

Car-Pool Information Project: Innovative Approaches Improve Results

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On January 15, 1974, the U.S. Department of Transportation requested state highway (transportation) departments to cooperate in attempting to reduce transportation-related energy requirements. Car pooling and other energy conservation programs were to be developed by making optimum use of existing Federal Highway Administration (FHWA) and Urban Mass Transportation Administration programs and the powers of the 1974 Emergency Highway Energy Conservation Act.

By July 1974, 59 percent of the urbanized areas in the country had plans completed or in preparation. Car-pool information systems were the nucleus of this effort, having been initiated in 37 states in which over 3 000 000 car-pool matching questionnaires had been distributed (1). Car-pool information activity has increased in many localities through 1975, and car pooling has been considered to be a major program with which to reduce energy consumption (2).

While the potential for car-pool benefits is impressive, the realization of these benefits has proved to be extremely difficult. In Los Angeles, where the largest car-pooling program in the country was undertaken, only 12 000 commuters out of a target population of 4 000 000 drivers (3) initially requested car-pool information. Of 20 programs evaluated in September 1974, 15 percent were rated very effective, 20 percent moderately effective, and 65 percent not very effective (1, 4). Moreover, these effectiveness ratings were based on respondents and computer matches, not on the actual formation of car pools. At a car-pooling seminar held in December 1974, it was reported (5) that, "Employer involvement to date has been considered insufficient. This is believed to be a primary problem area."

More formal evaluations of car-pool information systems are now becoming available. In Boston, a radio-sponsored areawide car-pool information system has been reported as only marginally successful (6). In Sacramento, on the other hand, 1573 persons have become

car poolers as a result of the car-pool information effort (7). In Portland, where the formation of 22 000 car pools during the first year of car-pool information activity (which began at the time of the January 1974 gas shortage) was projected, only 611 car poolers were directly matched by the in-house computer (8). The purpose of this paper is to add an objective description and evaluation of the Wilkes-Barre car-pool information system to this growing body of knowledge.

In the Wilkes-Barre urbanized area (population 220 000), the Luzerne County Transportation Authority (LCTA), in coordination with the Lackawanna-Luzerne County Transportation Study and the Luzerne County Planning Commission, responded to the energy conservation request by preparing a Transportation Action Plan for Energy Conservation in Wyoming Valley. The plan contained three elements: a transit and car-pool information project, a park-and-ride project, and a long-range energy conservation plan.

By being the lead agency, LCTA, a transit operating agency, demonstrated the intermodal nature of energy conservation. Information obtained from the car-pooling questionnaire could also be used for wider purposes than computerized matching. Bus pools or club bus arrangements could be considered, and more importantly, where a commuter could make his trip by transit, appropriate schedule information could be sent to inform him of this energy-saving transportation alternative.

THREE POTENTIAL CAR-POOL MARKETS

Three approaches were used to compile the data base from which car-pool lists could be formulated. Each approach was aimed at a different target population, and their results were markedly different.

Areawide Approach

The areawide approach involved extensive radio, television, and newspaper marketing efforts to achieve three goals. First, the general public was made aware of the project and provided information as to how to become a part of the effort. Second, employment concentrations

where there was no single major employer were made aware of the project. Third, the areawide information reinforced the idea of car pooling for employees who had already received forms at work.

Major Employers Program

Early in the project it was decided that initial efforts would be directed toward major employers—companies with over 200 employees. Of the approximately 80 000 people employed in the Wilkes-Barre area, 40 percent are employed in manufacturing. Forty-three major manufacturing employers having a total of 16 890 employees and 2 nonmanufacturing employers having a total of 850 employees were identified. Of these 45 employers, 23 agreed to participate in the project.

LCTA visited each employer to outline the purpose of the project and explain the car-pooling form. A large grid map of the city of Wilkes-Barre and its vicinity was left with the employers for posting in a prominent place to enable employees living in densely settled areas to easily locate their home grids.

Employers were encouraged to partially complete the forms for their employees before distribution, but only 1 company chose this method of distribution. A second method, which was discouraged, was that of posting an announcement informing employees that a car-pool program was being conducted and that forms were available on request. Only 1 employer exercised this passive approach. The remaining 43 employers chose a third method that consisted of distributing forms to all employees with a memorandum explaining the project and endorsing energy conservation. Within this method, management commitments varied considerably.

Labor Union Participation

Labor union participation was the third alternative used to attract commuters to the car-pooling program. Initially, one union was asked to aid in the car-pooling effort by providing names and other necessary information on their members. This information was coded and added directly to the project data base.

Unlike the major employer and areawide approaches where, in most cases, the individual was required to prepare a form, the union approach required no employee effort to enter the data bank. In this service, called automatic enrollment by LCTA, the union representative and the LCTA accumulated and coded the data. (The union leadership viewed the car-pool program as a service to the membership.)

EVALUATION

The computerized transit and car-pool information program was carried out, for the most part, during the latter half of 1974. In the evaluation of this program, an attempt was made to measure the incremental impact of the program to create transit use of car pooling beyond that which was already being practiced.

Table 1. Summary of bus-pool and car-pool information effort.

Approach	Number of Employees	Car-Pool Forms		Employees Matched	
		Out	In	For Car Pool	For Bus Service
Major employers	16 215	9 435	990	699	626
Labor union	1 525	990	990	954	610
Areawide	24	24	24	2	7
Total	17 764	10 449	2004	1655	1233

Evaluation Baseline

LCTA discovered in talking with major employers and in reviewing the present mode of travel answers on car-pool form returns that car pooling was already wide-spread in the Wyoming Valley. In most cases, the arrangements had been made informally between employees without employer assistance although, in some cases, employers had posted car-pool information boards or provided travel assistance through the personnel office. RCA had even operated its own computerized matching program during the gasoline shortage.

To quantify this baseline car pooling, LCTA took automobile counts at selected outlying employment sites for which walking or good bus access were not available. The ratio of actual day-shift employees to the number of automobiles parked in the lots ranged from a low of 1.35 to a high of 1.76, with a mean greater than 1.5 employees/car.

Two observations can be made from the automobile count data. First, there appears to be some correlation between automobile occupancy and employer car-pooling effort. Second, the Wilkes-Barre area appears to have a higher automobile occupancy rate for work trips than the national average. Whereas nationally about 140 employees are transported to work per 100 automobiles, in Wilkes-Barre this number probably exceeds 150 employees.

Transit and Car-Pool Information Project Participation

Altogether, 17 740 employees were exposed to the project directly, either through their employer or their union. Indirectly, the entire Wyoming Valley labor force of about 80 000 had the chance to participate through the advertised telephone information system. Over 10 000 car-pool forms were distributed to major employers. Of these, 990 were completed and returned. At 22 of the 45 major employers, at which 3580 forms were distributed, there were no returns at all. The results from the areawide advertising campaign were even more disappointing—only 24 telephone calls were received. Labor union automatic enrollment accounted for another 990 forms received, bringing the data bank total to about 2.5 percent of the urban area work force. Of the total 2004 program participants, 1234 received LCTA bus time-tables and a letter explaining how the bus system could be used to make the work trip. These data are summarized in Table 1.

Of the forms that were returned, over 80 percent were matched into car pools by the FHWA computer program operated by the Pennsylvania Department of Transportation (PennDOT). The computerized car-pooling information system worked well technically. After a quick preprocessing by LCTA, the forms were sent in batches to PennDOT who returned the computerized car-pool matching lists within 2 weeks. LCTA then reviewed these lists for reasonableness prior to mailing, but there were very few cases of bad data.

Thus, LCTA (with a total of 2004 forms entered into the car-pool data bank, 1655 car-pool matches, and 1234 bus system matches) completed one of the most comprehensive transit and car-pool information programs in the United States relative to the size of the work force. From this standpoint, the effort could be judged a success. However, the more relevant issue for energy conservation is information use. In order to measure this, LCTA conducted a follow-up telephone survey of selected project participants.

Follow-Up Telephone Survey Results

In early 1975, LCTA surveyed 87 randomly selected employees out of the 1655 who had been matched in car-pools (a 5 percent sample). Of this sample, 36 had originally received car-pool information through the major employer approach, 51 through their labor union, and none through the areawide approach. Some of the questions asked and the responses are shown below.

Question	Yes Responses	
	Num-ber	Per-cent
Have you received the computerized car-pool information sheet?	81	93.1
Have you received bus timetables from LCTA?	59	67.8
Have you had occasion to use either the car-pool or bus information?		
Major employer approach	8	22.2
Labor union approach	9	17.6
Total	17	19.5

Thus, of the survey respondents, 93 percent had received the computerized car-pool information sheet and about two-thirds had received LCTA bus timetables, which was roughly in proportion to the number mailed. Only 19.5 percent of the survey respondents reported using either the car-pool or bus information, however. Applying this factor to the total number of employees who received either car-pool matching sheets, bus timetables, or both, about 350 people are projected to have used the information. Of these, over 200 (58.8 percent) used LCTA timetables to ride the bus. Only about 20 car-pools (5.9 percent of the respondents) are estimated to have been formed as a result of the effort. The remaining persons (23.5 percent) used the information to find occasional rides or for other purposes (11.8 percent).

Of the almost 80 percent who did not use the information, over 30 percent already had a ride or shared driving responsibility in a car pool. Just over 40 percent said they continued to drive after receipt of the transit and car-pool information. Almost 6 percent of those who did not use the information had lost their jobs, due to increased unemployment in Wilkes-Barre.

Although only one person in five used the information provided in late 1974, one person in three thought that such information could be useful in the future. Almost one-half of the automatically enrolled labor union participants thought the program was not useful, whereas only one-third of the self-enrolled major employer participants considered it not useful. However, automatic enrollment proved superior to the voluntary efforts with a ratio of 1 person using the information to 6 forms distributed for automatic enrollment, compared with 1 use to 45 forms distributed for voluntary fill-out. This suggests that there are many people who will not take the trouble to fill out a car-pool information form, but will use transit and car-pool information if it is provided. Even those who reported that the information was not useful did not object to being automatically enrolled.

RECOMMENDATIONS

In 1974, the car-pooling efforts in the Wyoming Valley resulted in the creation of a smoothly operating car-pool information system. Although relatively small numbers of people were attracted to car pooling during this period of a plentiful gasoline supply at 13 cents/L (50 cents/gal), the car-pooling information program capability is being maintained (inactively) in the event

of future gasoline scarcity.

In future applications, the car-pool information process would be run essentially as developed in 1974, with the following steps:

1. Identify employers, labor unions, and other groups willing to participate in an automatic enrollment car-pool information program;
2. Assist automatic enrollment groups to fill out car-pool information forms;
3. Prescreen travel desires for potential transit use and mail bus timetables;
4. Computer-process batches of car-pool information forms; and
5. Transmit car-pooling information to program participants.

The relatively low level of new car-pool formation in Wilkes-Barre in 1974 can be attributed to the following factors:

1. There were no incentives to car poolers, or disincentives for single-occupant cars, applied in conjunction with the project;
2. For the duration of the car-pool information system, gasoline was plentiful in the area at a 13 cents/L (50 cents/gal) price;
3. At the beginning of the project, the area already had a relatively high level of car pooling and transit use; and
4. During the project, the unemployment rate in the area hindered new car-pool formation.

If the results of the Wilkes-Barre car-pooling experience are to be applied to other areas, the above four factors must be considered. The techniques of automatic enrollment and transit preprocessing improved program results and could be applied in other urban areas.

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