

mented, but definitions can be helpful.

Technology transfer is critical. Reinventing the wheel should be avoided, if we can rename or adapt that wheel to our needs. How we blend the borrowed materials with transportation principles is more difficult, but not impossible.

The development of survey and interview methodologies for groups and individuals and the development of suitable statistical and data-processing methodology are surely needed.

When these have begun, and also in order to help them begin, a comprehensive data base is recommended. Recommendations for a data or research bank with the capacity for continually monitoring the state of the art and its findings have been made to the Federal Highway Administration. Such a mechanism would contribute much to increased productivity in ridesharing research.

Dissemination or communication of innovation and

findings within ridesharing to related areas of transportation and to related disciplines is a necessary part of the task of developing viable research in transportation behavior. The research bank suggested above can be a valuable adjunct to existing dissemination mechanisms. Other tasks remain. Ethics and standards, certification of skills (if needed), and the generation of new and needed research and the funds to support it, all are part of the fabric of a new research effort in ridesharing behavior.

It is likely that continuing task forces will be recommended for many activities described at this workshop. Rather than fight the trend, it does follow logically that some group be handed the baton for the continued development of what is a sound and emerging discipline and that has a long and potentially productive future.

Ridesharing Marketing: The Portland Experience

Byron York and Pamela Bloomfield

The promotion of ridesharing emerged in the early 1970s out of a crisis that for the first time made American drivers stop and take an urgent look at an old and comfortable habit--the consumption of gasoline. What was before that time no more than a taken-for-granted utility became a collapsing bridge between the driver and his or her destination.

Ridesharing was certainly nothing new, except to the extent that the more ridesharing that occurred, the more the energy shortage would be mitigated. With the recognition that there was no obvious profit to be made in promoting ridesharing, it became the responsibility of the public sector.

In the hands of the public sector, ridesharing presented mixed blessings. Because it was neither capital nor particularly labor-intensive, the cost seemed extremely small when compared with potential benefits. What the public sector encountered in trying to motivate increased ridesharing were such familiar functions as administration and operation of basic services, i.e., carpool matching. What remained was promotion or marketing--a skill in which the public sector was not as adept and continues to be one of the major challenges among rideshare projects--to change travel behavior through more-effective marketing techniques.

This paper discusses the Portland area (Tri-Met) rideshare project's experience--where we started, where we are, and where we think we are going. It is also intended to evoke the opinions, comments, and experiences of other rideshare projects in order that the Tri-Met rideshare project can change and refine its own efforts.

THE EARLY YEARS

The Oil Embargo as Catalyst

The nationwide fuel shortages caused by the oil embargo of 1973-1974 triggered the first organized efforts to develop and promote carpool programs. The Oregon Department of Transportation (ODOT) was the first recipient in the country of emergency assistance from the Federal Highway Administration (FHWA)

within the U.S. Department of Transportation. With \$225 000 in federal aid, ODOT organized a carpool program, targeting the Portland metropolitan area. Little was known about the size and characteristics of the potential market, nor was there any prior experience in devising cost-effective methods of tapping the potential market. Nevertheless, the severe fuel shortage situation had generated a ready market for alternatives to solo driving. At the peak of the embargo crisis, four telephone operators worked double shifts to field the barrage of calls to the carpool program.

The Tri-County Metropolitan Transportation District of Oregon, known as Tri-Met, took over the carpool program from ODOT in 1975. Tri-Met, the largest transit district in Oregon, serves the Portland-Vancouver metropolitan area. Initial marketing strategies centered around Tri-Met's carpool matching service for two reasons. First, it was believed that drivers and passengers interested in carpooling needed such a service in order to set up workable carpools; and, second, Tri-Met needed to build up a solid data base of carpoolers in order to research some of the most basic unanswered questions regarding carpoolers; i.e., How did carpoolers differ from noncarpoolers? How did carpoolers learn of the Tri-Met matching service? What factors influenced their decisions to carpool? and Were the carpool program and the transit system in competition for the same target markets?

Tri-Met's promotion of the carpool matching service had two components: (a) To reach the general public, public service announcements (PSAs) were obtained at no cost and aired by the electronic media; and (b) to reach commuters, large employers in the area were contacted and informed about Tri-Met's matching service. Both approaches were geared toward increasing the volume of carpoolers who used the matching service.

Initial Research Techniques

Before research into the carpool market could proceed, Tri-Met was confronted with a key methodologi-

cal decision: how to define carpool. The treatment of this issue was not simply a matter for statisticians to ponder; as a publicly funded agency, Tri-Met was under pressure to justify the level of effort devoted to ridesharing activities by producing statistics regarding the extent of ridesharing and level of participation in Tri-Met's program within the metropolitan area. After deliberating on the various possible definitions of a carpool, Tri-Met chose to adopt one of the strictest definitions of a carpool--that is, three or more people riding together to work or school four or more days a week. It should be noted that there were and still are wide variances in the carpool definitions employed by programs across the country; indeed, many programs define a carpool as two or more persons and fail to address the issue of frequency of riding. Although Tri-Met recognized that the stricter definition would reduce the reported size of the carpool market, it was also felt that use of a stricter definition would lessen public skepticism regarding the program's achievements. For purposes of comparison with other programs, data regarding two-person commuter groups (traveling to work or school four or more days a week) would also be collected.

A second decision regarding research methodology concerned the populations to be examined. At the time, many rideshare programs' research and evaluation activities relied exclusively on their own data files. While information regarding users' demographic characteristics, travel characteristics, reasons for carpooling, and so forth was clearly essential to an evaluation of the program, Tri-Met also designed and conducted a series of general public telephone surveys to determine their awareness of and receptivity to carpooling and their participation in carpools not sponsored by Tri-Met. The surveys were also intended to identify services and/or programs that might attract noncarpoolers to carpooling.

Post-Crisis Strategies

The transfer of the carpool program from ODOT to Tri-Met had coincided with the lifting of the oil embargo and a resulting public perception that the energy crisis was over. In a relatively short time, the heavy carpool demand brought on by the fuel shortages was markedly reduced. In response to the changed external circumstances, the theme of Tri-Met's carpool marketing campaign was altered: Whereas promotion of the carpool matching service had been sufficient to attract demand during the fuel crisis, a broader-based promotional strategy appeared necessary in the absence of a strong external public incentive to rideshare. Thus, Tri-Met adopted a lowered profile; the new PSAs placed more emphasis on the generic concept of ridesharing--i.e., the benefits to the user in terms of cost savings and convenience--and less emphasis on Tri-Met's role in providing services to carpools.

In early 1976, Tri-Met received a supplementary grant of \$350 000 from FHWA to start a vanpool loan program, whereby local businesses would receive interest-free loans to finance the purchase of vanpools for use by their employees. This plan, while attractive on paper, was based on three unfounded assumptions: (a) that local businesses would be familiar with the concept of vanpooling, (b) that they would be interested in operating vanpool programs, and (c) that they would require capital in order to do so. In fact, most businesses Tri-Met approached had no knowledge of the vanpool concept and were unenthusiastic about taking on any responsibility for their employees' transportation to work; those that were interested needed information and technical assistance, not interest-free loans.

Tri-Met therefore requested that FHWA permit the vanpool loan funds to be used for increased Tri-Met staff and informational materials; this request was granted, thereby enabling Tri-Met to offer increased support services to businesses with an interest in sponsoring vanpool programs.

THE PRESENT

Current Ridesharing Research

An estimated 625 000 people commute daily within the Portland metropolitan area. Tri-Met's research regarding the commuter market in Portland and environs has yielded the following general findings:

1. Who carpools? Just about 8 percent of commuters to work or school ride in carpools of three or more persons; another 9 percent ride in groups of two. In addition, 56 percent are male; 44 percent have annual incomes of more than \$20 000; 50 percent live in two-commuter households; and 43 percent joined their carpools within the last year.
2. What are their travel characteristics? Most commute to work; only 7 percent commute to school. Peak-hour commuters comprise 78 percent of the total group.
3. How do they differ from noncarpoolers? Carpoolers are less likely than noncarpoolers to have changed their places of residence within the past year. In addition, they are more likely than their nonpooling counterparts to have had a recent change in automobile availability. With regard to attitudes toward carpooling, carpoolers feel more positive than noncarpoolers about traveling on a fixed time schedule, relying on others to be on time and to drive, and having others depend on them to be on time.
4. How do commuters find out about carpooling? Most carpoolers learn about carpools from their coworkers. Coworkers are also cited as the major influence on carpoolers in their decisions to join a carpool.
5. What were carpoolers' prior modes of transportation? Some 78 percent of most current carpoolers drove alone, and 11 percent rode the bus.

Mass Media Advertising

Public Education

Overall, the current emphasis of Tri-Met's rideshare project has not changed dramatically: It is primarily focused on raising the level of public awareness and education regarding the benefits of ridesharing. The finding that 43 percent of carpoolers joined carpools within the last six months is strong evidence that substantial effort must be devoted to maintaining the existing carpool market. The high rate of carpooler attrition is partially due to changes in the personal circumstances of the individuals involved--i.e., changes of residence, job, or automobile availability. Clearly, Tri-Met has no influence over those exogenous variables. However, this finding also may suggest that not enough attention has been paid to existing carpoolers; perhaps they need to receive more positive reinforcement for their behavior, more support services, or prompt assistance in forming new carpools when they express dissatisfaction with their current arrangements. Finally, the high carpooler attrition rate reinforces the need to continually attract new carpoolers into the system.

To reach the general public, the mass media are still the most-effective vehicle. As in the early years, Tri-Met produces PSAs that are aired by the

electronic media. Local billboard companies donate space for ridesharing posters designed and produced by Tri-Met. Some attempt is made to target specific markets, e.g., by purchasing radio "drive time" to reach peak-hour automobile commuters. However, Tri-Met has thus far been reluctant to invest a great deal of money in the purchase of mass media time because the impact of general advertising on commuters' propensity to join carpools remains an open question.

Market Segmentation

It seems clear that the ready market of would-be ridesharers has been "creamed off"; the task confronting Tri-Met is to seek out new market segments that can be educated and motivated to rideshare. Tri-Met's promotion of an owner-operated vanpool program provides a ready example of this strategy. Tri-Met sent direct mailings to 18 000 van owners and simultaneously broadcast radio spots during morning drive time, urging van owners interested in assistance in paying for their vans to contact Tri-Met for a guide to owner-operated vanpools. Tri-Met received 700 requests for the guide, half of which were the result of the radio spots. Of these 700 people, about 25-30 van owners formed owner-operated vanpools. Was the strategy successful? Lacking some basis for comparison, either with earlier efforts or other programs, such an assessment is difficult. Nevertheless, because mass media advertising is expensive and its effects are difficult to gauge, Tri-Met has thus far not chosen to invest a significant proportion of the total ridesharing promotional effort in the mass media. This proportion is approximately 20 percent.

Employer Contact

As noted earlier, Tri-Met's rideshare project offers technical assistance to employers in the region to develop customized in-house ridesharing programs. Unlike some employer contact programs in other regions that seek to incorporate the pools of employees into their centralized rideshare-matching services, Tri-Met's program staff serves as consultants. With the help of these consultants, employers set up their own matching services and, in doing so, are able to take the credit; such in-house programs often generate favorable publicity both with employees and with the general public. Tri-Met's own matching service is, of course, available as a back-up option.

The emphasis on local employers has several strong marketing advantages. First, it is known that commuters who carpool prefer riding with coworkers--even coworkers whom they do not know--to riding with total strangers. Second, promotion of ridesharing to employers is cost-effective. Through employers, Tri-Met obtains direct access to a virtually captive market of potential ridesharers. Third, the assistance to employers is appropriate in view of Tri-Met's tax base--the payroll tax. Employers tend to view Tri-Met's free service as a return on their investment; their receptivity may therefore be increased. And, finally, the impact of the employer contact program--unlike that of mass media advertising--is measurable. The number of employers operating in-house programs and the number of ridesharers within each program can be readily quantified. Currently, Tri-Met is training 200 in-house transportation coordinators to run employee-ridesharing programs. Of Tri-Met's total ridesharing effort, approximately 35 percent is devoted to the employer contact program.

Incentives and Services

In recent years, Tri-Met has devoted increased attention to the influence that incentives and services have on commuters' decisions to rideshare. Current programs in this area target specific market segments. Some examples are cited below.

1. Under the downtown parking program, carpools of three or more people can purchase monthly permits for \$15.00 that entitle them to unlimited parking at any 6-h parking meter in downtown Portland. This program has generated more than \$50 000 in revenues for the City of Portland and is currently at capacity.

2. Tri-Met is currently working with a private downtown parking lot operator to develop an incentive pricing policy for carpools: The operator will charge carpools \$35.00/month, \$12.00 less than the regular monthly parking charge. In addition, the operator will rent parking spaces to carpools only during the first two weeks of every month; during the remainder of the month, parking spaces will be available at both the regular and discount rates.

3. Tri-Met's park-and-ride program maintains 63 park-and-ride lots. Of the users of these lots, 11 percent are carpools; the rest are bus riders and users of express buspools.

4. While Tri-Met's matching service continues to be offered, Tri-Met is developing other materials designed to assist prospective ridesharers for whom the matching service was unable to locate riders or drivers. A self-help kit containing window signs and information about carpools and vanpools is planned. Tri-Met's studies indicate that half of the commuting population already knows two other people with whom they could ride to work; more research is needed on ways to motivate this group to rideshare. Incentives and services comprise approximately 35 percent of Tri-Met's total ridesharing effort.

Special Projects and Grants

Tri-Met's projects that test new ridesharing concepts are funded primarily by special grants. Without such monies, the rideshare project would not have the financial capability to test experimental, higher-risk approaches to rideshare marketing. Some examples of these special projects are as follows:

1. The North I-5 rideshare program was developed in response to serve peak-hour traffic congestion on the I-5 corridor between Portland and Vancouver, Washington. An aggressive marketing campaign consisting of carpool highway signs; carpool ramp-metering handouts; a toll-free carpool line; rideshare brochure inserts mailed with automobile registration renewals, driver's license renewals, and vehicle automobile emission inspection information; and other components is being conducted along this corridor. The total budget for the project is \$188 000.

2. The special needs transportation rideshare program, scheduled to begin in mid-1981, will test the applicability of rideshare-marketing techniques--such as carpooling and vanpooling--to elderly and disabled markets within the local community. The total budget for this project is \$95 000.

3. Promotion of the owner-operated vanpool program, discussed earlier in this paper, was also a special project. Approximately \$20 000 in federal funds was used to design, produce, and mail out special promotional kits containing a letter, vanpool brochure, and stamped reply card (with pencil

attached) to 18 000 van owners. The rideshare project has continued to market to this group, by using regular project funds. Special projects and grants are accorded approximately 10 percent of the rideshare project's resources.

FUTURE DIRECTIONS

Further Testing of Assumptions

From Tri-Met's experience with ridesharing to date, a number of issues have emerged that demand closer scrutiny. Specifically, some of the early assumptions regarding the ridesharing population have been called into question. For example, one commonly held assumption is that commuters carpool to avoid traffic congestion, parking problems, and other inconveniences associated with the commute to work or school. Yet recent research indicates that most carpools (70 percent) go to destinations outside of the central business district (CBD). Further research is needed on the incentives that motivate commuters who do not face parking and congestion problems to switch from solo driving to ridesharing.

Another assumption that merits further testing concerns the relationship of ridesharing to transit. Some transit systems are concerned that ridesharing programs will erode their markets. However, Tri-Met's research indicates that only one in five carpools is an ex-transit rider. Moreover, 70 percent of Tri-Met's transit trips serves the CBD, implying that transit service may not be available to many of the carpools traveling away from the CBD.

Finally, the issue of the length of carpool trips needs more research. While it has been assumed that the longer commute trips are most amenable to ridesharing arrangements, Tri-Met's research indicates that the average carpool trip in the region is only 6.9 miles long.

Refinement of Marketing Techniques

As research continues to produce valuable information regarding the rideshare market, Tri-Met will attempt further segmentation of the market; rideshare promotional activities can then be targeted more precisely to these segments. Some of these areas are briefly described here.

Employer marketing is generally accepted as one of the most cost-effective rideshare-marketing strategies. Tri-Met's rideshare project has found this to be the case but is now looking at a somewhat different employer market in the future. As in the case of the would-be rideshare market, the employer rideshare program market is also approaching a point where the prime potentials for success have been creamed off. A prime potential employer would most likely be a large employer (more than 300 employees), have parking problems, have expansion plans with land or financial limitations, or be relocating. With the majority of these employers identified and at some stage of contact and program development, they are no longer new customers and are more appropriately dealt with from a customer service perspective, i.e., established communication links, program expansion as appropriate, resupply and/or updating of materials and programs, and periodic recontact for follow-up and motivational support.

Future employer rideshare marketing strategies will most likely be directed to the smaller employer (less than 300 employees). We can expect to be meeting with more employers who might have the big-employer problems but the overall size limitations to keep them from being completely independent in

their solutions. The rideshare project's role will become more involved in organizing and coordinating several neighborhood businesses.

Another important segment of the future employer market is the employer who does not have many, or any, of the prequalifying problems or conditions that would make them amenable to a rideshare project's contact or sales interest. This market will involve much more systematic selling and advertising.

In general, future employer program work in all areas will continue to emphasize specific goal setting early in the program development phase. By using various survey techniques, an employer, aided by rideshare project staff, can quickly get involved in determining the levels of participation and potential in their business and in many cases improve their commitment to a rideshare program.

The Tri-Met rideshare project's marketing program to existing ridesharers focuses on new ridesharers and has been similar to many other projects around the country. Recent research has helped bring into focus just how important customer service or maintenance efforts are. In the Portland area, of the 52 000 people commuting in groups of three or more today, 43 percent will no longer be riding together in 12 months. This will occur because of job changes, residence changes, schedule changes, and compatibility problems between ridesharers. Services can be directed at these people and conditions that will facilitate a prompt reformation of these existing ridehare groups. It is only after this is accomplished that a rideshare project can aggressively attempt to increase ridesharing's overall market share.

An incentive-discount package sponsored by several retail merchants is being developed that would be updated quarterly but offered to existing ridesharers on a year-round basis as an incentive to register with the Tri-Met project. Establishing and maintaining contact with as many existing ridesharers as possible would enable the Tri-Met project (a) to learn much more about the day-to-day dynamics of people riding together; (b) to become a more-effective representative of this group as a consumer group deserving benefits and discounts on such things as insurance, gasoline, automobiles, etc.; (c) to greatly enhance its matching service as a result of the expanded data base; (d) to market vanpooling and buspooling effectively to this group as an even more-efficient means of transportation; (e) to use the overall visibility resulting from the organization of this group to both attract new ridesharers as well as to maintain current ridesharers; and (f) to enhance the compatibility between transit and ridesharing as a result of increased control of ridesharing in low transit productivity areas or marketing in areas where transit could expand.

Advertising is only as good as the message it carries. The messenger should not be shot for delivering an unsatisfactory message. General messages can attain high awareness but produce little action dollar for dollar. Action that is more quantifiable than awareness has resulted in rideshare advertising carried primarily as a public service with little paid advertising. Knowing our markets better through experience and research will allow us to produce incentives and services, then ultimately (paid) advertising messages that communicate to the target audience through the best means in the locations and at times where potential is greatest.

Ridesharing as Public Policy

Thus far, ridesharing efforts have been adapted, or retrofitted, to existing arrangements. The expansion of the role of ridesharing so that it becomes a

planning tool may not be far away. In Oregon, for example, the Department of Environmental Quality requires that conditional use permits be obtained for construction of buildings and facilities exceeding certain environmental standards; these conditional use permits require that a portion of the parking space constructed be devoted to carpools. Although limited to date, these public policy approaches to providing services and facilities that promote ride-sharing should be continued and expanded whenever and wherever possible. In addition, there is a bill (House Bill 2257) before the Oregon Legislature that would enable the taxpayer to deduct payments received for nonprofit ridesharing services as well as ridesharing subsidies received from an employer from federal taxable income. At the national level, the U.S. Senate Finance Committee is considering passage of the Commuter Transportation Energy Efficiency Act, which would furnish a variety of tax credits and incentives to individuals and businesses involved in vanpool or carpool activities. Some features of this act are as follows:

1. A van purchased by an individual and used for ridesharing at least 50 percent of the time would be eligible for a 15 percent tax credit.

2. Businesses and organizations operating vanpool and/or carpool programs would receive tax credits for the costs of purchasing or leasing vans,

assigning personnel to manage the programs, computerizing the matching of employees, providing liability insurance for ridesharing vehicles, and other services.

3. A rideshare vehicle operating at least 176 days/year and carrying an average of three persons would receive a gasoline tax deduction.

Role of the Private Sector

As the social and economic climate of the nation creates pressure to reduce the role of government in setting, enforcing, and funding local policies and programs, the private sector will assume increasing importance as a target of rideshare-marketing efforts. Strategies to promote the message that energy conservation is profitable to the private sector must be developed and refined. The success of the rideshare-marketing efforts undertaken by programs around the country may well depend ultimately on the extent to which private businesses, public institutions, and individuals can be motivated to participate in ridesharing arrangements. If sufficient momentum can be generated, ridesharing systems will multiply without large public bureaucracies to organize and fund them. For the foreseeable future, however, Tri-Met will continue to send the basic message to businesses and individuals: Ridesharing pays.

Management and Organizational Issues of Ridesharing Programs

Richard H. Bradley and Ellen M. McCarthy

The central position of this paper is that ridesharing is essentially a set of management-organizational strategies aimed at altering individual mobility patterns to achieve increases in productivity in our transportation system. Although ridesharing does encompass technology and facilities, the fundamental challenge of ridesharing is to develop a management-organizational approach that combines the various ridesharing tasks in the most-effective way. These management-organizational elements are important aspects of ridesharing and have not received sufficient attention.

Such a set of strategies, whose application is becoming increasingly important to a variety of other transportation planning and operating agencies, establishes a process through which the use of vehicles and individual trip patterns can be coordinated and organized so as to encourage efficient use of both capital and energy resources. This approach is in turn coordinated with other transportation sector functions, such as parking policy and management programs, roadway management and construction, and public transportation. These can then be coordinated with community, land use, and economic development strategies to improve access to opportunities for all citizens of a region in the most cost-effective manner.

Given this central emphasis on management and organizational strategies, it seems critically important that organizational alternatives, which include the way in which the functions and services are provided and structured, should be presented

clearly and researched carefully. It is ironic, however, in spite of the importance of organizational strategies, that inordinate attention is often focused on the technical issues--the kind of matching services, the design of the van, or the kind of vehicle insurance--in establishing a ridesharing program and training people to run and manage such a project. Perhaps this focus is the result of the dominant impact that technical competence has had in other areas of transportation and "baby brother" (i.e., ridesharing) is seeking equal acceptance by the rest of the family. This is doubly ironic because the evolution of ridesharing programs has evidenced a great deal of experimentation and thus a wide variety of approaches, many of which are quite creative and innovative, with no shortage of the technical brilliance that has characterized other transportation fields. What is now required is a systematic review of these approaches to determine the most promising among them and to identify gaps where additional improvement is necessary.

It is the intent of this paper to review this evolution and to frame these organizational issues, which include such traditional functions as marketing, provision of matching services, providing vans and/or third-party pool operation, information brokering, as well as newer functions such as training of company ridesharing coordinators, dissemination of information about energy and air-quality transportation programs, advocacy for changing corporate or public policy, provision of transportation