

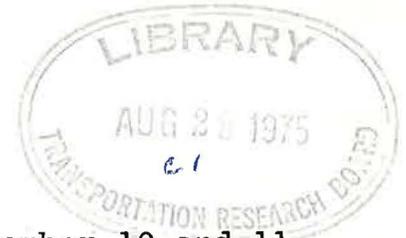
# 169 TRANSPORTATION RESEARCH CIRCULAR

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## EXECUTIVE SUMMARY CARPOOLING SEMINAR



### INTRODUCTION

The seminar was held in Washington, D.C. on December 10 and 11, 1974. Seventy five persons attended, representing a wide variety of interests in the specific topic of carpooling, and in the general topic of more efficient highway transportation. The attendees were representative of all regions of the continental United States, and of diverse private and public agencies, institutions and organizations actively involved in increasing higher-occupancy vehicle use.

Purpose. The seminar was assembled to enable the exchange of knowledge, ideas and experiences. To accomplish this, a five-session format was employed wherein discussion leaders, each selected for his respective expertise, conducted a session. To stimulate discussion, each leader first presented a brief and informal commentary, then brought the session into open-forum.

Goals. The goals of the seminar were two-fold: to answer specific questions relative to particular situations encountered by attendees; and to aggregate commonalities between systems with regard to approaches taken, methods evolved, successes and failures.

Agenda. The seminar agenda was as follows:

- Session 1. Welcome and Introduction (D. Roos)  
Opening Remarks: Recent History of Carpooling (D. Morin)  
Institution and Funding (D. Grayson)
- Session 2. Relationship With Employers (C. Gudaitis)
- Session 3. Car/Buspooling and Local Transit Policy: The Knoxville Experience (F. Davis, Jr., Ph.D)
- Session 4. Promotion and Incentives (J. Graham)
- Session 5. Evaluation (F. Wagner)
- Session 6. Review and Summation (C. Robinson)

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## RECENT HISTORY OF CARPOOLING

Recent interest in carpooling on the part of the Federal Highway Administration began in 1967, when carpooling was first considered as a possible part of the solution to the urban highway congestion problem. At that time, the FHWA was vigorously endeavoring to obtain such time-saving incentives as exclusive bus lanes to encourage commuters to switch from private vehicles to mass transit vehicles. Many agencies took a generally negative view of the exclusive bus lane proposal because of the large headways that would inevitably occur between buses in such lanes. The FHWA idea was to fill up these headways between buses with the most efficient highway vehicles available in quantity: carpools. This concept of the carpool as a means of establishing preferential treatment for buses on the highways, is still looked upon as a valid incentive for promotion. It is, indeed, an aid in the solution to the primary problem of inefficient highway use.

Further motivation for promotion of higher-occupancy vehicle use came a few years later as a result of increased concern over air pollution, followed recently by the impetus of the energy crisis. Until this latest development, it was difficult to interest individual drivers in carpooling because of the limited personal benefits. Since the energy crisis, however, aroused public awareness and easily identified personal benefits have greatly increased interest in carpooling. Recent national economic conditions have further contributed to the interest in carpooling as more and more drivers are becoming conscious of the relative cost of single occupancy vehicle operation and carpooling.

Vehicle Utilization Factors. The average automobile used for commuting to and from work has an occupancy of 1.4 persons; that means that 75 percent of these vehicles have only the driver in them! Considering the tremendous total seating capacity of these vehicles, this is a most inefficient utilization. To illustrate the relative size of the seating capacity in question, a 10 percent increase in average commuter automobile occupancy would be equivalent to a 60 percent increase in transit ridership. A goal of 60 percent increase in transit ridership would seem to be unrealistic, while a goal of 10 percent in average commuter automobile occupancy is not only realistic, but attainable.

In a speech delivered in November, 1974, at the Detroit meeting of AASHTO, the Secretary of Transportation stated that "...Without question, there is a serious and long-term energy shortage facing America. We must stop ignoring it, stop hoping it will go away,

and get on with solving it. ....any serious effort to save fuel must concentrate on the automobile. We must continue our public efforts to convince the average driver that the fuel outlook is indeed serious and that, for the good of the nation, he must voluntarily reduce unnecessary driving. ...We must turn the urban and suburban automobile into an effective mass transit vehicle.....somewhere between 30 and 35 million automobiles are used each day, mainly to go back and forth to work.....The nation's commuters must turn to carpooling on a scale not seen since World War Two."

The commuter fleet described by the Secretary represents at least 120 million daily transit seats; more than 40 times the total available seats in the nation's public transit system at this time.

Current Activities. The Department of Transportation, in cooperation with the National Advertising Council, has prepared a national carpool promotion campaign with multi-media coverage. The theme of this campaign is "Double up America, two can ride as cheaply as one." This will be an ongoing campaign in all states, over an extended time period. It is intended to support local and area efforts, and these should be closely tied in with the over-all campaign.

The report to congress required by the Emergency Highway and Energy Conservation Act had been prepared and was being reviewed prior to its submission. Some of the highlights of this report that were of general interest to the attendees of the seminar were:

1. Employer involvement to date has been considered insufficient. This is believed to be a primary problem area.
2. Too many of the demonstration projects have stressed one single element, the computerized matching service. This is considered to be only one of the elements needed to provide people with the ability to carpool.
3. There is a great need for a change in attitude on the part of highway agencies with regard to providing preferential highway treatment for high occupancy vehicles. This is, indeed, an incentive to carpool; it will work, and it is enforceable.
4. There is also a need for a change in philosophy on the part of highway agencies with regard to concentration on better management of existing facilities, rather than always thinking in terms of providing new capacity.

5. Transit operators, as a whole, have not recognized the benefits that can be gained through active involvement in the carpooling program.
6. No immediate imposition of Federal requirements on the carpooling program.
7. Allow State, area and local agencies maximum flexibility in the use of Federal funds. Federal level of involvement to remain at that of providing guidance and encouragement.
8. Stresses a voluntary program using reasonable estimates of anticipated benefits in terms of reduction of vehicle miles traveled and work trips.
9. A flat one-year extension of the current program is recommended for funding purposes.

#### INSTITUTIONS AND FUNDING

Institutions. The subject of institutions must be viewed from two sides; that of the new organization being constituted to bring about a change in life style, and the other, of the existing institutions and the impact that the new organization is going to have on them.

From the point of view of the new organization, the life style change that is sought is increased ride sharing. What sort of organization should be involved with such a program, and how should it be organized? If a new organization is needed, who should take the lead, and what should be its sphere of influence? How will this organization interface with existing programs? Will it be competitive or complementary? Who should be involved and to what degree? What costs are involved and what funds are available?

All of these are key questions, and each one leads to a series of important questions within its own subset. The specific answers to these questions will not be the same for every carpooling program organization. However, commonalities will be found in the experience of a successful organization.

The Los Angeles Experience. In Los Angeles, Commuter Computer addressed the key questions facing new organizations, and evolved answers and solutions pertinent to its specific needs.

Initial organization in the Los Angeles area began in November, 1973, when, at a public-forum meeting it was determined that an areawide program was required. By early January, 1974, sufficient preparation had been made so that a non-profit corporation was registered under California law, with a board of directors (steering committee) composed of fifteen people representing what were thought to be the organizational needs at that time; heavy technology, business (such as North American Rockwell, Aerospace Corporation and Jet Propulsion Laboratories), a few representatives of general business, representatives from advertising, public relations, and marketing organizations, and some community interest organizations such as the clean air constituency and the Chamber of Commerce. This board was later expanded to 40 members adding representatives from Government institutions, organized labor, from larger area employers, and additional community interest groups.

It was determined that the private sector should take the lead in the Los Angeles area, with Government support as required. It was further determined that there was a need for both an areawide program and for company sponsored programs, and that these could be organized to function in a complementary manner. The support of large employers is essential to organizing and sustaining an areawide program. They have proven to be the primary source of input data, manpower resources, and funding.

Commuter Computer sought and received loaned executive staff, opened offices, and began services in January, 1974. By June 1974, the first marketing effort was organized and implemented, using an all-volunteer staff of life insurance salesmen. The results of this effort were such that it was determined that a volunteer organization could not be used effectively for marketing in the Los Angeles area.

In July, 1974, the first professional staff was employed, including a salaried executive director. This staff, numbering 12 at the present time, functions with a loaned staff of five from city and state government, and from large corporations.

Commuter Computer's second marketing effort, using professional personnel, started in September, 1974, and was followed up by a media campaign starting in November. It is too soon to evaluate the relative effectiveness of these efforts.

Funding. One of the first problems faced by Commuter Computer was to design and implement a matching service program. This was the first area where considerable amounts of funding were required.

Funding in excess of \$100,000 from the private sector in the Los Angeles area was received, and an additional \$80,000 from local government. In addition, Commuter Computer received a considerable amount of funding through the FAU funding program.

A great deal of financial support has been available from area business and industry in the form of services such as media time and space, literature reproduction, and loaned office furniture and equipment.

Leadership. In the open discussion which followed the dissertation on organizational experience in the Los Angeles area, one fact emerged relative to local leadership: available leadership for a carpooling program will emerge from widely different sources in different areas and communities. A basic need of the new organization is to locate and tap the leadership resource in its area. To illustrate, several of the attendees representing lead agencies in different areas identified themselves as follows:

AREA	AGENCY	FUNCTION
Louisville, Ky.	Chamber of Commerce	Local Lead Agency Contract to Ky. D.O.T.
Topeka, Kans.	Metropolitan Planning Agency	Local Lead Agency Contract to Kans. D.O.T.
Omaha, Nebr.	Jaycees, Metro Transit Agency	Organizing Agency, Local Lead Agency
Baltimore, MD.	Steering Committee Representatives Mayor's Office Planning Dept. Dept. of Transit and Traffic	City Gov't. Lead Agency Co-op with State Agency
Phoenix, Ariz.	Council of Government	Program Coordinator
Washington, D.C.	Metropolitan Washington Board of Trade	Lead Agency Co-op with District, Federal, Montgomery County Va., and State of Va. Agencies

AREA	AGENCY	FUNCTION
Dallas-Ft. Worth, Tex.	City of Dallas	Lead Agency
Greensboro, N.C.	Greater Greensboro Area Agency	Lead Agency
Connecticut	State of Connecticut	Lead Agency Supporting Local and Area Agencies

Further discussion produced a definition of the lead agency's relationship to the program and of its sphere of influence within its area of operation. This is depicted in the following figure, where the lead agency's influence is shown in the form of a segmented circular model. The innermost circle represents the lead agency, and those segments of the adjacent circle represent the elements over which the lead agency can exert influence; namely, making the public AWARE of the program, changing ATTITUDES toward multiple occupancy transportation forms, providing ACCESS to the carpool matching system, and MOTIVATING the public to avail themselves of the carpooling program. The outermost circle of the model represents those elements over which the lead agency has no influence; namely the GEOGRAPHIC, ECONOMIC, CULTURAL, and LEGAL/POLITICAL ENVIRONMENTS existing in the area. While the impact of these latter elements upon the relative success or failure of the lead agency's efforts is great, there is little or nothing that the lead agency can do to appreciably modify any of these elements.



Model of Lead Agency Influence

Summary. In this session of the seminar several specific common points were brought out, both in the description of the Los Angeles experience, and in the discussion period which followed. These points are itemized as follows:

- Prime movers in terms of concern causing interest in carpooling, are fuel shortage, environmental protection, economic savings, and transportation facility crowding.
- The primary actors in carpooling organizations vary from area to area, with no single approach seeming to be THE way to go.
- Major funding does not now seem to be a critical problem.
- In every carpooling organization, a steering committee serves a useful function.
- Area, local, and company-sponsored carpooling programs can coexist, and be complementary.
- The institutional structure of the carpooling organization should be flexible. Different phases of carpool programs require different structures, and the institution must be capable of evolving with the program.
- Areawide agencies have exhibited greater ability to influence Government-sponsored incentives (or disincentives) than have local agencies.

#### RELATIONSHIPS WITH EMPLOYERS

It is generally agreed that the most viable means of promoting carpooling is through the employer. While other methods have produced some successes, the employer has the means of direct and continuing communication with his employees and has the ability to provide incentives to stimulate carpooling.

While there are alternative approaches to gaining employer involvement, the best point of access is through top management, and specifically through the chief executive officers. If, by whatever device, the top executive of a company can be convinced that it is both worthwhile and economically feasible to promote carpooling, then the task of convincing the remaining executives of

that company becomes many times easier. (Commitment of the chief executive officer of a company to any program essentially guarantees commitment throughout the company.)

How do we convince the employer that carpooling is a sound investment of company resources? Certainly there are economic advantages to a company that can successfully promote the use of carpools among its employees. The resulting reduction in parking demand, for example, can result in reduced cost of construction and maintenance of parking facilities. Should another severe fuel shortage occur, carpools can minimize absenteeism, and prevent declines in productivity. There are also, of course, spillover benefits to the employer in the form of cleaner air, reduced traffic congestion, conservation of fuel, and reduced travel costs and time for his employees.

One of the best methods of relating the economic advantages of a carpooling program to a company is through the testimony of success achieved by another company. Every area has at least one success story which can, and should, serve as an example of what can be accomplished.

In enlisting the participation of the employer, it is important that the respective cost and manpower responsibilities of the lead agency and the employer be carefully specified. Generally, the lead agency should be able to provide the employer with a complete carpooling/buspooling package. This should include, but not be limited to, technical and administrative assistance, promotional literature, questionnaires for data collection, computer matching (and key punching, if required), computer printouts of matches, maps identifying the matching base, and provisions for maintaining and updating the major carpooling file. On the employer's side, he should be committed to providing carpooling and bus-riding promotion, and encouraging all employees to participate in the program. The employer should also provide incentives to participants in the program. At the early stages of the program, the employer's personnel should be limited to one or two people.

While it may now seem easy and inexpensive to become involved in an area carpooling program, there are other factors that can create employer resistance to the program. One such concern is how employee information supplied for data processing and matching will be treated with respect to privacy of data. This fear may stem from the history of other agencies selling information and lists, to concern over competitors' piracy of employees. Whatever the source of concern, the lead agency must accept the responsibility for maintaining the employer's records confidential

status, and must ensure that data received from employers is used only for carpool matching within that employer's pool of employees. Whatever precautions are necessary to ensure this confidentiality of data should be implemented by the lead agency.

Another concern of employers is in the area of union insistence on permanence of incentives temporarily given for carpooling. This can be preempted by the lead agency obtaining the cooperation of the union in advance.

A final concern of employers is their possible liability as sponsors of a carpooling program. This problem is non-existent, since participation in the program is voluntary on the part of employees, and the employer is only providing the medium for organization.

Having enlisted the employer in the carpooling program, it is vital that communication with the employer's internal carpooling organization be established and, most important, maintained. Updating carpooling files, once established, is a major problem, and is impossible without the cooperation of the employer from whom the original data base was obtained. Thus, part of the lead agency's duty becomes periodic (monthly) contact with the employers to maintain program continuity. Area progress reports should be distributed to all participating employers to stimulate and maintain interest in the overall program.

The substantial increases in highway traffic since the worst days of the fuel shortage when people formed carpools out of necessity, seem to indicate some loss in the motivation provided by the scarcity of fuel, and that stimuli in alternative areas must be provided by the lead agencies. This is indicative of the fact that the work of the carpooling agencies has really just begun.

Summary. The principal factors and common points brought out during this session's discussion on Relationship With Employers were:

- Employer cooperation in the carpooling program is the greatest single contributor to the success of the program, and the chief executive officer of the company is the key individual required to make the cooperative program work effectively.
- The primary motivating factor in obtaining the cooperation of employers is the economic benefits that carpooling can bring to the cooperating company.

- Factors contributing to employer resistance to involvement in a carpooling program are:
  - A. Confidentiality of data.
  - B. Union conflicts.
  - C. Corporate liability.
- It is important to the ongoing program that the lead agency establish and maintain continuing communication with the employer.

#### CAR/BUS POOLING AND LOCAL TRANSIT POLICY

Commuter pooling programs may differ considerably in their primary frames of reference depending upon area environmental variables. For example, where the geographic and economic environments of one area may dictate emphasis on carpooling as the primary means of commuter pooling (such as in a wide spread and affluent suburban area feeding large central area employers), the geographic-economic environment of close-in less affluent suburbs feeding large centralized employers might dictate workbus, vanpool, or bus pooling as the best approach to the same problem.

The Knoxville Experience. When the city of Knoxville, Tenn. began their commuter pooling program, under the jurisdiction of the Knoxville Transit Authority (KTA), in late 1973, the major emphasis was on increasing transit ridership. The computerized density matrix and master grid list was viewed as a most innovative approach to routing and scheduling mass transit in the urban area. Special emphasis was given to commuter ridership, since it was felt that they had the highest propensity to ride. The very nature of the commuter trip and its regularity make it highly adaptable to fixed schedules.

Since the main emphasis was on commuter bus service, efforts were made to initiate express service as soon as possible. Five (5) bus routes were rapidly initiated, and the KTA received front-page headlines and television coverage at least twice a week and after each Transit Authority meeting. The results were successful since each express bus had standees within a very few days after the service was initiated. Even the local newspaper wrote an editorial which was extremely complimentary and stated "this was

the innovation that mass transit had been needing for a long time," and that "the Transit Authority was finally taking a step in the right direction."

In addition to identifying successful express runs, the commuter pooling data was presenting information for rerouting regular route service to serve pockets of high employment in the downtown area. For example, TVA survey conducted by the Transportation Research Board, indicated that a slight schedule change would make the service attractive to between 20 and 30 clerical people employed at TVA. Still the emphasis was on improving commuter service for suburban areas, since this was highest priority for public transportation.

Armed with the enthusiasm of the Knoxville Express Commuter Service, the session director (Dr. F. Davis) spent two weeks (in December, 1973 and January, 1974) with Mr. Fred Wagner and Mr. Alan M. Voorhees writing the DOT car/bus pool manuals which were used by FHWA and UMTA when they presented the series of carpooling programs in Winter, 1974.

The past year in Knoxville has provided an education in the economics of transit operation. After the introduction of the five (5) very successful express bus routes, the general manager requested the Transit Authority to take the pressure off because the transit system could no longer provide any additional express commuter service. This was surprising, since over 50 percent (50%) of the bus seats are empty during rush hour on traditional routes, while they were filled on the commuter express runs. The manager explained that while it was always thought that the transit problem was lack of demand, the problem really stems from another area. Labor cost is approximately \$4.50 per hour for a 44-hour week. When fringes are added, this gives a fully-loaded cost of approximately \$6.00 per hour. On express bus runs, the driver reported for work at 6:30 a.m. He would be dispatched and drive his bus to the suburbs, where he would pick up a full load, and take them to work, 10-15 miles away. When he returned, he would wait from 8:00 a.m. until 4:35 p.m., at which time he would return, pick up a full load, return to the suburbs, unload, and return to the bus barn and report in before clocking out.

Thus, the driver would work from 6:30 a.m. until 6:15 p.m., or 11 hours and 45 minutes. Management is allowed to split his run, but must guarantee him 10 hours during a period of no greater than 12 hours. Thus, he drives with a fully-loaded bus for approximately 30 minutes in and 30 minutes out, but is paid for a 10-hour day. Any additional commuter service which could not be offset by some type of additional off-peak activity, would likewise incur

labor costs which would be productive only 10 percent (10%) of the time. It was argued that off-peak activities could be found for these drivers, but the manager stressed that while he could offer the first five (5) express bus runs, additional drivers hired for commuter activities could not be effectively utilized during the middle of the day.

Not only was the labor cost prohibitive, but the fuel efficiency was another consideration. Because of the empty ("deadhead") mileage from the bus barn to the pickup point and from the destination back to the barn, between 50 percent (50%) and 65 percent (65%) of the mileage is deadheading. The commuter express service is only 35 percent (35%) to 50 percent (50%) productive. With a fuel consumption of 3-1/2 to 4 miles per gallon and 65 percent (65%) empty miles, the fuel economics of an express bus becomes nearly equal to that of a carpool with equivalent load factor.

Because of the low utilization of labor and the extensive running of empty miles, additional commuter service would cost in excess of \$2.00 per passenger per day for a short ten (10) mile commuter trip (assuming free buses), and the cost of operating is low (approximately 70¢-80¢ per bus mile) when compared to other cities such as Washington, D.C. Metro's cost of over \$1.60 per bus mile operated. Thus, the transit authority could not economically provide express bus service as presently organized. Unless greater labor productivity could be obtained, the authority cannot afford to pay 2.5 percent (2.5%) of its gross payroll (one (1) driver for 45 passengers) just to drive commuters to work. This experiment, however, did lead us to the following conclusions:

1. Commuter pooling programs can generate sufficient demand to completely saturate transit capacity very quickly if transit managers offer a high level express commuter service between major suburbs and major work centers. In Knoxville, this service is used to capacity, in spite of the fact that double fares were charged.
2. A 10-15 percent (10-15%) increase in vehicles is approximately the limit that can be expected for transit unless service can be diverted from other activities or the transit system has an unlimited budget.
3. Knoxville now offers nine (9) express bus runs and nine (9) additional bus runs will be initiated soon, since the University of Tennessee has offered to allow the nine (9) buses they charter on a daily basis to be used for express commuter runs, and then be placed in regularly-

scheduled service during the work day. The Transit Authority is concerned that the offering of additional express bus services will substantially increase its operating deficit which is already doubling each year.

4. Our share of the recently-passed 11.8 billion dollar transit operating subsidy will offset out deficit increase one year, so that our 1975 deficit will be approximately equal to our 1974 deficit, if no new services are offered. The offering of half fare to senior citizens, however, will probably reduce the net effect of the operating subsidy so that it only covers one half of our 1975 increase.

The Transit Authority has been placed in a very difficult position. A recent survey indicated that virtually all community leaders expected that mass transit could solve air pollution problems, traffic congestion, lack of parking space, help in redevelopment of the downtown area, and provide a high-level commuter service to our working people. These same political leaders indicated that the most important responsibility of the transit system was to get school children to school and commuters to work, and they are in unanimous agreement that public money should be spent to receive these benefits. On the other hand, 85 percent (85%) of these same leaders felt the traditional transit system did not measure up and was meeting very few of these objectives.

The express bus service, however, has been enthusiastically received. The transit deficit is largely determined by the ratio of buses used in commuter service versus buses used in the off-peak. Therefore, carpooling and other ridesharing are viewed as means of taking the pressure off the transit system to provide high level commuter activity during the peak commuter rush, and it is recommended that mass transit in Knoxville be defined as any for-hire transportation service or any vehicle with more than one passenger. This offers the following advantages to the Transit Authority:

1. It takes the political pressure off mass transit to provide extensive express commuter service and regular route service to low-density areas where transit is economically and ecologically unable to serve.
2. It lowers the deficit per mass transit passenger, since ridesharers can be included in the calculations.
3. It provides for the integration of other modes into the public transportation system, including private bus companies, van pools, private work buses, jitneys, and private for-hire commuter service, which currently does not exist in Knoxville.

Thus, the Transit Authority is more than just the promoter and champion of a fixed-route/fixed-schedule transit system, but becomes a problem solver which helps individual firms, shopping centers, apartment complexes, and subdivisions aggregate the demand into efficient and economical groups and locate alternative sources for meeting this need.

Private bus companies can be extremely effective and can be operated at a very low cost, especially in areas outside the city. For example, Colonial Transit from Fredericksburg, Virginia, has implemented express commuter service into Washington, D.C. at approximately 1/3 the fare structure of traditional transit service. Three (3) years after the initiation of this service, they had gross revenue of \$622,000 and operating profit (as defined by transit accounting practices) of 15-20 percent (15-20%). Van pools implemented by the 3-M Company and by TVA in Knoxville, have been a low capital means of providing transit service to low-density rural areas where there are a limited number of riders. Currently, riders who live 50-60 miles from work are paying from \$28-\$30 per month to ride in air-conditioned, stereo-equipped vans. Private work buses are being used by Southern Athletic to haul employees from the old work site to the new plant at a very low cost. Private bus companies offer express bus service from the outer parts of the county, using over-the-road type buses with reclining seats.

In Chattanooga, the jitneys are a very real part of their mass transit system and according to a recent Wilbur Smith study, they carry approximately 20 million (20,000,000) riders per year, as compared to approximately 2.6 million on traditional transit.

Summary. In February, 1975, a report will be made to the Knoxville city council indicating that the role of a transit authority is much greater than promoting and protecting one form, one mode, or one operator of public transportation. The Transit Authority must begin to use the system approach in solving individual transportation problems instead of being the promoter, operator and protector of a specific hardware system. Thus, the long-range success of transit depends on the effectiveness of the Transit Authority in:

- Making the public aware of what traditional transit can realistically accomplish.
- Realizing that there are limitations to the effectiveness of traditional carpooling, just as there are limitations to the effectiveness of traditional transit. Many people, for example, do not want to enter into relationships

based entirely on friendship, but prefer arms-length relationships where personalities will not interfere and they do not feel that they are "dependent" upon or "beholding" to the people they ride with.

- Encouraging the use of new forms, modes, and ownership of public transportation where the alternatives are more efficient and effective.
- Eliminating the resistance of public-spirited groups and firms who review alternative forms of public transportation as being "unamerican" and "hurting" transit.
- Recognizing the need for park-and-ride lots located at major arteries so that various forms of mass transit can use these points for pickup.

#### PROMOTION AND INCENTIVES

Promotion. Before proceeding on the subject of promotion, a warning should be issued that to generalize too far from one project to another may be dangerous. Unique characteristics of individual communities can be used with particular effectiveness in the promotional efforts. Therefore, to use the characteristics of one community as a foundation for promoting carpooling in another may be a generalization without proper basis in fact.

The Portland, Oregon Experience. There are four basic elements that were promoted in the Portland area. The main objective initially was to develop within the community a receptive attitude toward carpooling. An attempt was made to inform the community of the availability of a system which could provide matching assistance, and the easiest access to a matching system. Finally, the various types of incentives were widely advertised.

First, however, there must be a good service to promote. If the service is lacking in some significant degree, the promotional effort will obviously be rendered ineffective. Recognizing that need, many hours were spent in Portland developing what was considered as the best matching systems and the best approach to employers and the community before any attempt was made to inform the public.

The second major question which must be addressed is to identify the audience which must be reached with each of the four elements described above. For example, with attitude development the desired impact would be community-wide. Consequently, the promotional material designed for attitude development must be designed with the entire community in mind and must be communicated through mechanisms which will reach the entire community. When attempting to inform the community of the availability of and access to a matching system, the public must be aware of the various types of matching systems available and which are most appropriate for different segments of the community.

A manual matching system is relevant only to a narrowly defined group, usually the employees of one organization. This would be wasteful to broadcast community-wide. The information about a system should be directed at that particular audience that will have access to it. In the case of the availability and channels of access to the computer matching system, the audience will be the entire community. In this case communication is directed to the entire community; the media which will reach the broadest possible segments of the community should be used.

The third major question is to identify what mechanisms are to be used to communicate the information. A review of what is to be promoted and the audience to be reached must be established. Then that medium which can most effectively communicate the subject information to the desired audience must be identified. In some cases, of course, the communication techniques will employ more than one medium.

The fourth major question is the timing of the communication. It is vitally important that the audience receive information at the time when it will have maximum impact. The impact may be estimated taking into consideration two primary characteristics: the need of the individual for the service being offered, and the ability to provide the service. For example, it will be of little benefit to inform an audience of the availability of a matching system until such time as they are convinced that they want to use it. Recognizing, however, that some persons have already made up their minds that they would like to form a car-pool, the information about a matching system may in fact overlap with attitude development efforts.

There is a wide array of promotional techniques which may be employed at very low cost and others at very high cost.

One of the most critical elements in promoting a carpool project is to gain the support of the media and employers in the community. In Portland, this was done by holding meetings at a very early stage, actually prior to the time that the FHWA grant was awarded. The local television and radio stations were involved at the outset. Their cooperation was requested in the promotion of the carpool program. Because it was done at a time when Oregon was suffering from a severe gasoline crisis, and because they were made to feel that they were a vital part of the system, sustained support was received from the media. Throughout the project an attempt was made to share credit for accomplishments with the media and with the area's major employers. As a direct result, public service advertising over a period of about eleven months valued in excess of \$100,000 was received.

Incentives to Individuals. In Portland, incentives to individuals was received by taking advantage of existing conditions; namely, the gasoline crisis and, more recently, the inflationary pressures on family budgets. Using only those two types of incentives to the individual, at this time there are in excess of 22,000 people carpooling as a result of the Portland carpool project.

When the project started in January of this year, Oregon was suffering from a severe gasoline crisis. The lengthy lines at gas stations were sufficient incentive to encourage nearly everyone to seek out a more efficient way of commuting than the single occupant vehicle.

More recently, the growing inflation has been utilized to encourage people to share the cost of commuting. Commuters were informed of the true cost of commuting and how they could reduce that cost by sharing a ride. Very specific examples of the cost of commuting between two specified points were given. For example, a newsletter is sent to a company which outlines the cost of commuting from some of the company's employees common-origin points to their work site. Then they are shown how much carpooling with one or more persons can cut costs. Also described are examples of items of particular importance in the family budget where the savings could be better utilized; such as spending the savings from carpooling for a vacation to the Oregon coast, or using it to buy a new refrigerator, or simply for buying better food for the family.

There are certainly other very effective incentives to the individual to promote carpooling. Two of the better known types of incentives include preferential lanes and priority parking for carpoolers. In Portland, it is not yet verified that preferential

lanes can be justified. However, preferential parking has been attempted by some area employers with varying degrees of success. In general, it is estimated that parking facilities in the Portland area are not sufficiently strained to make a parking priority a very strong incentive.

Incentives to Employers. It is important to provide some incentive to employers to gain their assistance and cooperation in promoting carpooling among their employees. In Portland, the most effective incentive has been the gasoline crisis. The employers have been concerned that their employees would be unable to get to work on time because of the gasoline shortage. Some employers have been particularly concerned that the employees would make commuting expenses a bargaining issue if the employer did not voluntarily take steps to assist in the commuting process.

An attempt has been made to provide matching systems which can be used with very little investment of time, and with virtually no cash investment on the part of the employer. The carpool project has produced the materials needed to set up a matching system, and has designed them in such a manner that they can be utilized by employees without the assistance of anyone else within the organization. The local Chambers of Commerce have been especially helpful in gaining the cooperation of employers strictly as a community service.

Discussion Session. D. Morin of the Federal Highway Administration opened the discussion session with some comments on the highway-related incentives such as preferential lanes and parking facilities. Mr. Morin expressed concern that insufficient consideration of significant low capital investments for carpool incentives was being given by the FHWA Carpool Demonstration Projects. He stated that it is the opinion of FHWA that carpooling should be viewed as a long-term program. Consequently, greater emphasis should be placed upon the development of ongoing incentives which are essential to the diversion of commuters from the one-person, one-car syndrome to multiple occupant vehicles. One member of the audience indicated that while their project staff has a strong interest in developing such long-term incentives for carpooling, they are in need of support from the Federal Highway Administration to develop sufficient justification for their proposal. Local decision makers do not have adequate information at this time on which a decision to construct preferential lanes or parking facilities can be established.

Other project representatives concurred that, in general, very little has been attempted in terms of development of preferential lanes or parking for carpoolers. One notable exception is the State of Connecticut which has attempted over a period of several months to develop park-and-ride stations for carpoolers. Even there, however, too little information is available to objectively evaluate the real impact. In Portland park-and-ride lots have been donated for use by carpoolers and bus riders by more than 40 churches. The transit authority in the Portland area has agreed to maintain the parking facilities and to provide liability insurance while the carpool project has provided signs. The lots have been in use for less than two months so insufficient time has passed for a realistic evaluation.

Preferential parking for employees provided by the employer has been attempted to only a small degree in most areas. Again, data is insufficient to evaluate the effect of these efforts.

Many of the projects represented at the workshop are still at a very early stage of development. They are still, in many cases, attempting to develop the cooperation of area employers in the promotion of carpooling. Of major concern to projects at that stage of development is the identification of incentives to employers.

There was an apparent consensus among the more advanced projects that there are no strong incentives to employers to promote carpooling at this time. However, there are a variety of techniques which have been used to encourage employer support for carpool projects. In most communities Chambers of Commerce have been quite willing to support carpool promotional efforts with letters of encouragement to their membership. It is recognized that carpooling will assist in a more efficient utilization of resources. Community-minded employers also recognize that the benefits to their employees as a result of carpooling are worth the time and effort required on their part.

The Denver Carpool Project representative outlined the Colorado Air Pollution Authority's mandatory carpool and transit promotion regulations applicable in the Denver area. Their standards require all employers in the area to develop promotional programs for carpooling and transit during 1975. Those failing to comply will be subject to penalty.

It was noted in the Portland area, as in many other areas, that zoning and planning restrictions on the development of new parking facilities have become a serious concern to organizations as they plan for a period of growth during the immediate future. Employers who are restricted in their ability to provide parking for new employees can be encouraged to take a serious look at the capability of carpooling as an alternative to additional parking

facilities. In fact, it was pointed out that in some communities existing parking facilities are being reduced.

An issue of major concern to many employers is the involvement of commuting expenses in labor negotiations. Many employers fear carpooling as the first step in making commuting expenses a direct responsibility of employers through the bargaining process. Other employers consider the promotion of carpooling as a means of lessening the likelihood that commuting expenses will ever become a bargaining issue.

In general, it seemed to be agreed that to obtain the cooperation of area employers, it is necessary to demonstrate to them that the promotion of carpooling will require only a minimal investment on their part. Most employers feel that they cannot justify a significant amount of time being expended for the promotion of carpooling. This attitude emphasizes the need to have a well organized plan outlined for presentation to employers.

A wide array of promotional techniques was discussed during the discussion session:

1. Billboards
2. Radio spots
3. Television spots
4. Brochures
5. Posters
6. Bumper strips
7. Lapel pins
8. Newspaper advertising
9. House organs
10. Awards and contests
11. Speaking before organizations
12. Displays of computer matching systems
13. Displays of manual matching systems
14. Carpool staff presentations
15. Carpool telephone number
16. Participation in special events such as fairs and sports events.

The techniques listed are representative of the attempts made in various areas. Few areas have actually utilized all of these mechanisms. It was recognized that an effective combination of the various mechanisms available should be carefully organized and implemented to most effectively communicate the desired information to the target audience.

Both the Federal Highway Administration and the Highway Users Federation indicated a willingness to provide substantial information about various promotional and incentive techniques which have been attempted. In addition it was noted that those persons in attendance at the conference will be able to contact each other directly for assistance and suggestions.

Summary. In summary of this session on Promotion and Incentives, it was generally agreed that no set formula could be established that would be guaranteed to work in all areas. It was agreed that it is generally important to secure early involvement of the local media representatives, major employers, and Government agencies, and that a practice of credit-sharing will benefit all parties.

A general procedure for promotional activities was presented as follows:

- Make sure that you have a good service to promote.
- Identify the elements of the program that you wish to promote.
- Provide people with easy access to the system.
- Identify and publicize incentives.
- Make employers aware of the program.
- Select your target market, and concentrate promotion on target.
- Select the media best applicable to your promotion, and use it (them).

Promotion and incentives go hand-in-hand; incentives are useless if no one is aware of them.

## EVALUATION

Evaluation of the effectiveness of carpooling programs is essential if we are to define the true potential for carpooling in quantitative terms, and if we are to make the most effective decisions on how programs are to proceed. Effectiveness evaluation

data is mandatory if we are to differentiate between valuable and valueless techniques and thereby improve the over-all program. Without this kind of information feedback, the program is liable to go out of control.

Primary measures of program effectiveness are: increased vehicle occupancy, reduction in the number of vehicles en route at given times, and reduction in the number of vehicle miles travelled.

The most useful measure of promotional effectiveness is the ratio of carpool candidates to the capture rate. In other words, of the total number that the program attempts to attract, how many switch from single-occupancy vehicles to carpools.

To apply these measures, a best-guess estimate of what is the maximum potential for the carpool program in terms of target market size and total capture quantity must be made. In the opinion of the discussion leader, it is probable that not more than 50 percent of the total workforce population will be exposed to carpooling promotion. This estimate is based upon the considerations that it is not the intent of the carpooling organizations to include in their target market, areas that are well served by public transportation, or which already have high levels of commuter occupancy. Additionally, some employers will be excluded from the target market because of their size (too small) or because of the nature of their business requiring unusual shift breaks, etc.

The discussion leader's best estimate of capture rate is that it will be possible to change the riding habits of ten percent of the commuting public in the target market. This estimate is based upon 1974 capture statistics taking into account the effects of well-run programs with cooperating employers.

Future potential will depend upon the particular programs chosen, as well as their relative effectiveness. Future potential will also be influenced by external events; fuel shortages and economic crises may tend to make carpooling more successful, while other outside influences, such as a major upward change in domestic fuel supplies, might be detrimental.

In evaluating the overall effectiveness of the carpooling program, there are several factors which tend to degrade, or dilute, its effectiveness. For example, extra miles driven to pick up carpool passengers dilute vehicle mile reduction. If the vehicles left at home are used for other than normal purposes and incur extra mileage, this useage detracts from the effectiveness of the program. The loss of transit riders to carpools is a spillover

loss, as are the extra trips that may be necessitated because they cannot be made during the trip to and from work.

There are also factors which tend to increase the effectiveness of carpooling. For example, it is likely that there will be a decrease in automobile ownership among multiple-car owners who carpool. While this may not be a very pleasant topic during the present depressed conditions in the automobile industry, the fact remains and must be considered. In addition, there will be a significant reduction in the total vehicle miles travelled per household among carpoolers.

Carpooling program effectiveness can be measured empirically by observation of traffic characteristics, changes in parking area usage, and changes in transit demand. A more accurate measure can, of course, be obtained by conducting surveys of area households or of participating employers.

Basic data that is required for evaluation includes:

1. How many former lone drivers have shifted to ride sharing?
2. How does this number relate to the total population or workforce?
3. What are the attitudes of carpoolers toward the program?
  - A. Do they feel positive or negative?
  - B. Are they temporarily or permanently involved?

Summary. In this session of the seminar, several specific common points relative to evaluation of program effectiveness were highlighted. These points are itemized as follows:

- Evaluation of program effectiveness is essential if we are to:
  - A. Define the real potential of carpooling.
  - B. Gain the support of community leaders.
  - C. Sell the program to employers and employees.
  - D. Differentiate between valuable and valueless techniques.
  - E. Improve the program.

- Maximum near-term potential for carpool programs is estimated to be:
  - A. Total exposure = 50% of workforce.
  - B. Total capture = 10% of workforce.
- Future potential of carpooling programs is dependent upon the use of evaluation data in selecting the most effective programs and activities to be pursued in specific areas, upon the over-all commitment to long-term goals, and to a great extent, upon external events such as fuel and economic crises.

## CONCLUSIONS

The final session of the seminar was devoted to review of topics which, in the opinion of many of the attendees, had not been sufficiently covered in the allotted time. While a variety of topics was discussed, most received only passing comments. Those which commanded the greatest interest and stimulated the greatest amount of input from attendees were:

1. Maintaining communications with, and between, company carpooling program managers.
2. Dealing with the media in the area of promotion and incentives.
3. Liability problems encountered in vanpooling.

Maintaining Communications. There was some feeling among the attendees that, in addition to the continuing communication recommended between the lead agency and the employers, there should be a mechanism whereby carpooling representatives of the various employers involved in the program be provided with a channel of communication with each other. Several examples of experience in this area showed that wherever lateral lines of communication had been established between employer groups, they had atrophied through disuse. Vertical communication between the lead agency and the respective employers is apparently sufficient for dissemination of information of mutual interest.

Dealing With the Media. The consensus of the attendees was that inclusion of media representatives on the steering committee provided early and continuous involvement on their part. It was further agreed that, generally, there were insufficient funds available to mount a sustained promotional campaign. Dependence for coverage by the media has been, in most areas, on news releases and public service announcements. This kind of coverage is spotty, at best, and rarely occurs during prime time. Only during peak periods of interest such as the height of the fuel shortage has there been concentrated media coverage of carpooling program efforts.

There was strong feeling expressed for a sustained campaign to build public awareness of carpooling programs. In this vein, several attendees expressed the opinion that a professional, funded marketing campaign would be required to sell the program in the same way that any product is sold to the public.

There was an iteration of the coverage to be provided by the forthcoming D.O.T. national advertising campaign, and of the way that the national campaign units could be keyed in with local and area campaigns. Stations using the national units would be authorized to fill in with the local rider for identification with the local lead agency.

Some discussion followed on methods of eliminating the cost of duplication of efforts in the area of promotion. A forthcoming bi-monthly newsletter was mentioned as a potential vehicle for cataloguing and describing promotional material developed in different areas that would be suitable and available for sharing with other areas.

Vanpooling Liability Problems. Several attendees expressed concern on the part of employers in their respective areas with regard to the employer's liability to carpools or vanpools with which he is involved. Preliminary legal interpretations of employer liability with regard to voluntary employee transportation pools is that there is absolutely no liability on the part of the employer. Liability with regard to company-operated vanpools, on the other hand, will vary from state-to-state, and the Attorney General of the specific state should be queried in this regard.

The majority of insurance companies are anxious to promote carpooling, and will cooperate fully in supplying liability information to employers and carpoolers alike.

There were several instances mentioned by attendees where disclaimers were used by employers or by carpool organizations to release the drivers and/or employers from extraordinary liability due to carrying extra passengers. Legal advisors in several areas have stated that such disclaimers have no real value under the law. Their only value would seem to be in the impression left with the parties involved that a signed, legal document was, indeed, in effect.

Summary. It is a well-publicized fact that the United States consumes a lot of energy - some thirty-nine million barrels of oil a day. If that were all gasoline, (it isn't) it would be seven gallons of gasoline per-day per-person in the United States. Not very many years ago that was five gallons a day. Of that seven gallons a day something like eighty-four or eighty-five percent is produced inside our borders (in coal, domestic gas and oil, nuclear and hydro-electric power, etc.). We import the remaining sixteen percent, and it is that sixteen percent that is the center of our present problem. That import happens to be in the form of oil, but it isn't that we're short of oil. It isn't that we're short of gasoline. In fact, as a world, we're not short of energy. The problem is the availability of that energy at a price that we can afford to pay. The cost of that sixteen percent of total energy that we must import at our current rate of consumption and at current prices is approximately fifty-seven million dollars per day.

We have to export something to pay the bill, and what we are exporting is capital. We are exporting this capital at the rate of about twenty billion dollars a year. To illustrate the value of this capital outflow, the current market value of General Motors Corporation is thirteen and a half billion dollars. Between January and August we (the U.S.) exported enough capital to buy General Motors. During the next two months we traded away the Chrysler Corporation, and by March 1975 we will have traded the whole U.S. auto industry.

Of course, that's not exactly the way it is going to happen, but what is going out of our country is very serious to us all. The U.S. Government has got some choices to make in this regard, and all of these choices involve our using substantially less energy very soon.

While automobile transportation represents only about thirteen percent of all of the nation's energy, it will probably have to carry a big share of the reduction in energy. This is so because one of the biggest users of energy in this country is industry.

Energy is an industrial resource, and a barrel of oil per day used by industry is equal to one job. Therefore, take a million barrels a day out of our energy supply, and you take it out of industry. You are then taking a million jobs out of the market. No one wants that, so we're going to have to reduce energy consumption in places that hurt a little bit less. Gas lines are preferable to bread lines. Thus, this conservation effort is the most important thing that we can do. No job in our society is more important than the job that carpooling organizations are doing. One industrialist said the other day that there is a difference between conservation and austerity. Conservation is insulating the attic and saving some fuel, and austerity is sitting there and shivering. As it affects transportation, it seems that conservation is getting just as much transportation as we can out of the oil that is available, and austerity is giving up travel that is a real part of our way of life. Carpooling is the one direction that shows the most potential.

The things that haven't been addressed to a great degree that are part of this greater efficiency effort are vanpools. Vanpooling, simply stated, is helping anyone who can be served by a bus to get on a bus.

Someone must be in charge. There must be a central place in the community that looks at the whole transportation picture. The primary objective of this seminar was not to keep a computer warm and happy; not to learn how to run a matching system. What people really came here for is to get more efficiency out of our transportation system, simply because it is vital to our economy, to the way we live, at least for the next two or three years.

## List of Participants

<u>Name</u>	<u>Organization</u>	<u>City</u>
Mr. Joseph F. Arruda	Rhode Island DOT	Providence, R.I.
Mr. John Attanucci	M.I.T.	Cambridge, MA.
Mr. John Balshaw	FHWA	San Francisco, CA.
Mr. Elmer E. Biggs	FHWA	Baltimore, MD.
Mr. George T. Bonna	Comsis Corp.	Pittsburgh, PA.
Mr. Dominick Botteri	New Jersey DOT	Trenton, N.J.
Ms. Julia S. Bottin	Georgia DOT	Atlanta, GA.
Mr. Craig T. Bryars	Highway Users Federation	Washington, D.C.
Mr. Harrison Campbell	Charles River Assoc.	Cambridge, MA.
Mr. William C. Camp	Metropolitan Washington Council of Governments	Washington, D.C.
Mr. Christopher Capotis	Erie Metropolitan Plan- ning Department	Erie, PA.
Mr. Robert H. Chamberlain	TALTRAN Carpool Infor- mation Center	Tallahassee, FL
Ms. Linda K. Cherrington	City of San Antonio	San Antonio, TX.
Mr. William Clark	Alternative Transpor- tation Program	Eugene, OR.
Mr. Roy M. Coughlin	Southern New England Telephone Company	New Haven, CT.
Ms. Maureen Crowley	Metro Area Carpool	Omaha, NE.
Mr. DeWayne Cuthbertson	GEICO	Chevy Chase, MD.
Ms. Zoe Daidakis	City of Baltimore	Baltimore, MD.
Dr. Frank W. Davis, Jr.	Transportation Center of University of Tennessee	Knoxville, TN.
Mr. Perry A. Davison	FHWA	Washington, D.C.
Mr. Michael R. DeKeyzer	Rapids Area Planning Commission	Pineville, LA.
Mr. Jack Derby	California State DOT	Sacramento, CA.
Dr. Steve Dickerson	U.S. DOT	Washington, D.C.
Mr. Carl D. Dixon	Kentucky DOT	Frankfort, KY.
Mr. Herman G. Dusch, Jr.	New Jersey DOT	Trenton, N.J.
Mr. James C. Easton	City of Knoxville	Knoxville, TN.
Mr. Robert E. Ellington	D.C. Department of Highways & Traffic Car Pooling Committee	Washington, D.C.
Mr. Arthur S. Emmons		Ashland, KY.
Ms. Jane J. Eves	Erie Metropolitan Planning Department	Erie, PA.
Mr. Raymond Fels	Erie Metropolitan Planning Department	Erie, PA.
Mr. Martin J. Fertal	COMSIS Corporation	Pittsburgh, PA.
Mr. Ed Fleischman	FHWA	Washington, D.C.
Mr. Wade G. Fox	Southwestern Pennsylvania Reg'l. Plg. Commission	Pittsburgh, PA.
Mr. Robert V. Gancarz	Delaware Valley Reg'l. Planning Commission	Philadelphia, PA.
Ms. Cynthia C. Goodrich	Richmond Reg'l. Planning Commission	Richmond, VA.
Mr. Jack Graham	Oregon DOT	Salem OR.

<u>Name</u>	<u>Organization</u>	<u>City</u>
Mr. Robert Godding	University of Massachusetts	Amherst, MA.
Mr. William P. Goss	University of Massachusetts	Amherst, MA.
Mr. Albert A. Grant	Metropolitan Area Council of Governments	Washington, D.C.
Mr. David D. Grayson	Automobile Club of So. California	Los Angeles, CA.
Mr. Charles Gudaitis	Connecticut DOT	Wethersfield, CT.
Mr. Gene Gurney	FHWA	Washington, D.C.
Mr. John E. Hartley	D.C. Department of Highways & Traffic	Washington, D.C.
Mr. John Hilpert	City of Raleigh	Raleigh, N.C.
Mr. Harry Jarvis	Central Virginia Planning District Commission	Lynchburg, VA.
Mr. George V. Kelly	Denver Reg'l. Council of Governments	Denver, CO.
Ms. Ellen Koester	Department of Health	Denver, CO.
Mr. Alexander R. Kohn	Northeast Ohio Area- Wide Coord. Agency	Cleveland, OH
Mr. Jerry Kraft	Charles River Assoc.	Cambridge, MA.
Mr. Timothy Letzkus	Highway Users Fed.	Washington, D.C.
Ms. Vivian Littral	Greater Lexington Chamber of Commerce	Lexington, KY.
Mr. George L. McNamara	Milwaukee Co. Trans- portation Division	Milwaukee, WI.
Mr. John H. Miller	Louisville Area Chamber of Commerce	Louisville, KY.
Mr. Roger P. Moog	Delaware Valley Reg'l. Planning Commission	Philadelphia, PA.
Mr. Donald A. Morin	FHWA	Washington, D.C.
Mr. Michael Padnos	Commonwealth of Massachusetts	Boston, MA.
Mr. Jim Pearson	Topeka-Shawnee Co. Metropolitan Plg Comm.	Topeka, KS.
Mr. L. W. Pilstl	FHWA	Washington, D.C.
Mr. Lew Pratsch	FHWA	Washington, D.C.
Mr. Bob Redman	FHWA	Washington, D.C.
Mr. Vincent J. Reilly, III	Auto Club of South New Jersey	Cherry Hill, N.J.
Mr. Don Revello	Wisconsin DOT	Madison, WI.
Mr. Richard J. Reynolds	Lehigh-Northampton Counties	Lehigh Valley, PA.
Mr. William T. Roach	Seattle Carpool Prgm.	Seattle, WA.
Mr. Carlton C. Robinson	Highway Users Fed.	Washington, D.C.
Dr. Daniel Roos	M.I.T.	Cambridge, MA.
Mr. A. Tom Rohner	California Automobile Association	San Francisco, CA.

<u>Name</u>	<u>Organization</u>	<u>City</u>
Mr. Dan Rosen	FHWA	Washington, D.C.
Mr. Morris J. Rothenburg	JHK & Associates	Alexandria, VA.
Mr. David Ruby	Tri-State Regional Planning Commission	New York, N.Y.
Mr. Peter Shapiro	New Jersey DOT	Trenton, N.J.
Mr. Peter Shepherd	ILIUM/OCTOPUS, Inc.	Seattle, WA.
Mr. Tom W. Stallworth	City of Dallas	Dallas, TX.
Mr. Pat Sullivan	TBART	Tampa, FL.
Mr. John H. Suhrbier	Cambridge Systematics	Cambridge, MA.
Mr. Dick Toolan	Valley Forward-Project Pool It	Phoenix, AZ.
Mr. Michael Tucker	Northern Natural Gas & Omaha J.C.'s	Omaha, NE.
Mr. Allan Vogel	Minnesota Hwy Dept.	St. Paul, MN.
Mr. Steven R. Volkmann	Pima Association of Governments	Tucson, AZ.
Mr. Frederick A. Wagner, Jr.	A. M. Voorhees & Assoc.	McLean, VA.
Mr. Donald Gray Weaver	City of Greensboro	Greensboro, N.C.
Ms. Ruth A. Weber	Blair Co. Community Action Agency	Altoona, PA.
Professor Nigel Wilson	M.I.T.	Cambridge, MA.
Mr. J. Paul Wisegarver	Carpool Coordinator	Lexington, KY.
Ms. Ann Zerega	Federal Energy Agency	Washington, D.C.

GROUP I  
Transportation Systems Planning and Administration

E. Wilson Campbell, Chairman  
Assistant Commissioner of Planning  
N.Y. State Department of Transportation  
1220 Washington Ave., State Campus  
Albany, New York 12226

GROUP III  
Operation and Maintenance of Transportation Facilities

Gary Byrd, Chairman  
Vice President and Manager  
Byrd, Tallamy, MacDonald, Lewis  
2921 Telstar Court  
Falls Church, Virginia 22042

Carpooling Seminar Steering Committee

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Donald Morin, FHWA  
Lew Pratsch, FHWA  
Nigel Wilson, M.I.T.

Transportation Research Board Staff

C. Campbell Graeub  
James A. Scott  
J. K. Williams



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