do not have the means to determine how employees get to work. I do know that public transportation does not come to site. A few do bike or walk; some carpool; most drive themselves.	1	0.2	0.2
i don't know; but probably all don't drive themselves	1	0.2	0.2
Motorcycle	1	0.2	0.2
n/a	1	0.2	0.2
small percentages of walking and public transit	1	0.2	0.2
they have a friend or family member drop them off in their car	1	0.2	0.2
Train; if available	1	0.2	0.2
Total	437	100	100

Question 5h: Are your employees able to telecommute?

	Frequency	Percent	Percent (excluding non-answers)
1 yes	116	26.5	29.3
2 no	280	64.1	70.7
Total	396	90.6	100
No answer	41	9.4	
Total	437	100	

Question 5ha: Please estimate the percentage of your employees who telecommute.

		Frequency	Percent	Percent (excluding non-answers)
	0	11	2.5	9.7
	5	45	10.3	39.8
	10	11	2.5	9.7
	15	4	0.9	3.5
	20	6	1.4	5.3
	25	4	0.9	3.5
	30	3	0.7	2.7
	35	1	0.2	0.9
	40	2	0.5	1.8
	50	10	2.3	8.8
	75	4	0.9	3.5
	90	2	0.5	1.8
	100	10	2.3	8.8
	Total	113	25.9	100
	No answer	324	74.1	
Total		437	100	

Question 6a: Please estimate the percentage of your employees who commute ONE WAY to work for the following distance: LESS THAN 15 MILES

	Frequency	Percent	Percent (excluding non-answers)
0	15	3.4	4.2
5	6	1.4	1.7
10	5	1.1	1.4
15	3	0.7	0.8
20	15	3.4	4.2
25	10	2.3	2.8
30	16	3.7	4.5
35	5	1.1	1.4
40	10	2.3	2.8
45	6	1.4	1.7
50	35	8	9.8
55	3	0.7	0.8
60	24	5.5	6.7
65	13	3	3.6
70	13	3	3.6
75	26	5.9	7.3
80	27	6.2	7.5
85	32	7.3	8.9
90	25	5.7	7
95	25	5.7	7
100	44	10.1	12.3
Total	358	81.9	100
No answer	79	18.1	
Total	437	100	

Question 6b: Please estimate the percentage of your employees who commute ONE WAY to work for the following distance: BETWEEN 15 MILES AND 30 MILES

	Frequency	Percent	Percent (excluding non-answers)
0	49	11.2	13.7
5	31	7.1	8.7
10	49	11.2	13.7
15	29	6.6	8.1
20	33	7.6	9.2
25	26	5.9	7.3
30	24	5.5	6.7
35	17	3.9	4.7
40	19	4.3	5.3
45	8	1.8	2.2
50	28	6.4	7.8
60	9	2.1	2.5
65	4	0.9	1.1
70	8	1.8	2.2
75	4	0.9	1.1
80	4	0.9	1.1
85	2	0.5	0.6
90	4	0.9	1.1
100	10	2.3	2.8
Total	358	81.9	100
No answer	79	18.1	
Total	437	100	

Question 6c: Please estimate the percentage of your employees who commute ONE WAY to work for the following distance: OVER 30 MILES

	Frequency	Percent	Percent (excluding non-answers)
0	163	37.3	45.5
5	70	16	19.6
10	46	10.5	12.8
15	13	3	3.6
20	28	6.4	7.8
25	12	2.7	3.4
30	5	1.1	1.4
35	5	1.1	1.4
40	7	1.6	2
50	3	0.7	0.8
55	1	0.2	0.3
75	2	0.5	0.6
85	1	0.2	0.3
90	1	0.2	0.3
100	1	0.2	0.3
Total	358	81.9	100
No answer	79	18.1	
Total	437	100	

Question 7: Approximately what percentage of your employees have reported experiencing transportation problems getting to work?

		Frequency	Percent	Percent (excluding non-answers)
	0	91	20.8	24.3
	5	65	14.9	17.3
	10	47	10.8	12.5
	15	16	3.7	4.3
	20	27	6.2	7.2
	25	21	4.8	5.6
	30	14	3.2	3.7
	35	4	0.9	1.1
	40	8	1.8	2.1
	50	20	4.6	5.3
	55	1	0.2	0.3
	60	6	1.4	1.6
	65	2	0.5	0.5
	70	2	0.5	0.5
	75	11	2.5	2.9
	80	2	0.5	0.5
	85	2	0.5	0.5
	90	8	1.8	2.1
	95	4	0.9	1.1
	100	24	5.5	6.4
	Total	375	85.8	100
	No answer	62	14.2	
Total		437	100	

Question 7a: You indicated that some of your employees have reported experiencing transportation problems getting to work. How much of a problem is this?

		Frequency	Percent	Percent (excluding non-answers)
	1 a minor problem	163	37.3	57.8
	2 a moderate problem	108	24.7	38.3
	3 a severe problem	11	2.5	3.9
	Total	282	64.5	100
	No answer	155	35.5	
Total		437	100	

Question 8: Are any of your employees required to have access to a reliable car as a condition of employment?

	Frequency	Percent	Percent (excluding non-answers)
1 yes	186	42.6	50
2 no	186	42.6	50
Total	372	85.1	100
No answer	65	14.9	
Total	437	100	

Question 8a: You indicated that some of your employees are required to have access to a reliable car as a condition of employment. Please estimate the percentage of your employees required to do so.

	Frequency	Percent	Percent (excluding non-answers)
5	15	3.4	8.4
10	16	3.7	8.9
15	4	0.9	2.2
20	5	1.1	2.8
25	7	1.6	3.9
30	7	1.6	3.9
35	3	0.7	1.7
50	18	4.1	10.1
55	1	0.2	0.6
60	2	0.5	1.1
65	1	0.2	0.6
70	2	0.5	1.1
75	7	1.6	3.9
80	9	2.1	5
85	7	1.6	3.9
90	6	1.4	3.4
95	11	2.5	6.1
100	58	13.3	32.4
Total	179	41	100
No answer	258	59	
Total	437	100	

Question 9: In general, is parking conveniently located for most of your employees?

		Frequency	Percent	Percent (excluding non-answers)
	1 yes	348	79.6	96.1
	2 no	14	3.2	3.9
	Total	362	82.8	100
	No answer	75	17.2	
Total		437	100	

Question 10A: What kind of parking do your employees use: ON SITE FREE PARKING

		Frequency	Percent	Percent (excluding non-answers)
	0 not selected	43	9.8	11.9
	1 selected	318	72.8	88.1
	Total	361	82.6	100
	No answer	76	17.4	
Total		437	100	

Question 10B: What kind of parking do your employees use: OFF SITE FREE PARKING

		Frequency	Percent	Percent (excluding non-answers)
	0 not selected	328	75.1	90.9
	1 selected	33	7.6	9.1
	Total	361	82.6	100
	No answer	76	17.4	
Total		437	100	

Question 10C: What kind of parking do your employees use: COMMERCIAL PAID PARKING LOT

		Frequency	Percent	Percent (excluding non-answers)
	0 not selected	323	73.9	89.5
	1 selected	38	8.7	10.5
	Total	361	82.6	100
	No answer	76	17.4	
Total		437	100	

Question 10C2: What is the average daily cost of commercial paid parking options? (in dollars)

	Frequency	Percent	Percent (excluding non-answers)
0.50	1	0.2	2.9
1.00	1	0.2	2.9
1.30	1	0.2	2.9
2.00	2	0.5	5.7
3.00	4	0.9	11.4
3.75	1	0.2	2.9
4.00	2	0.5	5.7
4.50	1	0.2	2.9
5.00	8	1.8	22.9
5.50	1	0.2	2.9
6.00	3	0.7	8.6
6.50	1	0.2	2.9
8.00	4	0.9	11.4
8.50	1	0.2	2.9
9.50	1	0.2	2.9
10.00	1	0.2	2.9
11.00	1	0.2	2.9
25.00	1	0.2	2.9
Total	35	8	100
No answer	402	92	
Total	437	100	

Question 10D: What kind of parking do your employees use: ON STREET PARKING

	Frequency	Percent	Percent (excluding non-answers)
0 not selected	320	73.2	88.6
1 selected	41	9.4	11.4
Total	361	82.6	100
No answer	76	17.4	
Total	437	100	

Question 10E: What kind of parking do your employees use: OTHER (SPECIFY)

		Frequency	Percent	Percent (excluding non-answers)
	0 not selected	356	81.5	98.6
	1 selected	5	1.1	1.4
	Total	361	82.6	100
	No answer	76	17.4	
Total		437	100	

Question 11: In general, is there adequate parking available for your employees?

		Frequency	Percent	Percent (excluding non-answers)
	1 yes	334	76.4	93
	2 no	25	5.7	7
	Total	359	82.2	100
	No answer	78	17.8	
Total		437	100	

Question 12: Do commonly used parking lots have enough spaces for your employees who drive to work?

		Frequency	Percent	Percent (excluding non-answers)
	1 yes	325	74.4	91.8
	2 no	29	6.6	8.2
	Total	354	81	100
	No answer	83	19	
Total		437	100	

Q13: Does your firm provide parking lots or lease parking space for your employees?

		Frequency	Percent	Percent (excluding non-answers)
	1 yes	274	62.7	76.3
	2 no	85	19.5	23.7
	Total	359	82.2	100
	No answer	78	17.8	

Total	437	100	

Question 13A: You indicated that your firm provides parking or leases parking spaces for your employees. Is your firm interested in ways to reduce your costs associated with parking?

	Frequency	Percent	Percent (excluding non-answers)
1 yes	75	17.2	27.7
2 no	196	44.9	72.3
Total	271	62	100
No answer	166	38	
Total	437	100	

Question 14: Is your firm's location within 1/4 mile of a regular transit stop?

	Frequency	Percent	Percent (excluding non-answers)
1 yes	229	52.4	64.7
2 no	125	28.6	35.3
Total	354	81	100
No answer	83	19	
Total	437	100	

Question 15: How convenient is public transit for your firm and your employees?

	Frequency	Percent	Percent (excluding non-answers)
1 meets our needs	103	23.6	29.8
2 is available, but is not convenient	177	40.5	51.2
3 is not available in our area	66	15.1	19.1
Total	346	79.2	100
No answer	91	20.8	
Total	437	100	

Question 16A: Do any of the following factors interfere with your ability to recruit employees? PARKING COSTS

	Frequency	Percent	Percent (excluding non-answers)
0 not selected	333	76.2	95.4
1 selected	16	3.7	4.6
Total	349	79.9	100
No answer	88	20.1	

Total	437	100	

Question 16B: Do any of the following factors interfere with your ability to recruit employees? PARKING AVAILABILITY

	Frequency	Percent	Percent (excluding non-answers)
0 not selected	340	77.8	97.4
1 selected	9	2.1	2.6
Total	349	79.9	100
No answer	88	20.1	
Total	437	100	

Question 16C: Do any of the following factors interfere with your ability to recruit employees? TOLLS

	Frequency	Percent	Percent (excluding non-answers)
0 not selected	342	78.3	98
1 selected	7	1.6	2
Total	349	79.9	100
No answer	88	20.1	
Total	437	100	

Question 16D: Do any of the following factors interfere with your ability to recruit employees? TRAVEL TIME

	Frequency	Percent	Percent (excluding non-answers)
0 not selected	290	66.4	83.1
1 selected	59	13.5	16.9
Total	349	79.9	100
No answer	88	20.1	
Total	437	100	

Question 16E: Do any of the following factors interfere with your ability to recruit employees? LACK OF TRANSIT

	Frequency	Percent	Percent (excluding non-answers)
0 not selected	292	66.8	83.7
1 selected	57	13	16.3

	Total	349	79.9	100
	No answer	88	20.1	
Total		437	100	

Question 17: Is the availability of transportation a factor in employee recruitment?

		Frequency	Percent	Percent (excluding non-answers)
	1 yes	83	19	24.6
	2 no	255	58.4	75.4
	Total	338	77.3	100
	No answer	99	22.7	
Total		437	100	

Question 18: Does your firm promote commuting alternatives to your prospective employees?

		Frequency	Percent	Percent (excluding non-answers)
	1 yes	66	15.1	19.5
	2 no	272	62.2	80.5
	Total	338	77.3	100
	No answer	99	22.7	
Total		437	100	

Question 19: Do you have any employees who work on employee transportation coordination?

		`	Percent	Percent (excluding non-answers)
	1 yes	20	4.6	5.9
	2 no	319	73	94.1
	Total	339	77.6	100
	No answer	98	22.4	
Total		437	100	

Question 19A: You indicated that you have one or more employees who work on employee transportation coordination. How many full time and / or part time staff do so?

		Frequency	Percent	Percent (excluding non-answers)
	0	1	0.2	5.3
	1	10	2.3	52.6

	2	4	0.9	21.1
	5	3	0.7	15.8
	10	1	0.2	5.3
	Total	19	4.3	100
	No answer	418	95.7	
Total		437	100	

Question 20: Do any of your employees use highways with HOV lanes to get to work?

		Frequency	Percent	Percent (excluding non-answers)
	1 yes	11	2.5	3.3
	2 no	265	60.6	78.6
	3 unsure	61	14	18.1
	Total	337	77.1	100
	No answer	100	22.9	
Total		437	100	

Question 21: Does your firm participate in Commuter Choice for your employees?

		Frequency	Percent	Percent (excluding non-answers)
	1 yes	13	3	3.8
	2 no	196	44.9	58
	3 not familiar with Commuter Choice	129	29.5	38.2
	Total	338	77.3	100
	No answer	99	22.7	
Total		437	100	

Question 21A1: Which Commuter Choice options do you offer (or do your employees use)? TRANSIT

		Frequency	Percent	Percent (excluding non-answers)
	0 not selected	5	1.1	38.5
	1 selected	8	1.8	61.5
	Total	13	3	100
	No answer	424	97	
Total		437	100	

Question 21A2: Which Commuter Choice options do you offer (or do your employees use)?

VANPOOLING

	Frequency	Percent	Percent (excluding non-answers)
0 not selected	9	2.1	69.2
1 selected	4	0.9	30.8
Total	13	3	100
No answer	424	97	
Total	437	100	

Question 21A3 Which Commuter Choice options do you offer (or do your employees use)? CARPOOLING

	Frequency	Percent	Percent (excluding non-answers)
0 not selected	4	0.9	30.8
1 selected	9	2.1	69.2
Total	13	3	100
No answer	424	97	
Total	437	100	

Q21A4 Which Commuter Choice options do you offer (or do your employees use)? BIKING

	Frequency	Percent	Percent (excluding non-answers)
0 not selected	7	1.6	53.8
1 selected	6	1.4	46.2
Total	13	3	100
No answer	424	97	
Total	437	100	

Question 21B Which is the most commonly used Commuter Choice benefit?

	Frequency	Percent	Percent (excluding non-answers)
1 transit	4	0.9	33.3
2 vanpooling	1	0.2	8.3
3 carpooling	7	1.6	58.3
Total	12	2.7	100
No answer	425	97.3	
Total	437	100	

Question 21C Please estimate the percentage of your employees that take advantage of this benefit.

		Frequency	Percent	Percent (excluding non-answers)
	0	2	0.5	18.2
	5	3	0.7	27.3
	10	2	0.5	18.2
	15	1	0.2	9.1
	20	1	0.2	9.1
	25	1	0.2	9.1
	35	1	0.2	9.1
	Total	11	2.5	100
	No answer	426	97.5	
Total		437	100	

Question 21D What is the average employee benefit value for using Commuter Choice? (in dollars)

		Frequency	Percent	Percent (excluding non-answers)
	0	1	0.2	12.5
	5	1	0.2	12.5
	25	1	0.2	12.5
	32	1	0.2	12.5
	100	2	0.5	25
	400	1	0.2	12.5
	500	1	0.2	12.5
	Total	8	1.8	100
	No answer	429	98.2	
Total		437	100	

Question 22 Does your firm offer any transit benefits other than Commuter Choice?

		Frequency	Percent	Percent (excluding non-answers)
	1 yes	25	5.7	7.5
	2 no	307	70.3	92.5
	Total	332	76	100
	No answer	105	24	
Total		437	100	

Question 23 Does your firm currently support any vanpool options?

		Frequency	Percent	Percent (excluding non-answers)
	1 yes	5	1.1	1.5
	2 no	329	75.3	98.5
	Total	334	76.4	100
	No answer	103	23.6	
Total		437	100	

Q24 You indicated that your firm does not currently support vanpool operations. Would your firm consider sponsoring vanpooling for employees?

		Frequency	Percent all	Percent respondents	Cumulative Percent
	1 yes	77	17.6	23.5	23.5
	2 no	251	57.4	76.5	100.0
	Total	328	75.1	100.0	
	No answer	109	24.9		
Total		437	100.0		

Question 24_A If it would reduce your firm's costs of providing parking, would your firm be more likely to adopt vanpooling for employees?

		Frequency	Percent	Percent (excluding non-answers)
	1 yes	72	16.5	22.9
	2 no	243	55.6	77.1
	Total	315	72.1	100
	No answer	122	27.9	
Total		437	100	

Question 24_B In addition to the federal incentives for vanpooling under Commuter Choice, if Pennsylvania offered additional incentives, would your firm be more likely to adopt vanpooling for employees?

		Frequency	Percent	Percent (excluding non-answers)
	1 yes	122	27.9	38.4
	2 no	196	44.9	61.6
	Total	318	72.8	100
	No answer	119	27.2	
Total		437	100	

Question 24_C2 Which incentives would be attractive: STATE INCENTIVE FOR GROUP

		Frequency	Percent	Percent (excluding non-answers)
	0 not selected	38	8.7	32.2
	1 selected	80	18.3	67.8
	Total	118	27	100
	No answer	319	73	
Total		437	100	

Question 24_C3 Which incentives would be attractive: OTHER (SPECIFY)

		Frequency	Percent	Percent (excluding non-answers)
	0 not selected	110	25.2	93.2
	1 selected	8	1.8	6.8
	Total	118	27	100
	No answer	319	73	
Total		437	100	

Question 24_C3_OTH Which incentives would be attractive: (other, specified)

	Frequency	Percent	Percent (excluding non-answers)
	429	98.2	98.2
firm is a private; non-profit - tax credits & incentives do not apply	1	0.2	0.2
funding	1	0.2	0.2
Grants to cover cost of vehicles.	1	0.2	0.2
Incentives directly to employee. Employer does not want to own vehicle for vanpool	1	0.2	0.2
No Still added cost for the employer	1	0.2	0.2
not familiar w/ all options	1	0.2	0.2
Tax deductions (similar to when you buy a Hybrid car)	1	0.2	0.2
we have tried to get this together; but not enough interest	1	0.2	0.2
Total	437	100	100

Question 25 Do you have any employees who would be interested in services that match potential ride-sharing partners, as provided by Commuter Services of Pennsylvania?

		Frequency	Percent	Percent (excluding non-answers)
	1 yes	95	21.7	30.9
	2 no	212	48.5	69.1
	Total	307	70.3	100
	No answer	130	29.7	
Total		437	100	

Question 26 Would you like to see the State form a task force on vanpooling?

		Frequency	Percent	Percent (excluding non-answers)
	1 yes	113	25.9	36.7
	2 no	195	44.6	63.3
	Total	308	70.5	100
	No answer	129	29.5	
Total		437	100	

Appendix 4: Qualitative Data Analysis

Survey respondents were given the opportunity to reflect on the survey and their views of transit and the survey. Specifically, the survey ended with an open-ended question to provide additional comments:

Please provide any comments regarding this survey here:

The open-ended data obtained was then analyzed and coded by UCSUR's Qualitative Data Analysis Program (QDAP). The materials were collected and coded to identify ten distinct categories in the dataset. There was an additional "other" category for comments that did not fit one of the ten different categories.

The following categories were identified and the comments by category are included here in the Appendix:

1. Alternative Transportation Support
2. Convenience of Driving
3. Cost
4. Geographic Logistics
5. Improve Roads and Infrastructure
6. Mass Transit Improvements
7. Off-Site Work
8. Parking Issues
9. Politics and Government Spending
10. Variable Shifts

Vanpooling/Alternative Transportation Support

1) "We worked with the Commuter Ride Share program to try and encourage carpooling but at the current time; our employees were not very receptive to it--the vast majority of our employees work within a close enough distance that carpooling is not a priority for them as most do not drive more than 20--25 minutes to work.

   I am in favor of encouraging alternative transportation; however; I do not feel a committee is needed to evaluate--I feel the funds could be spent more wisely (i.e. schools; crime; litter; etc.). Many of our employees enjoy the ride in to work by themselves and commented that they did not want the ""hassle"" of carpooling. In order for our company to consider vanpooling; we would have to see a HUGE benefit in taxes; etc. becasue of the amount of time and manpower it would take to organize. In such economic times where companies are trying to cut costs; I honestly don't know how many companies would begin vanpooling to help with commuter congestion (the cost would be too great and the benefit would not be ""recognized"" by the employer). In our current locations; our employees are not faced with horrible commutes--compared to New York; etc."

2) There is a need to promote commuting by bicycle. The only way employees will change their pattern of driving one person per vehicle is through economic incentives. One such incentive is high gasoline prices. When the cost of gasoline exceeded $4 per gallon people starting considering alternatives.

   A return to access for train travel across the Commonwealth would be a huge improvement. It could eliminate even a small percentage of automobiles on our roadways. Access to quality transportation options is necessary in order to solve many of the costs associated with maintenance and improving the local roads; bridges and highways."

3) Our firm is not in locations where vanpooling would likely payoff for employees but this sounds like a program that should be promoted statewide where it makes sense

4) "I may not be the best person to have completed this szurvey; but know that the vast majority of our staff is local; lower income; & often w/o their own vehicle; so I thought that this could be beneficial - espcially in the bad weather seasons. More education on the program offerings might be helpful to my GM; so he can can assess the practicality.

5) Better public transit might be helpful as we are located in an industrail park

6) Unsure what vanpooling is. We have laborers that start & end at various times who many rely on Barta transportation that don't drive. They also will get rides with

employees that do have cars.

7) Like the idea of vanpool - not interested because our company is very small; and many employees are part-time and come and go irregularly.

8) A lot of these questions didn't pertain to us. We (the two owners) have one part-time employee who walks to work. My parter and I live together; but own only one car; a hybrid. My partner either bikes or takes the bus to work; and I drive with our two dogs and the things I schlepp back and forth to work. We pay parking to our landlord for the one space. We're all for mass transit and fewer cars on the highway!

9) Our firm is not in locations where vanpooling would likely payoff for employees but this sounds like a program that should be promoted statewide where it makes sense

10) "I may not be the best person to have completed this szurvey; but know that the vast majority of our staff is local; lower income; & often w/o their own vehicle; so I thought that this could be beneficial - espcially in the bad weather seasons. More education on the program offerings might be helpful to my GM; so he can can assess the practicality.

I also recommend to ride a motorcycle or moped to work."

Vanpooling Objections~Convenience of Driving

1) "We are located in the north western section of Lancaster County. There is an amtrak station close; but many employe's jobs require them to be able to stay a short time after their regular shift if resident services requires it.

We cannot hire from the City of Lancaster or Harrisburg (1/2 hour drive); either because of the cost or the convenience (schedule) of public transportation. Consequently our employees are generally from a close radius of our Elizabethtown facility."

2) "We worked with the Commuter Ride Share program to try and encourage carpooling but at the current time; our employees were not very receptive to it--the vast majority of our employees work within a close enough distance that car pooling is not a priority for them as most do not drive more than 20--25 minutes to work.

I am in favor of encouraging alternative transportation; however; I do not feel a committee is needed to evaluate--I feel the funds could be spent more wisely (i.e. schools; crime; litter; etc.). Many of our employees enjoy the ride in to work by themselves and commented that they did not want the ""hassle"" of car pooling. In

order for our company to consider vanpooling; we would have to see a HUGE benefit in taxes; etc. becasue of the amount of time and manpower it would take to organize. In such economic times where companies are trying to cut costs; I honestly don't know how many companies would begin vanpooling to help with commuter congestion (the cost would be too great and the benefit would not be ""recognized"" by the employer). In our current locations; our employees are not faced with horrible commutes--compared to New York; etc."

3) We have tried to put a group together; but we could not get enough interest. In addition; with the one location that would use it; they were concerned about emegencies and needing rides home outside of the carpooling program. They are aware of the emergency ride program; but it normally takes about an hour for a cab to get to our location to provide transportation; so it was a bit limiting. Thanks!

4) "We are quite happy with the status quo. Each of us commutes a relatively short distance. There are numerous shopping and lunch options nearby. Most of us have different places to go each day that require an individual automobile. The value of time spent waiting for public transportation or a vanpool is far more expensive the cost of driving and parking.

5) "Our location in Gettysburg is owned by our company; the on-site parking lot poses no additional costs for the firm except for snow removal and occasional maintenance.

   We are a professional engineering and surveying firm; and as such employees are often working varied schedules to accommodate client meetings and project site visits. Due to the nature of our business and employees' activities during the work day; carpooling; vanpooling; and public transit (which while available is not feasible due to limited routes) tend to not be an option due to the inconvenience. We do maintain a fleet of company vehicles that are used by our field personnel (surveyors and construction inspectors) so they are not required to use their personal vehicles."

6) The private option of carpooling is vastly unsuccessful due to the advantage of freedom of movement with an individual commuter. The State should in no way use taxpayer money to promote this initiative.

7) Alarge number of staff have to use their car to go to meetings throughout the day so they need to have individual vehicles because the public tranportation systme uses too much time.

8) It is very difficult with planning schedules and doctors appointments to do that.

Vanpooling Objections~Cost

1) "We worked with the Commuter Ride Share program to try and encourage car pooling but at the current time; our employees were not very receptive to it--the vast majority of our employees work within a close enough distance that car pooling is not a priority for them as most do not drive more than 20--25 minutes to work.

   I am in favor of encouraging alternative transportation; however; I do not feel a committee is needed to evaluate--I feel the funds could be spent more wisely (i.e. schools; crime; litter; etc.). Many of our employees enjoy the ride in to work by themselves and commented that they did not want the ""hassle"" of car pooling. In order for our company to consider vanpooling; we would have to see a HUGE benefit in taxes; etc. becasue of the amount of time and manpower it would take to organize. In such economic times where companies are trying to cut costs; I honestly don't know how many companies would begin vanpooling to help with commuter congestion (the cost would be too great and the benefit would not be ""recognized"" by the employer). In our current locations; our employees are not faced with horrible commutes--compared to New York; etc."

2) "Our location in Gettysburg is owned by our company; the on-site parking lot poses no additional costs for the firm except for snow removal and occasional maintenance.

3) My firm is extremely small; and the choices seem directed toward at least mid-sized employers. There's little relevance for someone in a suburban location; with few employees and no convenient transit available (vanpooling for a small firm is not an option -- the cost would be more than could be supported by our size).

Vanpooling Objections~Geographic Logistics

1) "We are located in the north western section of Lancaster County. There is an amtrak station close; but many employe's jobs require them to be able to stay a short time after their regular shift if resident services requires it.

   We cannot hire from the City of Lancaster or Harrisburg (1/2 hour drive); either because of the cost or the convenience (schedule) of public transportation. Consequently our employees are generally from a close radius of our Elizabethtown facility."

2) "We worked with the Commuter Ride Share program to try and encourage car pooling but at the current time; our employees were not very receptive to it--the vast majority of our employees work within a close enough distance that car pooling is not a priority for them as most do not drive more than 20--25 minutes to work.

3) "We are quite happy with the status quo. Each of us commutes a relatively short distance. There are numerous shopping and lunch options nearby. Most of us have different places to go each day that require an individual automobile. The value of time spent waiting for public transportation or a vanpool is far more expensive the cost of driving and parking.

4) Our town is too small for people to worry about public transpotation from this facility. Your group should be concentrating on more buses to Maryland such as Hunt Valley and John Hopkins. More buses to the Industrial Parks in Harriburg and Mechanicburgs from York. Route 83 is like race track to Harrisburg and Maryland fast an packed.

5) We have only one employee;she lives in Md. and provides her own transportation.

6) A lot of these questions didn't pertain to us. We (the two owners) have one part-time employee who walks to work. My parter and I live together; but own only one car; a hybrid. My partner either bikes or takes the bus to work; and I drive with our two dogs and the things I schlepp back and forth to work. We pay parking to our landlord for the one space. We're all for mass transit and fewer cars on the highway!

7) Our firm is not in locations where vanpooling would likely payoff for employees but this sounds like a program that should be promoted statewide where it makes sense

8) My firm is extremely small; and the choices seem directed toward at least mid-sized employers. There's little relevance for someone in a suburban location; with few employees and no convenient transit available (vanpooling for a small firm is not an option -- the cost would be more than could be supported by our size).

9) We are a Real Estate sales organization and own the building and parking lot in a suburban location. While there is public transportation nearby; it is impractical for most employees to use as they are called out to meet at individual homes and places of business. Our staff; about 15 people come from various locations and may benefit from ride sharing but a study would have to be done to determine the locations from where they travel.

10) Vanpooling is not a strong need in the Reading area. Most employees live close to the site and others live very spread out in rural areas. The best thing Penn Dot could do for Reading area businesses is up grade the highway system around the area; For axample Rt 222 north; Rt 422 east

Vanpooling Objections~Improve Roads and Infrastructure

1) We don't need anymore government incentives. Taxes too high now. Spend money on roads more efficiently and effectively and transportation issues will improve.

2) "Looking at the broader problem of transportation there is a great need for access via regional rail; bus connections; and other transportation options- not just ""van"" options.

3) Gridlock is a major problem at certain times; especially if there are accidents on major highways and local roads in this region.

4) "This Survey seems to DOGMATICALLY apply to be promoting carpooling as a panacea. Be PRAGMATIC in your Survey! Our Employees are salespeople who travel to MANY different locations every day. They could never use Carpools. We hope your goal in the Survey isn't to try to force businesses like ours to lay off people.

5) We need wider highways and more road & bridge construction to fix PA's highways. This helps our ability to employ people"

6) "There is no bridge over the Susquehanna from I-76 in Highspire all the way down to Highway 30 in Columbia. Huge waste of time & gas to go all the way around getting back & forth East & West shore.

7) I suggest a bridge from York Haven; PA to Falmouth; PA. This is a narrow part of the river; This is an area that could withstand the population & business growth that would result from a bridge."

8) PennDot should worry about maintaining their roads instead of conducting surveys.

9) You should be asking about roads and infrastructure; not individual habits. Fix PennDot and you fix all the other problems...

10) Vanpooling is not a strong need in the Reading area. Most employees live close to the site and others live very spread out in rural areas. The best thing Penn Dot could do for Reading area businesses is up grade the highway system around the area; For axample Rt 222 north; Rt 422 east
11) Most of our employees would like roads repaired more effectively so their commute is

better.

12) Light rail; better highways instead of 2 lnes (222 is a joke). Would like to see that road improved.

13) "Fix 422 East/West on the West Shore Bypass Area. That area of the highways in Reading area are atrocious.

14) REPAIR THE ROADS WHICH ARE CURRENTLY BEING USED. RT 422 BYPASS AROUND READING NEEDS TO BE RESURFACED BADLY; THIS WOULD REDUCE ACCIDENT WHICH WOULD ALLOW FOR BETTER TRAFFIC FLOW

15) Vanpooling is not an issue of concern. Better roads between Reading and Allentown; Reading and Route 78 West bound; Reading and Route 422 south east are our major time consuming bottlenecks for our employees travel activities.

16) Our company has 4 FTEs. Its office is in privaate home located in a rural residential area near Gettysburg. We design and conduct Leadership training conducted in hotels at or near historic sites. a major east/west highway (connecting with Route 15) is needed near Gettysburg to enhanse/maintain its historic small town ambiance in order to maintain and improve its small town nature for the approximately three million visitors we currently attract each year. The present heavy (large; noisy east/west vehicle traffic) on Route 30 detracts from this small town image which is a valuable resource for the Commonwealth of PA.

17) We are a rural company. If the surrounding townships would limit housing to a certain acreage requirement per house we would not experience increasing congestion on our roadways. Our roads only have a certain capacity for vehicular traffic. The townships want the tax dollars but there is a fine balance to be taken into account. Other circumstances need to be considered for actions taken.

Mass Transit Improvements

1) Our employees are federal workers and qualify for Mass Transit benefits. CAT and Rabbittransit are in the process of offering extended services to our employees however; vanpools have not been promoted.

2) Our town is too small for people to worry about public transpotation from this facility. Your group should be concentrating on more buses to Maryland such as Hunt Valley and John Hopkins. More buses to the Industrial Parks in Harriburg and Mechanicburgs from

York. Route 83 is like race track to Harrisburg and Maryland fast an packed.

3) We need frequent train service for commuting and travel around Central PA

4) We feel so very isolated without public transportation and not having taxi services.

5) "Looking at the broader problem of transportation there is a great need for access via regional rail; bus connections; and other transportation options- not just ""van"" options.

   A return to access for train travel across the Commonwealth would be a huge improvement. It could eliminate even a small percentage of automobiles on our roadways. Access to quality transportation options is necessary in order to solve many of the costs associated with maintenance and improving the local roads; bridges and highways."

6) A lot of these questions didn't pertain to us. We (the two owners) have one part-time employee who walks to work. My parter and I live together; but own only one car; a hybrid. My partner either bikes or takes the bus to work; and I drive with our two dogs and the things I schlepp back and forth to work. We pay parking to our landlord for the one space. We're all for mass transit and fewer cars on the highway!

7) we are a non-profit center with multiple social services our transportation issue is that clients and guests can only get within 12 miles of the center via public transportation. Many need the services; but do not have transportation to access.

8) My firm is extremely small; and the choices seem directed toward at least mid-sized employers. There's little relevance for someone in a suburban location; with few employees and no convenient transit available (vanpooling for a small firm is not an option -- the cost would be more than could be supported by our size).

9) Public transportation is not only lacking for our employees. It is also basically non-existant for our patients as well. The closest bus stop is 1 1/2-2 miles away. Which is not user friendly-nor is there markings of the bus stop or a shelter to stand in.

10) Bring passenger rail to Berks County.

11) please remember that the best way to transport people is rail service

12) Political survey to push public transportation. No real questions dealing with the road system and the road conditions. Reality is if you do not live in Philadelphia or Pittsburgh public transportation is not a real alternative for most people. Like it or not; we have created a car society.

    We are located across the street from a state owned park and ride lot for commuters. The state does not maintain the lot and surronding area. So we mow the grass and cut the weeds for the PA state park and ride lot (RT. 724 and I. 176 South of Reading PA). The parking lot is also too small and overflow cars need to then park on the street which is not safe for the heavy truck traffic.

    I recommend to upgrade the existing park and ride lots and add additional space for commuters.

13) This survey does not get to the heart of the problem in Pennsylvania which is the lack of any state wide plan for mass transit. There is no plan developed by PennDOT that assists new start up mass transit systems with any financial help. PennDOT's answer for nearly eight years is there is no money available which translates to there is no plan and no leadership. This study on vanpools that keep vehicles and people on the highways with growing congestion is certainly not the answer to our states mass transit problems. It is time we see PennDOT develop plans state wide that removes people and vehicles from our highways.

14) Alarge number of staff have to use their car to go to meetings throughout the day so they need to have individual vehicles because the public tranportation systme uses too much time.

15) This survey is oriented towards commuter cars and vanpools. Where are the options to address the need for mass transit in the greater Reading area; particularly the 422 corridor.

16) We are very interested in improved commuter and long-distance train options in PA when our employees have to attend meetings in New York City; Boston; etc. At present the parking options are very limited at the commuter train locations where we park to take the commuter train to Phila and then Amtrak to NYC & Boston.

17) Light rail; better highways instead of 2 lnes (222 is a joke). Would like to see that road improved.

18) Existing Berks County mass transit times conflict with our production starting times (not early enough in the morning.) Perhaps organizing a regional meeting with employers in

our area would help.

19) Instead of Vanpooling; why not look at a real issue: Why is there not more light rail in PA? I should be able to get to any major city in PA by light Rail. This is a major issue!

20) Better public transit might be helpful as we are located in an industrail park

Every year show a huge increase in truck traffic in this region as well as increasing auto traffic due to the need to commute to work;etc. only by autos. Bus service is available on a limited basis in the urban areas during the peak hours for workers on their way to and from their workplace.

Vanpooling Objections~Off-Site Work

1) "We are quite happy with the status quo. Each of us commutes a relatively short distance. There are numerous shopping and lunch options nearby. Most of us have different places to go each day that require an individual automobile. The value of time spent waiting for public transportation or a vanpool is far more expensive the cost of driving and parking.

We do not need yet another government program."

2) "Our location in Gettysburg is owned by our company; the on-site parking lot poses no additional costs for the firm except for snow removal and occasional maintenance.

We are a professional engineering and surveying firm; and as such employees are often working varied schedules to accommodate client meetings and project site visits. Due to the nature of our business and employees' activities during the work day; carpooling; vanpooling; and public transit (which while available is not feasible due to limited routes) tend to not be an option due to the inconvenience. We do maintain a fleet of company vehicles that are used by our field personnel (surveyors and construction inspectors) so they are not required to use their personal vehicles."

3) OUR BUSINESS REQUIRES EMPLOYEES TO GO FROM LOCATION TO LOCATION; MOST OF THIS SURVEY ASK QUESTIONS ABOUT AREAS OF TRANSPORTATION AT DO NOT FIT THIS BUSINESS

4) "This Survey seems to DOGMATICALLY apply to be promoting carpooling as a panacea. Be PRAGMATIC in your Survey! Our Employees are salespeople who travel to MANY different locations every day. They could never use Carpools. We hope your goal in the Survey isn't to try to force businesses like ours to lay off people.

5) We are a Real Estate sales organization and own the building and parking lot in a suburban location. While there is public transportation nearby; it is impractical for most employees to use as they are called out to meet at individual homes and places of business. Our staff; about 15 people come from various locations and may benefit from ride sharing but a study would have to be done to determine the locations from where they travel.

6) vanpooling not applicable in our situation. Majority of workers need to be able to go to several apt./day outside of office

7) Alarge number of staff have to use their car to go to meetings throughout the day so they need to have individual vehicles because the public tranportation systme uses too much time.

8) Our company has 4 FTEs. Its office is in privaate home located in a rural residential area near Gettysburg. We design and conduct Leadership training conducted in hotels at or near historic sites. a major east/west highway (connecting with Route 15) is needed near Gettysburg to enhanse/maintain its historic small town ambiance in order to maintain and improve its small town nature for the approximately three million visitors we currently attract each year. The present heavy (large; noisy east/west vehicle traffic) on Route 30 detracts from this small town image which is a valuable resource for the Commonwealth of PA.

Politics/Government Spending

1) "We worked with the Commuter Ride Share program to try and encourage car pooling but at the current time; our employees were not very receptive to it--the vast majority of our employees work within a close enough distance that car pooling is not a priority for them as most do not drive more than 20--25 minutes to work.

   I am in favor of encouraging alternative transportation; however; I do not feel a committee is needed to evaluate--I feel the funds could be spent more wisely (i.e. schools; crime; litter; etc.). Many of our employees enjoy the ride in to work by themselves and commented that they did not want the ""hassle"" of car pooling. In order for our company to consider vanpooling; we would have to see a HUGE benefit in taxes; etc. becasue of the amount of time and manpower it would take to organize. In such economic times where companies are trying to cut costs; I honestly don't know

how many companies would begin vanpooling to help with commuter congestion (the cost would be too great and the benefit would not be ""recognized"" by the employer). In our current locations; our employees are not faced with horrible commutes--compared to New York; etc."

2) "We are quite happy with the status quo. Each of us commutes a relatively short distance. There are numerous shopping and lunch options nearby. Most of us have different places to go each day that require an individual automobile. The value of time spent waiting for public transportation or a vanpool is far more expensive the cost of driving and parking.

   We do not need yet another government program."
3) Pennsylvania does not need the Governor wasting our tax monies on transportation to try to create change. Change will happen when it is economically feasible. My guess is this study is funded by public dollars to support getting more money for Public Transportation in Philly & Pittsburgh at the expense of everyone else in the state. Shame on the University of Pittsburgh for sucking off the public to fund it's own causes.
4) We don't need anymore government incentives. Taxes too high now. Spend money on roads more efficiently and effectively and transportation issues will improve.

5) "This Survey seems to DOGMATICALLY apply to be promoting carpooling as a panacea. Be PRAGMATIC in your Survey! Our Employees are salespeople who travel to MANY different locations every day. They could never use Carpools. We hope your goal in the Survey isn't to try to force businesses like ours to lay off people.

6) It strikes me that this survey is designed to elicit responses that favor engaging the state in providing vanpooling services.

7) As a tax payer; I do not want to finance a study on vanpool opoerations. There are more important things to be concerned about like making sure small businesses stay operational so the entire system doesn't collapse.

8) The private option of carpooling is vastly unsuccessful due to the advantage of freedom of movement with an individual commuter. The State should in no way use taxpayer money to promote this initiative.

9) It is a joke. Keep the damn government out of our businesses and our lives!!! All they do is waste our money and create problems.

10) Political survey to push public transportation. No real questions dealing with the road system and the road conditions. Reality is if you do not live in Philadelphia or Pittsburgh

public transportation is not a real alternative for most people. Like it or not; we have created a car society.

11) Please do not "help" us by providing another "benefit" that will grow the size of government and increase our taxes !

12) "Fix 422 East/West on the West Shore Bypass Area. That area of the highways in Reading area are atrocious.
Let the private sector do the coordinating of the vanpools and reduce state spending. PA already spends more than they have."

Vanpooling Objections~Variable Shifts

1) "We are located in the north western section of Lancaster County. There is an amtrak station close; but many employe's jobs require them to be able to stay a short time after their regular shift if resident services requires it.

2) Our company does not have regular shifts; so it is hard to encourage carpooling because start times and schedules change daily.

3) Working in the Healthcare field; 24 hour staffing and the variable scheduling make vanpooling especially challenging.

4) I'm not 100% sure what options are out there. The location I'm in charge of does not have a real issue with parking but I know that our other facilities have some major issues with parking and security. That is where the benfit would be. My building deals with last minute OT where as the other plants deal in scheduled OT and much regular shift hours. Plus their level of employees is going to be MUCH higher that what I have here.

5) 104 Hours and times vary greatly. Vanpooling and public transportation are not options.

6) 106 "Our location in Gettysburg is owned by our company; the on-site parking lot poses no additional costs for the firm except for snow removal and occasional maintenance.

We are a professional engineering and surveying firm; and as such employees are often working varied schedules to accommodate client meetings and project site visits. Due to

the nature of our business and employees' activities during the work day; carpooling; vanpooling; and public transit (which while available is not feasible due to limited routes) tend to not be an option due to the inconvenience. We do maintain a fleet of company vehicles that are used by our field personnel (surveyors and construction inspectors) so they are not required to use their personal vehicles."

7) 184 Like the idea of vanpool - not interested because our company is very small; and many employees are part-time and come and go irregularly.

8) 321 There is a lot of flex schedule at our location so vanpooling; etc.; would not be viable.

9) 525 Unsure what vanpooling is. We have laborers that start & end at various times who many rely on Barta transportation that don't drive. They also will get rides with employees that do have cars.

Parking Issues

1) 96 Parking used to be subsidized for staff. Now staf is paying full retail which runs about $130/month. This is a huge expense for staff and really eats away at their overall compensation. This is a difficult hurdle to get over for recruitment. It is mainly management staff that pays for monthly parking. Very few hourly employees purchase a monthly card b/c it is just too expensive. Many managers work varied shifts/days of the week in hotel and restaurant operations so they really need the flexibility of parking nearby that is available 24 hours; but it is so expensive.

2) 97 I'm not 100% sure what options are out there. The location I'm in charge of does not have a real issue with parking but I know that our other facilities have some major issues with parking and security. That is where the benfit would be. My building deals with last minute OT where as the other plants deal in scheduled OT and much regular shift hours. Plus their level of employees is going to be MUCH higher that what I have here.

3) 437 "Offer slugging as a commuting option.

We are located across the street from a state owned park and ride lot for commuters. The state does not maintain the lot and surronding area. So we mow the grass and cut the weeds for the PA state park and ride lot (RT. 724 and I. 176 South of Reading PA). The parking lot is also too small and overflow cars need to then park on the street which

is not safe for the heavy truck traffic.

I recommend to upgrade the existing park and ride lots and add additional space for commuters.

I also recommend to ride a motorcycle or moped to work."

4) 460 Our Company works with local parking authority to establish reduced parking rates for monthly minimum subscription levels. Company allows employees to pre-pay monthly parking through pre-tax payroll deduction.

5) 483 We are very interested in improved commuter and long-distance train options in PA when our employees have to attend meetings in New York City; Boston; etc. At present the parking options are very limited at the commuter train locations where we park to take the commuter train to Phila and then Amtrak to NYC & Boston.

Other

1) "Some of these questions should have an answer available that indicates not sure.

2) some of the questions offer a yes no response which was difficult to answer becuase some of the answers were a possibly or unsure.

3) none

4) Over the past year we have promoted car pooling; bus services etc to our employees. We have approximately 2-3 groups of people who car pool one or two days a week. No one riding a bus that we know of. The match program that our local Communter Services promoted did not seem to take off here.

5) Choosing to repair main streets in a tourist town in the middle of summer/tourist season is inconsiderate; econonically harmful (bagging parking meters in front of retail shops & restaurants) and just plain thoughtless. Early Spring is a much better time for this roadwork.

6) my answers apply to borough government; of which i am a part. so; not all questions are really applicable. you may not want to include this response.

7) 1We have only one employee;she lives in Md. and provides her own transportation.

8) We are a small family run business and many of your questions didn't apply to us but I answered them as best as I could.

9) Like the idea of vanpool - not interested because our company is very small; and many employees are part-time and come and go irregularly.

10) A lot of these questions didn't pertain to us. We (the two owners) have one part-time employee who walks to work. My parter and I live together; but own only one car; a hybrid. My partner either bikes or takes the bus to work; and I drive with our two dogs and the things I schlepp back and forth to work. We pay parking to our landlord for the one space. We're all for mass transit and fewer cars on the highway!

11) Thanks

12) "I own xxx in xxx/Pa. I have a neighbor who has a golf cours; and wants to make it a tourist attraction; and basically remove the golf course and put 5 houses per acre. I had my parking lot approved for 29 spaces and was going to put an ice cream bar on a deck to have movie nights; story time; live music and more. This is what York County needs. Bring the familys back together. Anyways to make things short; Matt Derose owner of Heritage Hills Golf course is working with Penndot and Local Legislators to have a light moved to his location; and diverting traffic through my lot where I was planning to have the extra Parking. Now the kicker is; Penndot says they need my 1.2 acres of property in order for storm water. So they would pay me fair market value not the builder. I built the business from ground up; it has been 7 years and my kids are only growing up. I just cant relocate and go through this again. Please check me out at ww.sweetwillows.com thanks"

13) My firm is extremely small; and the choices seem directed toward at least mid-sized employers. There's little relevance for someone in a suburban location; with few employees and no convenient transit available (vanpooling for a small firm is not an option -- the cost would be more than could be supported by our size).

14) We are a rural company. If the surrounding townships would limit housing to a certain acreage requirement per house we would not experience increasing congestion on our roadways. Our roads only have a certain capacity for vehicular traffic. The townships want the tax dollars but there is a fine balance to be taken into account. Other circumstances need to be considered for actions taken.

15) "Offer slugging as a commuting option.

We are located across the street from a state owned park and ride lot for commuters. The state does not maintain the lot and surrounding area. So we mow the grass and cut the weeds for the PA state park and ride lot (RT. 724 and I. 176 South of Reading PA). The parking lot is also too small and overflow cars need to then park on the street which is not safe for the heavy truck traffic.

I recommend to upgrade the existing park and ride lots and add additional space for commuters.

I also recommend to ride a motorcycle or moped to work."

16) I really hope this helps you; but i fail to see the benefit to me and my organization.