

## ORGANIZING AND OPERATING A VANPOOL PROGRAM

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(The opinions, findings, and conclusions expressed in this report are those of the authors and not necessarily those of the sponsoring agencies.)

Virginia Highway & Transportation Research Council  
(A Cooperative Organization Sponsored Jointly by the Virginia  
Department of Highways & Transportation and  
the University of Virginia)

In Cooperation with the U. S. Department of Transportation  
Federal Highway Administration

Charlottesville, Virginia

September 1976  
VHTRC 77-R15



## TABLE OF CONTENTS

	<u>Page</u>
LIST OF TABLES-----	v
LIST OF FIGURES-----	vii
ABSTRACT-----	ix
WHAT IS VANPOOLING?-----	2
WHAT ARE THE ADVANTAGES OF VANPOOLING?-----	2
WHAT ARE THE DISADVANTAGES OF VANPOOLING?-----	4
WHAT EXPERIENCE IS THERE WITH VANPOOLS?-----	6
HOW CAN A COMPANY DETERMINE IF VANPOOLING IS LIKELY TO SUCCEED?-----	6
Step 1: Estimating Vanpool Costs-----	8
Step 2: Determine Employee Interest-----	9
HOW DOES A VANPOOL PILOT PROGRAM GET STARTED?-----	10
Item 1: Selecting the Vanpool Coordinator-----	12
Item 2: Van Acquisition-----	13
Item 3: Legal and Insurance Considerations-----	14
Item 4: Operating Procedures-----	15
WHAT ARE ADDITIONAL WAYS OF ADDING VANPOOLS AND REDUCING COSTS?-----	16
WHAT IS GOVERNMENT'S ROLE IN VANPOOL PROGRAMS?-----	17
REFERENCES-----	19
APPENDIX: VANPOOL COSTS-----	A-1



## LIST OF TABLES

<u>Table</u>		<u>Page</u>
1	Benefits of Vanpooling	4
2	Monthly Fares Per Passenger in a Vanpool	9
3	Functions of Vanpool Coordinator	12
4	Qualifications of Vanpool Coordinator	13
5	Major Factors Influencing the Success of a Vanpool Program	16
6	State Agencies Can Start Vanpools	18

1800

## LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1	Steps to Determine if a Vanpool Program Would be Successful	7
2	Steps to Establish a Pilot Vanpool Program	11

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## ABSTRACT

This report identifies the various elements of vanpool programs and describes the procedures necessary for employers and agencies to implement a vanpool program, based on Virginia conditions. The concept of vanpools is introduced and benefits to management and employees are identified. Among these are reduced needs for parking, reduced traffic congestion, lower commuting costs and conveniences. Employer concerns about vanpool implementation are discussed, such as legal aspects and insurance costs. In Virginia there are no serious legal problems to prevent vanpooling. Experience with vanpools elsewhere in the U. S. indicate that methods for managing and operating programs differ from one company to another although the basic concept is similar to that selected by the 3M Company in its pioneering effort. A variety of operating techniques exist for furnishing the van, purchasing fuel and maintenance, selecting insurance, utilizing vehicles and selecting riders and drivers. Accordingly when establishing a vanpool program, a general procedure should be followed and company specific operating details worked out as appropriate. The procedure for implementing vanpools in Virginia involves first a feasibility phase (including an analysis of costs and potential demand) and second a pilot program to develop operating experience. A procedure for estimating vanpool costs is explained and cost data for Virginia conditions are furnished. The cost per day for a vanpool rider ranges from \$1.25 to \$2.00 for one-way trip distances of 5-30 miles. The steps necessary to implement a pilot vanpool program are selecting a vanpool coordinator, van acquisition, insurance and legal requirements, and establishing operating procedures. These steps are described in detail and their relationships illustrated in flow charts. The state's role in vanpool programs is identified and includes supportive legislation, furnishing incentives, providing information services about vanpools, and organizing programs by state agencies in order to demonstrate benefits and establish cost and procedural experience.

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One of the principal functions of public transportation has been to transport people from home to their places of work, primarily in large cities where the principal modes of transport have been rail rapid transit or fixed schedule bus systems. During the past two decades, however, changes in land use distribution have diminished the role that these traditional modes have played in serving the journey to work. The availability of an extensive highway system, widespread car ownership, and the location of industry outside of the central business districts have all contributed to the decline of conventional transit modes. Now only in the largest metropolitan areas, such as San Francisco, New York, Philadelphia, Washington, D.C., Chicago, and Boston, is there investment in rail rapid transit and reserved bus lanes.

The problem of commuter transportation, however, continues to be a major one despite the lack of need for high capacity, high speed systems. This is so because of (a) the increases in non-urban workers and its effects on traffic congestion in low density suburban areas, (b) the intensified parking needs at industrial locations, (c) the air pollution created by automobile traffic, and (d) the energy availability having become severely diminished in the past few years.

The most widely accepted response to the problem of commuter transportation in areas poorly or not served by conventional transit systems is some form of ride sharing by employees. The most popular and common is carpooling which dates back to the period of World War II (1940-45) when scarcities of materials, tires, and gasoline were incentives for Americans to share rides with friends and neighbors. In recent years, the potential for carpooling has been recognized at the federal and state levels. Carpooling has been encouraged by large-scale programs for matching employees by computer, and incentives furnished such as provision of special freeway lanes and preferential parking spaces. (1,2,3)

A new form of ride sharing, vanpooling, was instituted in April 1973 by the 3M Company in St. Paul, Minnesota.<sup>(4)</sup> The vanpool idea follows closely in concept with carpooling, but provides for higher seating capacity. The automobile can seat 5 people whereas a van has the potential of seating 12 to 15. Generally, a vanpool is appropriate if 15 or more employees who all work in the same or nearby firm live in close proximity or along a given route.

Because vanpooling is still relatively new, there are many questions concerning the applicability of vanpools for a particular company or agency, the benefits and costs of a vanpooling program, procedures for identifying potential riders, and methods for organizing and implementing a vanpool program. Of particular interest is the potential for vanpooling in Virginia, and the extent to which this idea is appropriate for Virginia industry and meets the needs of its employees for transportation while reducing cost and saving energy. This report reviews and discusses the various elements of vanpool programs and describes the procedures necessary for employers located in Virginia that may wish to consider implementing a vanpool program.

#### WHAT IS VANPOOLING?

Vanpooling is a form of commuter ride sharing involving between 8 and 15 people. The vans used in the program are purchased or leased by the company or the employees, or they are contracted separately. The driver of the van is a company employee who serves as coordinator of the vanpool and is responsible for driving the vehicle each day and for operating aspects such as vehicle maintenance. All costs are recovered through fares paid by the riders. The vanpool coordinator rides free, can use the van for personal use at a nominal charge, and retains earnings above a breakeven point (usually over 8 riders). A backup driver is also designated, and he is paid separately when needed.

#### WHAT ARE THE ADVANTAGES OF VANPOOLING?

Since vanpool programs generally involve a cooperative effort between employees and the employer, each must perceive advantages such that they are willing to support and participate in the program. A successful vanpool program requires the direct involvement of management, including enthusiastic support of the concept and furnishing of administrative assistance. The employee must be made to realize that vanpooling has advantages over the use of the private automobile

in terms of cost savings, travel time, energy reduction, and driving amenities. Management and government can also provide incentives for vanpooling through such programs as preferential parking in desirable locations, special lanes for high occupancy vehicles, and reduced tolls.

The advantages of vanpooling for management are as follows. For those companies where parking and traffic congestion are major problems, vanpooling could be a solution. If 8 employees who each drive to work separately were to use a van, parking space needs would be reduced from 8 spaces to 1. For a firm with many employees, this advantage can be significant. A related advantage is the reduction in traffic congestion in and around the company facility and the related noise and air pollution that this creates. Other less tangible advantages relate to employee behavior, such as a reduction in lateness and an improved company esprit de corps. The image of the company can be enhanced within the community for its public spirited efforts to conserve energy and reduce air pollution and in this way be a good citizen. Several large firms, particularly the 3M Corporation and Continental Oil Co., have received national recognition and publicity through their vanpooling efforts.<sup>(5)</sup>

The advantages for employees are cost savings achieved through taking the trip together with others and, possibly, in the elimination of the need for a second car. Additional advantages can accrue to the vanpool rider, such as elimination of the task of driving, dependable and direct transportation services, and convenient parking facilities.

The cost savings of vanpooling are clearly its most significant advantage to employees. While the costs of a program must be computed carefully and take into account the specifics of the situation involved (this will be described in some detail later), a comparative estimate of the economic cost of commuting indicates that for a 15-mile trip to the central business district, the cost for an automobile with 1 occupant is \$4.90, whereas the cost per person for a van with 8 occupants is \$0.73.<sup>(6)</sup> Translated into yearly terms, vanpooling can save an employee about \$1,500. These latter figures assume that the vanpooler has no need for a second car. If he should retain the second car but continue to vanpool, the savings based on reduced operating and insurance costs could range from \$400 to \$600 per year.<sup>(7)</sup> Table 1 summarizes the benefits of vanpooling to management and employees.

## TABLE 1

## BENEFITS OF VANPOOLING

BENEFITS TO MANAGEMENT

- FEWER PARKING SPACES NEED TO BE PROVIDED.
- SOME REDUCTION OF TRAFFIC CONGESTION AROUND FIRM (WITH RESULTING REDUCTION IN NOISE AND AIR POLLUTION).
- ENHANCEMENT OF COMPANY'S IMAGE IN THE COMMUNITY.
- IMPROVEMENT IN THE COMPANY'S ESPRIT DE CORPS.
- POSSIBLE REDUCTION IN LATENESS AND ABSENTEEISM FOR SOME EMPLOYEES.

BENEFITS TO EMPLOYEES

- COST SAVING OVER DRIVING A CAR (MAY EVEN ELIMINATE NEED FOR A SECOND CAR).
- MORE RELAXED AND ENJOYABLE RIDE THAN DRIVING A CAR.
- DIRECT AND DEPENDABLE TRANSPORTATION SERVICE FROM HOME TO WORK.
- MORE CONVENIENT PARKING AND POSSIBLY MAY BE ABLE TO PARK CLOSER TO AREA OF WORK.

## WHAT ARE THE DISADVANTAGES OF VANPOOLING?

The principal concerns of employers considering a vanpool program deal with matters such as insurance and liability, employee relations, compensation, and direct cost to the company for administrative and capital equipment. Insurance for vanpool operations is required and may be available through commercial umbrella type policies. Injuries to passengers may be covered under workmen's compensation, and the amounts paid by employers to this fund could increase or decrease depending on the safety experience with vanpool programs.<sup>(8)</sup> At present there is little historical data on which to base insurance rates because vanpooling is so new, but there is no evidence to indicate that it is less safe than automobile travel.

Another problem deals with employer concerns that vanpool programs be viewed as a subsidy to a favorite few who by happy accident of location are eligible to participate in the program. Of course, the fact of the matter is that the company does not subsidize employees but that the program is fully self-supporting through fares paid by riders. A related item deals with the possibility that in future labor negotiations the vanpool drivers will seek additional compensation and benefits for their services. Again, this appears to be a matter of good employee-employer relations, based on the recognition of the benefits accruing to both parties. Since the program is voluntary for both parties and self-supporting, this possibility seems highly unlikely.

The cost of the program to the company is also a matter that should be investigated carefully. Although capital and maintenance costs of the vans are paid for by fares of riders in the program, an initial investment for program publicity, organization, and possibly van purchase is provided by industry. Accordingly, the level of commitment for a long-term participation by employees is required, and in the early stages of the development of the program, this commitment should be clearly understood. The administrative costs to the company of a vanpool program, especially the costs for clerical and accounting services, represent an area of direct financial participation, and the mechanisms for carrying this out should be carefully developed. Generally, this effort, which should decrease over time, can be handled through the existing work load of office and accounting services and absorbed without additional personnel requirements.

In Virginia, there appears to be no serious legal problems to prevent vanpooling. However, a review of the legal, financial, and administrative aspects of vanpool programs would indicate that for any company or agency considering such a program, a careful investigation by the administrative, legal, and personnel departments of the firm or agency should be made prior to embarking on the first phase of the program. In order to gain operational experience and cost data for the particular situation involved, a pilot program involving from 1 to 5 vans would be highly advisable. A possible disadvantage to the employee is that the total travel time to work may be longer with vanpools than by auto because of time required to pick up passengers along the route. This time can be as much as 10-30 minutes for a 60-minute trip, depending on the rider's location along the route. However, this slight disadvantage is offset by less time spent in parking and the convenience of service. Reported experience with vanpool operations indicates that a ratio of pickup time to line-haul time may be as high as 1 without adversely affecting the acceptability of service. The employee must also leave home and work at prescribed times. This requirement could be viewed as a disadvantage by management if employees are needed after regular working hours.

## WHAT EXPERIENCE IS THERE WITH VANPOOLS?

As already mentioned, the vanpool idea began with the 3M Company in April 1973. That experience has set an example for others to follow. An initial pilot program consisted of 6 vans, and by late 1975, this had expanded to a total of 75 with a long list of employees waiting to participate. Since that time the idea has rapidly caught on and examples of vanpool operations can now be cited for large and small companies as well as public agencies throughout the United States.<sup>(9)</sup>

The methods of managing and operating vanpool programs differ from one company to another, and while the basic concept is similar to that selected by the 3M Company, a variety of techniques for furnishing the van, purchasing the fuel and vehicle maintenance, selecting insurance, utilizing the vehicles, and selecting drivers and riders can be identified. These matters are generally company specific and must be worked out in detail after it has been determined that the potential for vanpooling does exist, that there is employee interest, and that management is willing to actively participate in developing the program.

What follows is a discussion of the details of the implementation of a vanpool program, some of the specific items that should be addressed, and the various options that can be followed in carrying out a successful vanpool operation.

## HOW CAN A COMPANY DETERMINE IF VANPOOLING IS LIKELY TO SUCCEED?

Two basic steps are required to determine if a vanpool program is likely to be successful in a given situation. The first is an economic analysis of the costs of the program to determine the expected fare per passenger, the second is a survey of the potential demand for vanpooling based on where employees live and their interest in joining a vanpool. An explanation of these two steps follows. Figure 1 illustrates the steps necessary to determine if a vanpool program is likely to be a success. If it has been determined that vanpooling is likely to be successful, a pilot program should begin.

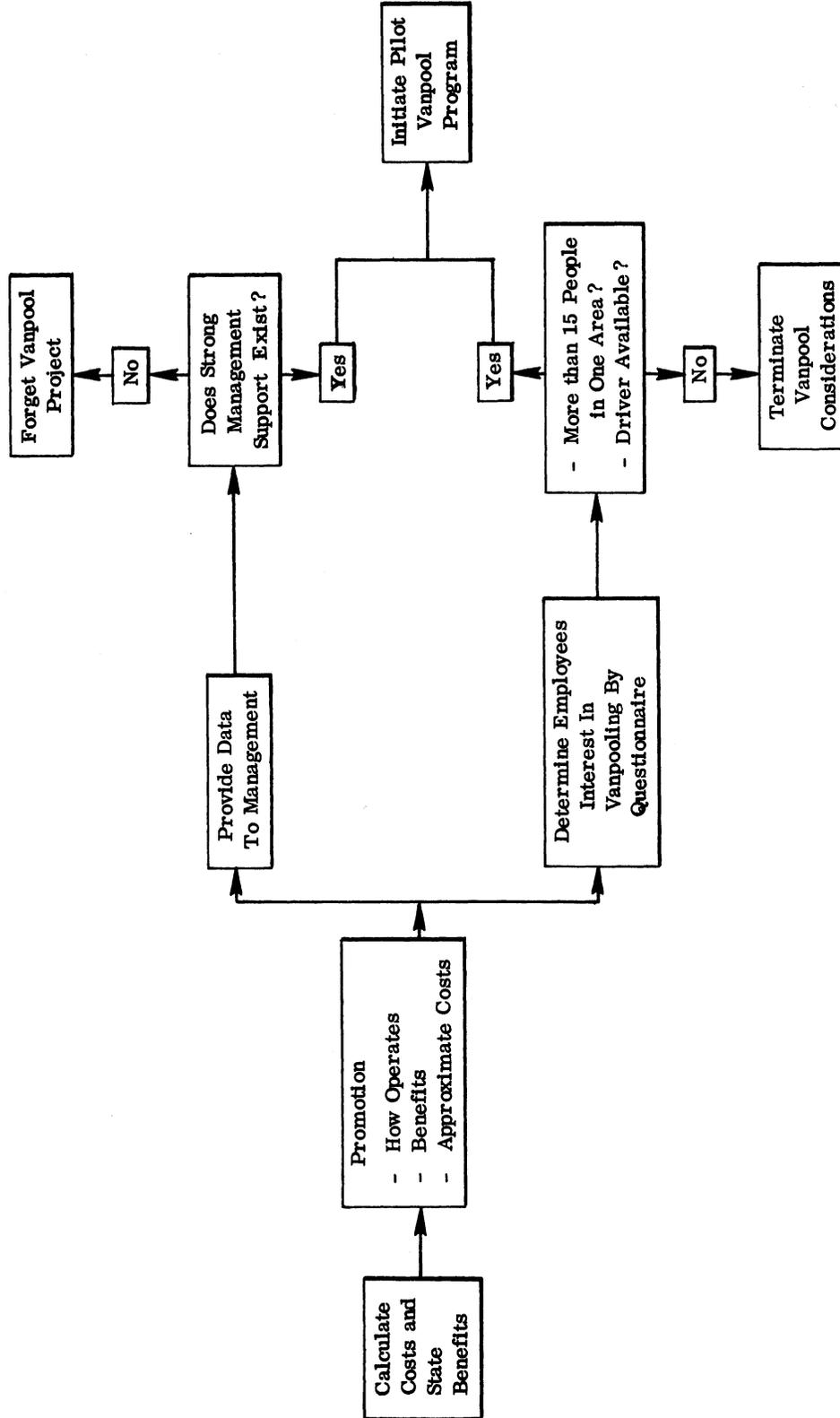


Figure 1. Steps To Determine If A Vanpool Program Would Be Successful.

Step 1: Estimating Vanpool Costs

The cost of riding in a vanpool is the basic information required in order for the employee to determine if he is willing to pay the amount required. The calculations are shown in the following example. Additional cost data are in Appendix.

Example: Determine the approximate monthly cost for each vanpool rider living 10 miles from work. All costs amortized in 4 years. There are 8 riders.

A.	Calculate Annual Fixed Cost	
	1. Cost of van	\$6,800
	2. Less Trade-In Value (4 Yrs.)	<u>1,800</u>
	3. Total Depreciated Cost	\$5,000
B.	Calculate Vehicle-Related Expenses	
	1. Sales Tax (2%)	\$ 100
	2. Registration & Title (4 Yrs.)	60
	3. Excise Taxes	700
	4. Insurance (\$650/Yr. x 4 Yrs.)	<u>2,600</u>
	5. Total Vehicle-Related Expenses	\$3,460
C.	Calculate Van Operating Costs/Mile	
	1. Gasoline (63¢/gal. and 9 mpg)	= 7.0 cents/mile
	2. Oil Change, Lubrication (\$20 ea. 3000 mi.)	= 0.7 cent/mile
	3. Vehicle Maintenance	= 2.5 cents/mile
	4. Tires	= 1.0 cents/mile
	5. Total Operating Cost	= 11.2 cents/mile
D.	Calculate Each Person's Fare (8 passengers)	
	1. Round Trip Distance	= 20 miles
	2. Total Miles Per Year = 250 work days	
	x 20 miles	=5,000 miles
	3. Total Fare	
	a. Van Cost $\frac{5000}{48 \times 8}$	= 13.02 Pass/mo
	b. Vehicle Related $\frac{3460}{48 \times 8}$	= 9.01 Pass/mo
	c. Operating Costs $\frac{0.112 \times 5000}{12 \times 8}$	= 5.83
	Fare/Rider/mo	\$27.86

Thus, for an employee living 10 miles from work the monthly fare for a vanpool would be approximately \$28 (or \$1.40/day).

Table 2 shows the approximate monthly fare that would be charged for other trip lengths, using the same data as in the previous example.

TABLE 2

## MONTHLY FARES PER PASSENGER IN A VANPOOL

<u>ONE-WAY TRIP DISTANCE TO WORK (MILES)</u>	<u>MONTHLY FARE</u>	<u>COST PER DAY</u>
5	\$25	\$1.25
10	28	1.40
15	31	1.55
20	34	1.70
25	37	1.85
30	40	2.00

It should be understood that the estimated computed fares would be adjusted up or down depending upon actual operating experience. The figures are somewhat conservative when compared with operating data reported elsewhere. For example, the 3M program reports a monthly fare of \$26.18 for one-way distances to work of 25 miles. In situations where monthly fares exceed revenue required, the employee would be reimbursed the difference, as the program is intended to operate on a not-for-profit basis.

Step 2: Determine Employee Interest

The second step is to determine the extent of employee interest and to ascertain if there is a sufficiently large number of employees living in close enough proximity so that a pool could be organized. The most direct method to determine initial employee interest is through a survey questionnaire sent to each company employee. Prior to the survey, publicity describing vanpooling should be made available to company employees through bulletins, company newsletters, etc. In this way employees will be informed and can knowledgeably determine their interest in participation.

The questionnaire should briefly describe how the vanpool would operate, the benefits achieved if the employee participated, and the approximate monthly cost. If the employee were interested, he would indicate a desire to participate as a driver, back-up driver, or a passenger. Questions designed to obtain information about the employee's home address, location of work, work hours, and present means of travel to work might be included in the questionnaire.

The questionnaire should be a simple one and be intended solely for the purpose of determining the general interest in a vanpool program. The results would be used to ascertain if there were sufficient interest by employees living near one another to warrant further work in organizing a pilot program.

#### HOW DOES A VANPOOL PILOT PROGRAM GET STARTED?

The extent of employee interest in participating in a vanpool program is determined from the survey questionnaires by identifying the number of employees who expressed an interest in the program and grouping these in logical, geographic areas. The information can be obtained by simply plotting on a map the residence locations of persons wishing to participate in a vanpool program or by coding addresses to conform to a grid overlay of the area.

If 15 or more persons are identified within reasonable geographic areas (such that the largest pickup time is less than the travel time), then the process of establishing the detailed arrangements for that group can begin. Among the elements to consider in organizing and operating a vanpool program are selection of the driver/coordinator, acquisition of a van, insurance and legal requirements, and establishing operating procedures. The arrangements made in each of these categories will vary from one company or agency to another, as it is the purpose of the pilot program to establish procedures that best fit the particular conditions and constraints of the company involved. A discussion of each element necessary to organize a company pilot program follows. Figure 2 depicts the steps to establish a pilot vanpool program.

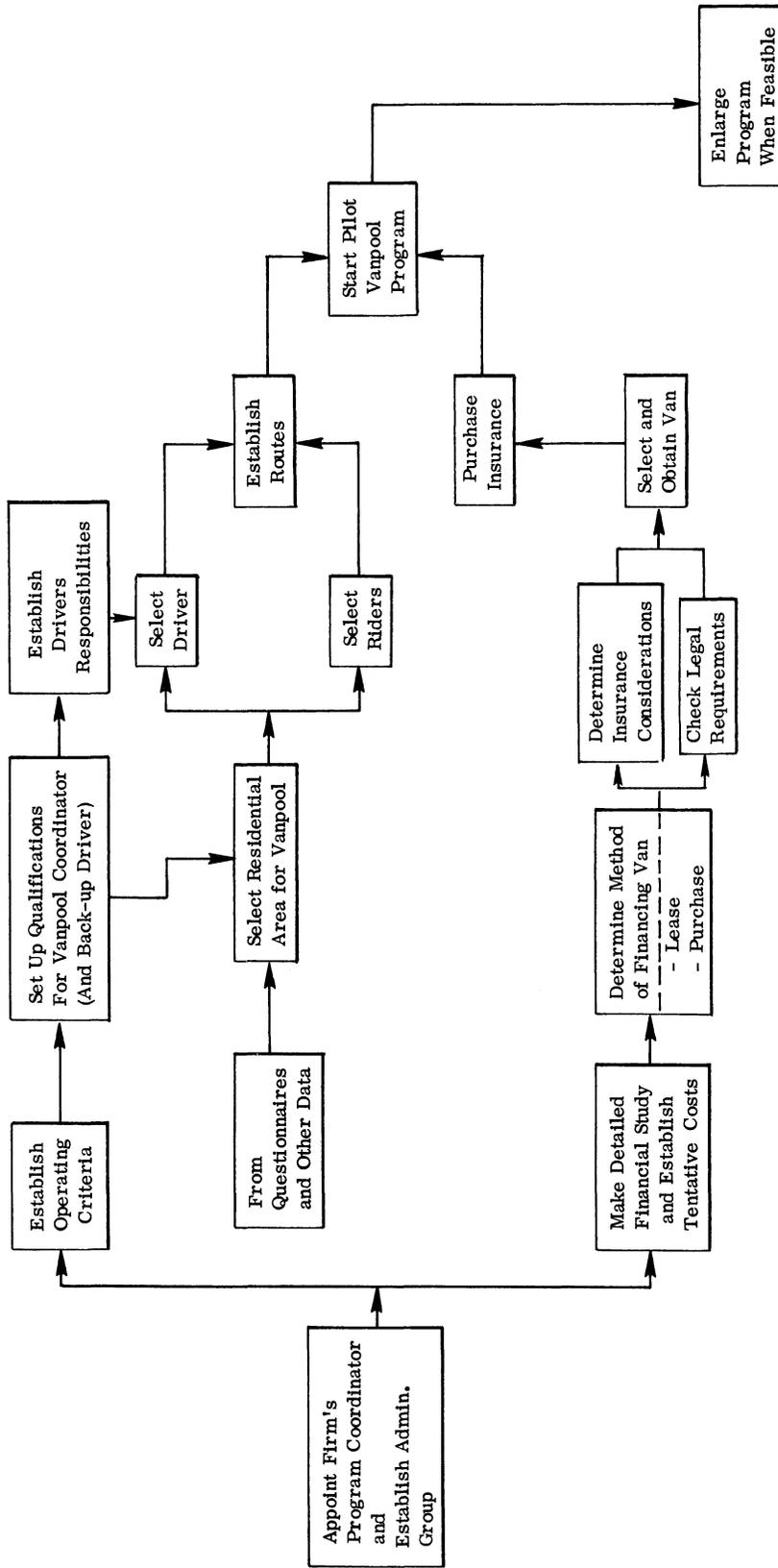


Figure 2. Steps to Establish a Pilot Vanpool Program.

Item 1: Selecting the Vanpool Coordinator

A most critical element in the success of a vanpool program is the individual selected to serve as coordinator. In addition to having the responsibility for driving the van to and from work each day, the coordinator is responsible for all aspects of the vanpool service for the group. The coordinator's functions include responsibility for routes and schedules, maintaining fiscal records of all costs involved, keeping the van maintained and in good condition, keeping track of vanpool riders and adding new riders as space permits, assuring that a back-up driver is available in the event of his absence, and enforcing any rules that the vanpool group may have established.

The qualifications of a vanpool coordinator include a safe driving record and possession of a valid chauffeur's license. In addition, the employee should be a mature and responsible individual capable of handling the record keeping and administrative aspects as well as reliably maintaining schedules and ridership. Ideally, the coordinator is a person who is highly enthusiastic about the program and recommended by his superiors for reliability, personality, and judgement. Although financial incentives to the coordinator are intended as payment for his services, the personal qualities of the individual, including a genuine desire to serve in this capacity, are considered to be essential if the vanpool is to be a success.

When a vanpool coordinator has been selected, his duties and responsibilities are clearly described, and usually stated in a memorandum of agreement signed by the coordinator. Table 3 lists the functions of the vanpool coordinator and Table 4 itemizes necessary qualifications.

TABLE 3

FUNCTIONS OF VANPOOL COORDINATOR

- DRIVES VAN TO AND FROM WORK EACH DAY.
- SELECTS VAN ROUTES AND SCHEDULES (WITH GUIDANCE FROM THE VAN RIDERS).
- SERVICES VAN AND KEEPS IT MAINTAINED PROPERLY.
- MAINTAINS RECORDS (MAINTENANCE AND FISCAL) FOR ESTABLISHING POOL COSTS.
- SELECTS AND TRAINS BACK-UP DRIVER.
- ENFORCES RULES ESTABLISHED BY VAN RIDERS.
- KEEPS TRACK OF POTENTIAL RIDERS AND ADDS NEW RIDERS AS SPACE PERMITS.

TABLE 4

QUALIFICATIONS OF VANPOOL COORDINATOR

- RECOMMENDATION FROM SUPERIORS FOR HIS RELIABILITY, PERSONALITY AND JUDGEMENT.
- SAFE DRIVING RECORD.
- VALID CHAUFFEUR'S LICENSE.
- ABILITY TO KEEP NECESSARY RECORDS.
- SENSE OF RESPONSIBILITY FOR MAINTAINING DRIVING SCHEDULE AND LOOKING AFTER VAN PROPERLY.
- PLEASANT, THOUGH FIRM, PERSONALITY TO MAINTAIN CONGENIAL ATMOSPHERE IN VAN.
- HIGH ENTHUSIASM ABOUT VANPOOLING.

Item 2: Van Acquisition

The method of financing the acquisition of a new van will depend upon the specific conditions existing for a company or agency. The first option is company purchase of the van, a procedure that has been followed by several of the larger companies. Outright purchase of vans by a company simply assists in getting the programs started. Payment of both principal and interest is by fares collected from riders.

A more common financial arrangement for acquiring vans is by leasing. This arrangement is attractive because it does not require capital outlay initially and all costs, including depreciation and interest, are included. Insurance often can be obtained through company policies that cover leased automobiles. From an economic point of view van purchase or van leasing are generally about equal, although the specifics of either option should be investigated.

In most instances, purchase or lease arrangements are handled through the company, but this practice is not always desirable or possible. For example, public agencies may not be permitted to own or lease vehicles for the purpose of private transportation of its employees. In situations of this type, vanpool purchase or lease can be arranged either directly through an employee if so desired, or through an employee organization. For example, a vanpool program developed by the Tennessee Valley Authority was operated through the employee credit union.

In order to acquaint a potential vanpool group with the operations of a program, some companies have leased a van for a short period of time and made it available on a trial basis. Because van delivery (purchase or lease) can take up to six weeks, it is essential that they be ordered as soon as possible.

The selection of the van should be made with two criteria in mind, the first is passenger comfort and the second vehicle performance.

It is generally agreed that the van should provide the highest level of riding quality possible, because it must be recognized that a majority of vanpoolers have switched from their automobile and will continue in the program only if the travel amenities are in keeping with their former mode of travel. Accordingly, the interior of the van should be carpeted, comfortable seats should be provided (preferably individually reclining seats for longer trips), the vehicle should be air-conditioned for summer driving and adequately heated for the winter, noise levels should be minimal, and an AM/FM radio should be provided.

Technical specifications for the vehicle should ensure a smooth ride with suspension characteristics similar to those of the automobile. Vans are usually equipped with automatic transmission, power steering, power brakes, radial tires, and a V-8 engine.

### Item 3: Legal and Insurance Considerations

Insurance for the van can be secured by assistance from the company or agency insurance representative. In some instances a separate insurance policy may be required, or insurance may be included within the company fleet policy or as part of the lease arrangement. Some companies self-insure for collision damage by assessing the vanpool a flat annual rate. Annual insurance costs are approximately \$600 (1975) but these can vary according to local conditions, travel distance, etc.

State and local regulations concerning vehicle registration and licensing of the vanpool coordinator must be determined. Generally, it is required that the driver of the van hold a chauffeur or class B type license.

The legal liability to a company for injuries is generally covered by workmen's compensation. Excess fares paid to the driver-coordinator are treated as taxable income by the Internal Revenue Service, but the free fare and use of the van during non-working hours are exempt.

In Virginia vanpools operating not for profit are exempt from control by the State Corporation.\* In some states, however, vanpools are treated as common carriers subject to the rules and regulations of the public utilities commission.

#### Item 4: Operating Procedures

The operating procedures for a vanpool involve identifying vanpool riders and back-up drivers, establishing routes and schedules, computing fares, determining fare collection methods, and establishing rules and regulations. The company employees who live in close proximity to each other and have expressed an interest in participating in a vanpool are invited to an organizational meeting. The vanpool coordinator should prepare a tentative schedule for review by the group and compute an estimate of the fare for each individual.

At the organizational meeting, a discussion of the routes and schedules may result in suggested improvements and modifications to the ones proposed, and a final list of riders and approximate pickup times should be agreed upon. Other matters of concern are discussed at this meeting, including the method of fare collection. Fares can be collected by the driver, by a company cashier, or through payroll deductions. Fares may also be paid on a daily, weekly, or monthly basis.

There are several ways to determine fares. Some companies operate on a flat monthly rate, with no provision for reductions in fares because of illness, vacations, need for an automobile at work, or other reasons for not riding. A few companies have special fare arrangements in which a portion of the charge is made on a monthly basis and the remainder on a daily optional basis.<sup>(10)</sup> This latter method is appropriate where there is a great deal of irregularity in travel to and from work and it encourages casual riding in order to fill empty seats. However, the record keeping and frequent route changes involved would appear to require additional work on the part of the coordinator, and this consideration has tended to discourage widespread use of graduated fare arrangements. However, the opportunity to reduce fares for regular riders while charging a higher per mile fare to occasional riders could be an attractive option.

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\*For a review of the motor carrier laws at federal, state and local levels as well as those of the transportation districts to determine how they affect para-transit in Virginia see: "The Feasibility of Para-Transit in Virginia." Transportation Coordination Division. Virginia Department of Highways and Transportation, December 1975, pp. 12-26.

Other matters of interest can be discussed at the meeting of the vanpool group. For instance, this time it may be appropriate to agree on matters such as smoking in the van, the use of the radio, the amount of time a driver should be willing to wait for a passenger to arrive at his appointed stop, and ways to inform the driver when a passenger will be absent. This open discussion should answer any questions the riders may have and ensure a harmonious ride.

With the above arrangements completed, the vanpool program could be initiated.

#### WHAT ARE ADDITIONAL WAYS OF ADDING VANPOOLS AND REDUCING COSTS?

The two major ingredients of a successful vanpool program are management support and assistance, and successful experience with the vanpool program by employees. The extent to which management supports the program is a factor in its total growth. For example, administrative costs required for the overall management of vanpools including publicity, information, collecting fares, and vehicle purchase can determine the willingness of management to expand the program. Manpower requirements to oversee the organization of vanpool programs involve a steering committee, data analysis, and a coordinator who is knowledgeable about all aspects of the program. In a few instances the company includes administrative cost within the total cost of the vanpool program, but this appears to be the exception. Clearly, without strong management support at the top levels, vanpool programs will have little chance of success. Table 5 summarizes the major factors influencing the success of vanpool programs.

TABLE 5

#### MAJOR FACTORS INFLUENCING THE SUCCESS OF A VANPOOL PROGRAM

- ENTHUSIASTIC SUPPORT BY COMPANY'S LEADERSHIP.
- WILLINGNESS OF FIRM TO PROVIDE ADMINISTRATIVE COSTS.
- MANAGEMENT PROVISION OF OVERALL ADMINISTRATION FOR PROGRAM.
- REQUISITE NUMBER OF EMPLOYEES WHO LIVE IN THE SAME AREA, WHO WORK ON THE SAME SHIFT, AND WHO ARE INTERESTED IN VANPOOLING.
- ENTHUSIASTIC EMPLOYEE WHO WILL DRIVE AND MAINTAIN VEHICLE (VANPOOL COORDINATOR).

Additional riders can be attracted to form new vanpools in a variety of ways. Informal techniques based on word of mouth and group discussions of the program may attract inquiries and new interest. Vanpool riders can be identified by various computer matching techniques based on zip codes or xy grid coordinators. Simple manual techniques can also be used such as placing pins on a map or pigeon holes keyed to a regional grid.

The cost of a vanpool program can be reduced by making the van available for company use during the working day or by attracting vanpool riders from other companies located nearby. The van can be used as a shuttle within the company, it can be made available for business use, or for personal use by employees during the day. Payment for the use of the van in this way can be on a per-mile basis, thus reducing the share of the cost to regular users while providing a transportation service to the firm at reasonable cost.

Additional savings both in time and cost can be realized as experience is gained with the vanpool program. It may be possible to rearrange pickup points to minimize total travel time, for example, by requiring that a rider cross the street to wait for the van or walk to a designated pickup point. Schedule combinations may be arranged that involve both door-to-door service and pickups at designated collection areas.

Additional savings can be realized by securing group rates for vehicle maintenance and fuel purchases. In some instances it may be possible to have the vehicles serviced at company provided facilities and to purchase fuel at discount prices. Generally the costs cited for operating a vanpool program assume that fuel and maintenance charges will be at popular retail rates. Additional savings can be achieved through group purchases and special arrangements, either through the company or from selected dealers.

Revenue can also be raised to offset vanpool costs by allowing occasional riders to use the service and pay a daily rate and by making the van available during nonbusiness hours to community groups.

#### WHAT IS GOVERNMENT'S ROLE IN VANPOOL PROGRAMS?

The formation of successful vanpool programs has been primarily a solution offered by the private sector and involving the cooperative efforts of management and labor. The government's role as a partner in this activity may take many forms.

To begin with, wherever possible legislation should be supportive of vanpool programs, and many states have taken steps to exempt vanpools from normal public utility commission regulations. In Virginia this has been accomplished by changes in legislation to specifically exempt vanpools from regulations by the State Corporation Commission.

Second, incentives have been provided for vanpools such as offering use of exclusive bus lanes, reductions in tolls, and other preferential treatment usually available to transit buses and car pools.

Third, government agencies have provided services to industry, especially at the regional planning level, to assist in identifying vanpool potential, have furnished information about program development techniques, and has assisted in organizing pilot programs. (11,12,13)

Fourth, governmental agencies have organized vanpool programs themselves using an employee organization to lease or purchase vans in order to demonstrate the benefits and to establish data on costs and other programmatic matters. See Table 6.

Finally, financial assistance could be provided for purchasing vans or to insure losses in case of programs that are unsuccessful. For additional details on program objectives, eligibility and procedures, see reference 14.

TABLE 6

## STATE AGENCIES CAN START VANPOOLS

- CAN LEASE OR PURCHASE VAN THROUGH EMPLOYEE ORGANIZATION
- SELECTS DRIVER AND RIDERS THROUGH SURVEYS
- MAKE PROGRAM FULLY SELF-SUPPORTING BY RIDER FARES
- PROVIDE MODEL OPERATION FOR INDUSTRIES TO FOLLOW
- CAN PROVIDE DATA ON VANPOOL OPERATIONS FOR OTHERS

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## APPENDIX

## VANPOOL COSTS

(This material assembled by George S. Goodwin III as part of a M.S. Thesis titled "Van Pool Costs and Rider Identification", dated September 1976.)

## TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION -----	A-2
VEHICLE CAPITAL COSTS-----	A-2
INSURANCE COSTS-----	A-5
VEHICLE LICENSE AND REGISTRATION COSTS-----	A-7
MAINTENANCE AND OPERATING COSTS-----	A-8
ADMINISTRATION AND MANAGEMENT COSTS-----	A-8
COST COMPARISONS-----	A-9

## INTRODUCTION

This Appendix furnishes additional details concerning the various costs involved in vanpool operations. The cost data are based on the results of surveys of suppliers and insurance companies in Virginia and a mail questionnaire sent to companies and agencies throughout the country that are engaged in vanpool programs.

The data reported are for the following cost categories: vehicle, insurance, license and registration, maintenance and operating, and administration and management.

## VEHICLE CAPITAL COSTS

The two methods for financing the costs of a van is through outright purchase or by leasing. Table A-1 shows the 1976 prices in Charlottesville, Virginia, for vans produced by four manufacturers. Also listed are the costs of various options, such as extra seats, tinted glass, heavy duty battery and suspension, automatic transmission, power steering, power brakes, vented glass, auxiliary heaters, radio, and side mirror. The table indicates a range in van prices from about \$4,900 to \$7,300, depending on the make and the options selected.

Leasing costs for a van depend upon the make and model of the vehicle, the options selected, the lease period, and the leasing arrangement. In order to develop comparative data, a leasing agency in Richmond, Virginia, was asked to supply leasing costs for the four vehicle makes listed in table A-1, each furnished with the options listed. Table A-2 shows the monthly lease rate and salvage values, assuming that the van is leased for a period of either 1, 2 or 3 years. These rates assume that insurance, maintenance, gasoline, replacement of parts, and tires are the responsibility of the lessee and that the leasing agency will deliver the vehicle and will pay license fees and taxes.

TABLE A-1

## CAPITAL COST OF VANS, CHARLOTTESVILLE, VIRGINIA, 1976

MAKE	FORD	CHEVROLET	VOLKSWAGEN	DODGE
MODEL	CLUB WAGON	SPORT VAN	MODEL 2231	SPORTSMAN
TONNAGE	1.5 TON	1.0 TON		1 TON
CYLINDERS	8	8	4	8
BASE PRICE	\$5,720.35	\$4,850.43	\$5,545.00	\$5,840.00
SEAT OPTIONS	12	15	9	15
EXTRA SEATS	N/A	265.00	N/A	276.00
A/C	614.00	716.00	580.00	573.00
TINTED GLASS	W/A/C	40.00	95.00	51.00
HD BATTERY	23.00	24.00	N/A	22.00
HD SUSPENSION	30.00	49.00	N/A	52.00
AUTO TRANS	332.00	234.00	N/A	STD
PS	185.00	133.00	N/A	179.00
PB	STD	39.00	N/A	STD
VENTED GLASS	STD	22.00	N/A	28.00
AUX HEATER	W/A/C	98.00	N/A	131.00
OPT GAS TANK	101.00 40.1 GALS	44.00 36 GALS	N/A	56.00 36 GALS
AM RADIO	81.00	58.00	82.00	78.00
SIDE MIRRORS	24.00	18.00	N/A	24.00
TOTAL	\$7,110.00	\$6,590.00	\$6,302.00	\$7,310.00

TABLE A-2  
LEASING COST OF VANS, 1976

(THESE VEHICLES HAVE THE OPTIONS LISTED IN TABLE 1. PRICES BASED ON THOSE FURNISHED BY LEASING AGENCY IN RICHMOND, VIRGINIA.)

VEHICLE	LEASE PERIOD	MONTHLY RATE	SALVAGE VALUE
FORD CLUBWAGON	12	\$263.00	\$4,075.00
	24	189.00	3,450.00
	36	164.00	2,675.00
CHEVROLET SPORT VAN	12	235.00	3,575.00
	24	166.00	3,100.00
	36	144.00	2,475.00
VOLKSWAGEN #2231	12	338.00	3,875.00
	24	230.00	3,250.00
	36	190.00	2,600.00
DODGE SPORTSMAN	12	215.00	4,200.00
	24	171.00	3,401.00
	36	160.00	2,300.00

## INSURANCE COSTS

Establishing insurance rates for vanpools is extremely difficult, because there is so little experience upon which companies can establish rates. Nationally, vanpool insurance costs are reported over a wide range, and no single figure can be stated with confidence. Generally, insurance costs are assumed to be about \$700 per year, but could be \$1,200 or higher.

Insurance rates can be established under single van policies, fleet policies, self-insurance or van-lease insurance. Prices on policies solely for vanpooling are not easily established because criteria such as driver age, sex, driving record, and marital status, the trip length, value of vehicle, and geographic area are used in establishing rates. Insurance companies in Charlottesville indicated that a vanpool could not be insured as such, but that coverage was available through an umbrella or fleet policy (the closest approximation to vanpool operations).

Table A-3 lists fleet insurance prices furnished by three insurance companies in Charlottesville. These prices are based on a set of stringent assumptions as listed in the table. These results indicated that if vanpools are insured under fleet policies, the rates can be as low as \$217/year/vehicle. Similar rates are available for leased vehicles assuming coverage identical to that shown in Table A-3.

TABLE A-3

INSURANCE PRICES FOR A VANPOOL  
(ANNUAL FLEET OPERATED IN CHARLOTTESVILLE, VIRGINIA)

TYPE OF COVERAGE	COST PER VEHICLE PER YEAR*		
	COMPANY A	COMPANY B	COMPANY C
BODILY INJURY	\$62	\$68	\$78
PROPERTY DAMAGE	25	35	42
MEDICAL PAYMENTS	11	21	15
COMPREHENSIVE	29	35	32
COLLISION	83	110	105
UNINSURED MOTORIST	6	6	6
TOTAL	\$216/YEAR/VEHICLE	\$275/YEAR/VEHICLE	\$278/YEAR/VEHICLE

\*ASSUMPTIONS:

1976 DODGE VAN (\$6,000)

MAXIMUM ONE-WAY TRIP: 50 MILES

GROSS WT. LESS THAN 10,000

PASSENGERS/VEHICLE: 12-15

MINIMUM FLEET SIZE: 5 VEHICLES

COVERAGE: \$100,000/PERSON, \$300,000/ACCIDENT, \$25,000 PROPERTY  
DAMAGE

\$5,000 MEDICAL PER PERSON

COMPLETE COMPREHENSIVE

COLLISION: \$50 DEDUCTIBLE

UNINSURED MOTORIST: STATE REQUIREMENT

## VEHICLE LICENSE AND REGISTRATION COSTS

The Virginia vehicle codes exclude vanpools with up to 12 passengers from motor carrier laws and permit them to operate on streets and highways. All vehicles are required to be licensed and registered by the state and may be required to be registered locally. The total cost of registration and license fees is less than \$100.

Table A-4 shows the costs of vehicle registration for several gross vehicle weights.

TABLE A-4

## COSTS OF VEHICLE REGISTRATION

<u>GROSS WEIGHT (LB.)</u>	<u>COST</u>
LESS THAN 4,001	\$15.00
4,001 TO 6,500	20.00
6,501 TO 10,000	22.00

Registration fees are required by most localities in Virginia. The place of residence for the van is established according to its registered owner and the fee ranges from \$10 to \$40. In Charlottesville the registration fee is \$10.

Semiannual vehicle inspections are required in Virginia for all motor vehicles. The inspection fee is \$4. A valid drivers license is sufficient for the purpose of operating a van; however a class B chauffeurs' license may be required by the vanpool group to assure the competence of the driver/coordinator. The fee for a chauffeur's license is \$9.

## MAINTENANCE AND OPERATING COSTS

The cost of vehicle maintenance varies considerably and can depend on the type of supplies (e.g. private suppliers, sponsoring company, etc.), the quality and reliability of work, and the regularity of service. There is a paucity of data on this subject, especially as related to Virginia experience.

Table A-5 lists typical retail costs for maintenance of a van based on average prices in the Central Virginia area.

TABLE A-5

### AVERAGE MAINTENANCE COSTS FOR CENTRAL VIRGINIA, 1976

<u>ITEM</u>	<u>MONTHLY COST</u>
AIR CONDITIONER CHECK	\$ 8.50
ANTIFREEZE	4.50/GALLON
BATTERY	25-45.00
BRAKE CHECK	4.00
LUBE	2.50
MUFFLER	45.00
OIL	0.85/QT.
OIL CHANGE W/FILTER	10.50
TUNE-UP W/SPARK PLUGS	35.00
WHEEL ALIGNMENT	13.00
WHEEL BALANCE/WHEEL	2.50

### ADMINISTRATION AND MANAGEMENT COSTS

Few data are available to determine the true costs to a company or agency for administering and managing a vanpool program. Generally the services of a company coordinator are needed on a part-time basis. Additional costs may be incurred for supplies, telephone, etc. Estimates of average costs to administer a vanpool program indicate a range of between \$25 and \$85 per van per month.

## COST COMPARISONS

Table A-6 shows a comparison between vanpool costs as determined for Virginia conditions and average vanpool costs as reported by 22 companies with vanpool programs. The latter data were secured through responses to a questionnaire sent in January 1976 to the 33 companies with vanpool programs as reported by the Environmental Protection Agency. (9)

TABLE A-6

## VANPOOL COST COMPARISONS

<u>ITEM</u>	<u>U. S. AVERAGE</u>	<u>VIRGINIA</u>
VEHICLE FIRST COST	\$6,772.	\$6,872.
VEHICLE MONTHLY LEASE	165.	205.
INSURANCE/YR./VEH.	319.	256.
LICENSE FEES/YR./VEH.	60.	48.
OPERATION/MO./VEH.	80.	80.
OPERATION/MILE/VEH.	0.092	0.092
ADMINISTRATION/MO.	75.	80.

