

larly conscious of the reduced costs of commuting and reduced energy consumption. Also significant, but more difficult to quantify, is the perceived relief from the tensions of driving each day. Another important factor noted was the ability to make the vehicle formerly used for commuting available for other family members during the day. Note that 70 percent of the vanpoolers own two or more cars, thus they are riders by choice. Only 1 percent of the riders were without an automobile.

<u>Perceived Benefit</u>	<u>Frequency of Response from 1977 Survey (%)</u>
Conserve gasoline	57
Less-expensive means of travel	30
Safer in case of accident	3
Less damaging to the environment	1
Freedom from tension of driving	7
More comfortable	1
Develop new friends	1

Another benefit of the rideshare effort is the employment opportunities provided to minority employees. This is illustrated in the table below, which gives participation in employee transportation by race in July 1978. More than half of the Hartsville minority employees participate in the TVA employee transportation program, and 97 percent use some form of ridesharing.

<u>Mode of Travel</u>	<u>Minority Employees (%)</u>	<u>White Employees (%)</u>
TVA bus or vanpool	53	36
Private van	9	5
Carpool	35	42
Drive alone	3	17
Percentage of total ridesharing	97	83

Ridesharing at Hartsville has proved to be more economical than building additional highway capacity and constructing and maintaining 1000 additional on-site parking spaces. In addition, valuable space not needed for parking is used for laydown areas (e.g., storage of pipes) needed during construction. The cost savings of deleting temporary gravel

parking lots is at least \$500 000.

Besides the obvious benefit of reducing traffic congestion on TN-25, a system of ridesharing has also encouraged workers to commute from outside the impact area. This has reduced the overall impact of the project on nearby school systems and local government services. The ratio of commuters to movers is greater than anticipated. Therefore, the cost to the community and to TVA to mitigate the effects of the project on education (i.e., payments to school systems) and other public services has been kept to a minimum.

As a result of the employee transportation program, the Hartsville project can draw its work force from a wide geographic area. TVA's ability to attract large numbers of skilled construction workers has been substantially increased. As a corollary to this, the project should be better able to meet construction schedules.

CONCLUSION

An employer-based transportation program can be shown to benefit the employees and the employer, as well as the community. Rather than the construction project having an adverse impact on a local area through the influx of a large temporary work force, an entire region absorbs the work force. At the TVA Hartsville site, 40 percent of the work force resides outside the immediate five-county area. Transportation is the linkage to relieve pressure on local housing, schools, highway system, and public services.

Employer-based vanpool and buspool programs cannot totally eliminate the impact of heavy traffic loads and inconvenience to the local community, but ridesharing is an alternative to building additional highway capacity and public services that cannot be fully used after construction. Ridesharing will not eliminate all costs but will be more cost effective than wasteful construction of unneeded facilities.

The TVA experiment at Hartsville has been so effective that a similar program has been developed at Yellow Creek, Mississippi. It now has 13 buses and 27 vans that carry more than 29 percent of the day shift. Overall, TVA has developed a transportation system that involves 625 vans and 93 buses at 25 different TVA installations.

Abridgment

Role of the Transportation Broker at Children's Hospital of San Francisco: A Case Study

CLIFF CHAMBERS

Children's Hospital of San Francisco has implemented various ridesharing programs to provide employees with alternatives to the single-occupant vehicle, reduce neighborhood parking congestion, and thereby garner neighborhood support for a major remodeling project. Wilbur Smith and Associates prepared a transportation plan in May 1978. Recommended program elements included ridesharing, transit information, transit improvements, parking management strategies, and the hiring of a transportation broker for implementation purposes. Rotating shifts, a large proportion of part-time employees, a 30 percent annual turnover rate, and shift changes required nontraditional approaches to ridesharing efforts. A carpool and vanpool program offers personalized matching service, the incentive of free parking, and active cooperation with neighbor-

ing institutions. Among the 1400 employees, 56 active carpool groups and 5 joint institutional vanpools have been organized. Faced with poor cross-town transit service and poor Bay Area Rapid Transit connections to the south, Children's and two neighboring hospitals are cosponsoring an employee shuttle service. Wilbur Smith and Associates conducted a two-year program evaluation in April 1980. The number of drive-alone employees was reduced from 752 to 574. Key factors included the increase of the ridesharing modal split from 15 to 23 percent and transit from 16 to 20 percent. Three strong influences have aided alternatives programs for commuters. A neighborhood preferential parking program, begun in August 1979, has restricted employee parking in a 24-block area that surrounds the hospital. The two Bay Area ridesharing

agencies have provided tremendous support. Finally, the Joint Institutional Transportation Brokers Association has provided a valuable forum for exchanging ideas, advancing public transit improvements, and cooperating on joint marketing efforts.

Children's Hospital of San Francisco is an acute-care facility located in the northwest quadrant of San Francisco. Across the street is Marshal Hale Hospital, which has one-third the number of Children's 1400 employees. Both hospitals are situated in lovely residential areas; three distinct neighborhood entities and two commercial shopping districts are located within the hospitals' sphere of influence. Active neighborhood associations exist to preserve the integrity of their middle-to-upper-income neighborhoods. Both hospitals are major traffic and parking generators and create problems of on-street parking availability and through traffic in adjoining neighborhoods.

Children's Hospital has been especially concerned about hospital-neighborhood relations. By late 1977, Children's had received its certificate of exemption from the state for a multimillion dollar modernization project. In order to receive city planning commission approval for the project, it had to enlist the support of neighborhood organizations. Neighborhood persons had a platform, and the planning commission and the board of supervisors were ready to listen.

In order to create a constructive relationship with the neighborhood, Children's initiated a hospital-neighborhood steering committee. After one meeting, neighborhood concerns surfaced and were quickly summarized--parking and traffic congestion.

These hospital-neighborhood concerns about parking and traffic are not unique to Children's Hospital. Construction plans at two other major institutions in San Francisco during the mid-1970s prompted the city to approve an institutional master plan ordinance in June 1975. The ordinance established master plan requirements for universities, hospitals, and sanatoriums. Enforcement was ensured by relating such plans to planning commission action on conditional use applications and building permit applications.

The ordinance required institutions to develop a transit action plan as part of the overall institutional master plan. The city Planning Department invited 14 major hospitals, universities, and Fireman's Fund Insurance Company to a meeting to discuss the potential benefits of the institutions working together to solve some common transportation problems. Faced with escalating gasoline prices, a new preferential parking ordinance, and the institutional master plan ordinance, administrators at the institutions agreed to the logic of cooperative action. The joint institutional transportation system management group thus became the parent organization for ridesharing programs at Children's Hospital and Marshal Hale, as well as for other nondowntown institutions in San Francisco.

Taking the cue from a successful University of California at San Francisco program, and seeing the legitimate neighborhood concerns, Children's Hospital retained the services of Wilbur Smith and Associates in December 1977 to develop a transportation system management (TSM) plan.

DEVELOPING A TSM PLAN

The scope of work for the Wilbur Smith study (1) included determination of trip characteristics, documentation of parking and traffic impact generated by the hospital, analysis of candidate mitigation measures, and development of a transportation plan.

The results of an employee survey indicated that a daily work force of 1001 is divided into three shifts: 77 percent day shift, 17 percent evening shift, and 6 percent night shift. Of these, 57 percent were full-time, permanent; 32 percent were part-time; and 11 percent were others. The modal split showed that 59 percent drove alone, 15 percent shared a ride, 16 percent used public transit, and 10 percent walked or bicycled. Two-thirds of all workers lived in San Francisco; 12, 12, and 8 percent lived in the North Bay, Peninsula, and East Bay, respectively. A parking survey revealed a peak on-street parking demand of 390 employee vehicles, 25 percent of the study parking spaces.

The study results generated 31 recommendations that fell into three categories: ridesharing programs, parking management, and public transit improvements. The recommendation to hire a transportation broker was Children's Hospital's first step toward transforming paper recommendations into reality. An agreement was worked out with Marshal Hale Memorial Hospital for them to pay 25 percent of the broker's salary.

RIDESHARING PROGRAMS

Initial ridesharing efforts involved a fairly traditional approach and work with two Bay Area ridesharing agencies: Rides for Bay Area Commuters, Inc., (RIDES) and the Golden Gate Bridge, Highway, and Transportation District's Ridesharing Division. The campaign was launched with a letter sent to all employees from the chief executive officer that extolled the virtues of ridesharing and offered the incentive of free parking for carpool groups or vanpools of three or more. Campaign posters abounded. A large vanpooling display was set up in the cafeteria. A demonstration vanpool from RIDES came out to the hospital to enable employees to experience vanpooling comforts in a relaxed atmosphere. Articles were placed in the hospital newsletter for three consecutive weeks. The initial result was 53 applications from Children's Hospital and 27 from Marshal Hale. Tremendous enthusiasm and interest was generated, but not one vanpool resulted from the initial campaign.

After two months of effort, I began to realize that the hospital work environment had a number of organizational constraints to a successful ridesharing program: rotating shifts, staggered work hours, shift switches, and a large number of part-time employees.

In order to provide employees with feasible transportation alternatives to the single-occupant-vehicle trip, the ridesharing program had to be adapted to accommodate the nature of hospital scheduling. To date, Children's Hospital has 56 active carpool groups registered and five joint institutional vanpools. A recent survey (2) revealed that 296, or 23 percent, of all employees now share a ride to work. The ridesharing program was perhaps the biggest factor in reducing the number of drive-alone Children's Hospital employees from 752 to 574.

An analysis of why the two-year ridesharing modal split goal of 21 percent was exceeded shows eight key factors:

1. Employees were obviously concerned about the on-street preferential parking program. These 2-h restrictions (except vehicles that have residential permits) would affect 510 employees from both Children's and Marshal Hale who were parking on-street all day long. The spring of 1979 also had a large impact on employee commuting habits. Long gasoline lines and escalating gasoline prices sensitized

employees to their daily commute. These two events were drive-alone disincentives that precipitated the urge to look for commuting alternatives.

2. Ridesharing incentives were offered. The incentive of free parking for carpool groups of three or more employees has proved to be the most-effective TSM measure to date. The ability to park close by with no parking hassles proved to be a strong motivating force in both forming and maintaining the carpool group.

3. The rideshare-matching system emphasizes core groups. Thirty-four of 56 existing carpool groups contain at least two members from the same department. If employees are going to make a successful transition from the single-occupant vehicle, they must feel comfortable with the situation. Most employees know of at least one employee who lives in their general area or along their corridor who works their same hours. Once these core groups are given the incentive to share a ride, it is easier to add one or two additional employees to the ridesharing group.

4. Flexipools are encouraged to enable nursing personnel who have rotating shifts to rideshare. A group of 15 employees have a designated park-and-ride location. Because of days off, illness, and vacation, an average of 8 of the 15 work any one day. Whoever shows up before the appointed departure carpools that day. The riders pay the drivers a flat rate. Two such groups exist.

5. Neighboring institutions are used in the matching process. This is accomplished in two ways. The ridesharing applications are forwarded to RIDES. Each employee receives a matchlist that contains names from Children's and neighboring institutions and businesses in our area. In approximately two weeks, I follow up on these ridesharing requests to see if the RIDES matchlist was helpful to the applicant.

Since Fireman's Fund Insurance Company, for example, is located only three blocks from Children's but does not forward ridesharing applications to RIDES, special searches are conducted on their in-house computer matching system to locate potential ridesharing matches. Direct referrals are also made to some of Fireman's Fund's vanpools and club buses.

6. New employees hear of commute alternatives during a 10-min slide show. Each ridesharing application received at orientation sessions is given special attention at a critical time before commuting habits are established.

7. Follow-up is very important. All ridesharing applicants are called approximately 2.5-3 weeks after their original date of application. If an acceptable ridesharing arrangement has not been accomplished, additional efforts are made.

8. Once a carpool group is formed, it is required to complete a carpool registration form. This procedure enables me to keep accurate records of where the carpool originated, how many are in the carpool, and the type of vehicles used. It also serves to verify the existence of the carpool group.

All members of the carpool group are required to attend a 15-min carpool orientation session before receiving their parking card. The purpose of the orientation is to go over carpool parking policies, issue the parking decals, explain the use of the parking card, and explain the monitoring system. It also gives new carpool groups some helpful suggestions in forming their carpool group, such as exchange of home phone numbers, discussion of insurance policy coverages, and promptness guidelines. Most important, it gives the carpool group members an opportunity to check each other out over coffee before they start carpooling.

PARKING MANAGEMENT

There has been a strong correlation between the success of Children's ridesharing efforts and parking management. As is the case with all San Francisco hospitals, demand for parking is greater than the supply. A number of user groups compete for this finite resource: patients, visitors, employees, department heads, attending physicians, interns, volunteers, and students. Combined with two medical office buildings, associated tenant physicians, and their patients, the competition for off-street parking is intense.

In terms of TSM, there are three major facets to a parking management program: prioritization, control, and pricing.

Establishment of a priority among garage users that gives carpools and vanpools of three or more top priority ensures that they will have off-street parking on demand. Top priority also means that they have the right to bump garage users of lower priority should lack of garage space occur. In addition to carpools, patients, visitors, board members, and administrators are in the top-priority category.

The second major initiative for establishing preferential carpool and vanpool parking was for an on-street carpool-permit-parking area. Maple Street separates Children's and Marshal Hale for a one-block duration. Preferential parking for vanpool and carpool vehicles would exempt these vehicles from on-street time restrictions.

The primary reason for advancing this proposal was that Marshal Hale only has a total of 62 off-street parking spaces and cannot provide off-street preferential parking for ridesharing groups. The provision of on-street space would give joint institutional carpool and vanpool groups the priority they deserve. The enabling ordinance to allow carpool permit parking has been approved by the board of supervisors and signed by the mayor. It is awaiting implementation.

The second major parking management element is control. The carpool policy requires carpools to have three or more occupants on entry into the parking structure. Exceptions to this rule are vacation or absence due to illness of one or more carpool members. Experience has shown that carpool groups of four or five experience difficulty in having three members come to work on any one day because of rotating shifts. Although scheduling difficulties are not an exemption from the rule of three, exemptions due to illness or vacation give the ridesharing groups a fighting chance.

In order to monitor this policy, a security guard checks the vehicle's occupancy on garage entry one random day per week for 2 h. If a group has less than three, he asks them which of the carpool members is ill or on vacation. The report comes back to the transportation office, rule-of-three exemptions verified, and appropriate action taken when violations occur. This process has resulted in the suspension of parking privileges for just three carpool groups.

The final control measure is at the time of carpool privilege issuance. All carpool groups are required to fill out a carpool registration form and sign a statement of agreement to adhere to the policies.

The third major parking element is pricing. At Children's, three pricing classifications exist for the off-street parking facilities:

1. Hourly, full daily rate for patients and visitors;
2. Prepaid monthly rate for day-shift employees,

medical office building employees, graduate students, and undergraduate students; and

3. Courtesy parking for evening and night-shift employees, carpools, vanpools, medical staff (physicians), administrative staff, volunteers, and board members.

The garage parking rates were recently raised to \$0.85/h with a \$4.00 maximum daily rate, \$30/month for two-employee occupants per vehicle, and \$35/month for one-employee occupant per vehicle. The pricing structure equates the free parking perks that administration has historically received with free carpool and vanpool parking.

TRANSIT INFORMATION AND IMPROVEMENTS

Compared with San Francisco as a whole in 1978, the modal split for transit of Children's Hospital was low; only 16 percent of all work trips were made on public transit. This compares with 23 percent for Pacific Medical Center and 19 percent for St. Mary's Hospital.

Because of San Francisco's radial transit system, no direct crosstown transit line is within easy walking distance of the hospital for the approximately 470 employees at Children's who live in the southern portion of San Francisco. For the majority of these employees, existing transit service involves either two transfers or a time-consuming journey downtown before transferring. This involves extensive backtracking and is unacceptable to most employees.

Wilbur Smith and Associates established a goal of 33 percent transit modal split for Children's Hospital in 3-5 years. To accomplish this goal, the most-important actions are route and service improvements for crosstown travel. To this end, the consultant recommended that Children's vigorously support the up-coming San Francisco Municipal Railway (MUNI) five-year plan, which would vastly improve crosstown transit travel. The second suggestion was to sell "fast passes", MUNI's monthly transit pass. The third area of action was to provide transit information at the three main hospital entrances. Finally, the recommendation was made to improve security at bus stops and to build bus stop shelters and benches.

The MUNI route improvements were projected to reduce on-street parking by 14 percent. The other transit support actions combined might reduce on-street parking by 1 percent. Obviously, efforts needed to be concentrated on providing route improvements.

Children's Hospital is fortunate that San Francisco has been developing a five-year plan since 1974. Most of MUNI's routes were inherited from previous private owners; the five-year plan tends to develop transit into a more equitable and cost-effective system. Phase 1A was implemented in August 1979.

The transportation broker can play an important advocacy role in promoting transit improvements. In working with MUNI services, there have been a number of levels where this input has been provided. These range from giving public testimony at a city public utilities commission meeting to working with MUNI planning staff to develop acceptable scheduling. Input has been provided on a number of opportunities. During critical hearings on the five-year plan, the support of a major institution can counterbalance the "I do not want that bus on my street" testimony. From time-to-time, MUNI staff have asked me, as the transportation broker, to attend public utility commission meetings to give support to a transit improvement item.

The major crosstown transit improvement to Children's and Marshal Hale is the proposed 33-Stanyan route. Because it is a trolley coach line that needs overhead wiring before implementation, MUNI service is not scheduled until sometime beyond 1982. Because the Wilbur Smith study identified a market for this service of at least 65 employees from Children's alone, ways were explored to capture this market on an interim basis.

A proposal was submitted and accepted by administrations at both Children's and Marshal Hale for an interim employee shuttle service. The shuttle provides an alternative to those 470 employees who live in the southern portion of San Francisco and Daly City.

By providing a crosstown link to Children's and Marshal Hale, substantial reductions in transit travel times and transfers are realized. The shuttle route connects with Bay Area Rapid Transit (BART), MUNI's new MUNI metro, and key MUNI transfer locations. The route also dissects zip codes that have high concentrations of employees and provides access to a park-and-ride location.

Service frequencies of an average of 20 min are accomplished with the use of two shuttle vehicles. The shuttle schedule is coordinated with the beginning and ending of shifts from 6:30 to 8:30 a.m. and 3:00 to 5:00 p.m.

Revenue analysis projected that an 81 percent subsidy would be required for shuttle operation. The subsidy monies would be generated through new parking revenues at both institutions. At Children's this would be accomplished through adjustments in parking garage rates. At Marshal Hale, a new coin-operated system was proposed for an uncontrolled 25-space surface lot.

A bid packet was prepared and sent to various charter operations and the San Francisco jitney operators association. The bids were reviewed and references checked. The charter operator selected has a mixed fleet of 14-passenger Dodge vans and 17-21-passenger minibuses, which would provide some flexibility in ridership fluctuations. The most time-consuming part of the shuttle service development was the preparation of the necessary contracts. I worked closely with lawyers from both institutions to negotiate an acceptable trilateral agreement among Children's, Marshal Hale, and the contractor. Liability and contract organization issues worked its way through a five-month review process.

The shuttle service has been in operation since February 1980. St. Mary's Hospital joined a few months later. Ridership has grown steadily to an average 94 passenger trip/day. The transit support measures have also been implemented. The selling of monthly fast passes at the hospital has proved to be a popular benefit for employees. It is also a nice neighborhood service. MUNI produced some very attractive schedule and route racks. Located at convenient locations, they are an excellent transit information center. The racks have also helped to market the services of public transit.

MARKETING

In order to achieve a successful transportation program at Children's Hospital, various strategies had to be devised to get the message across. Marketing has played a vital role in my daily activities as transportation broker. The transportation programs not only had to be sold to the average employee but also to the hospital administration, the neighborhood organizations, and to governmental agencies responsible for implementation of elements of the transportation action plan.

The normal marketing effort at most institutions is a ridesharing campaign. This effort is normally the equivalent of a United Way campaign: precampaign publicity, a letter from the administrator, a collection period, and the campaign is over until next year. Working with people's commuting habits, however, is a process over time. The campaign can plant the seed, but nurturing is required for the ridesharing concept to be accepted within an institution.

The nurturing process at Children's Hospital and Marshal Hale has involved frequent articles in the hospital newsletter, active participation in new employee orientations, making departmental presentations, and newspaper coverage. One of my most-valuable contacts within the hospital has been the director of public information. Children's Hospital has a weekly newsletter that is distributed to all employees. Copy is frequently provided to her and her assistant on a wide variety of transportation programs and issues of interest to employees. In trying to gain media coverage to give programs some community visibility, the director of public information has been a valuable asset.

Finally, the more management support and participation during promotional campaigns, the better. In August 1979, when preferential parking was about to begin, the chief executive officer held a series of three employee meetings to announce the new transportation programs that were being implemented immediately or in the near future. He combined this topic and information on the building program (which was his main reason for holding the meetings).

JOINT INSTITUTIONAL TRANSPORTATION BROKERS ASSOCIATION

Reference has previously been made regarding joint institutional efforts for ridesharing programs, proposals to transit and governmental agencies, the employee shuttle service, and marketing. Without the forum of the Joint Institutional Transportation Brokers Association (JITBA), progress in many TSM areas would not only be more difficult and time consuming but also more costly with fewer results.

A good portion of the joint institutional efforts are handled through the JITBA. The association is actually an outgrowth from the original hospital administrator parent group discussed earlier. The original program called for an institution to hire or designate a transportation broker. Part of this original program was a 10-week transportation broker training course held at Golden Gate University. Throughout the sessions, the logic for working together on various programs became obvious. The need to keep channels of communication open, share ideas, and discuss successes and failures spawned the idea to have regular monthly meetings.

Because TSM plans at each of the 13 participating institutions were being prepared by De Leuw Cather and Company (3) during the same time period, the transportation broker became involved with the plan development, was familiar with its goals, and was committed to seeing the paper recommendations become reality. Of course, the degree of commitment was dependent on the transportation problems encountered at the institution, management support, and the interests of the individual transportation broker.

During the initial organizational meetings, it was decided to establish bylaws for the association. The necessity of having the president spend at least 25 percent of his or her time devoted to coordinating activities of the association was also discussed and eventually approved. Since I was elected president in August 1979, my time has been divided in three ways: 25 percent to JITBA, 25

percent to Marshal Hale, and 50 percent to Children's Hospital.

JITBA was fortunate to have a budget of \$14 000 available from an Urban Mass Transportation Act of 1964, as amended, Section 9 grant. It was decided to have \$5000 allocated to the association's president's institution for time spent on association activities, with the remaining \$9000 earmarked for JITBA projects.

The monthly meetings are rotated among member institutions. An agenda is established for each meeting but serves more as a focus than as a rigorous schedule. The meetings have served as a support group, information exchange, action catalyst, and as a useful forum for interface between the brokers and transportation entities.

Transportation brokers, by their very nature, are generally the only individuals within the institution who work on transportation issues. The exception is the University of California at San Francisco, which has a transportation staff of three. It has been useful for the brokers to share their successes and disappointments in a somewhat informal environment. Sharing experiences is a catharsis for the work frustrations one encounters in trying to motivate employees to give up driving alone to work.

The broker meetings are also a time for exchange of information. Whether it be a new transit map, an interesting newspaper article, or an upcoming meeting on a crucial transportation issue, there always seems to be something of current interest to exchange. Because the transportation broker is in business to disseminate information, information garnered at the meeting is passed on at an exponential rate.

For most meetings, we invite an outside guest. They are normally action-oriented sessions with much dialogue between the guest and the brokers. At one meeting, for example, we invited the senior planner for the Golden Gate Bridge, Highway, and Transportation District. We asked him to briefly review the district's long-range plans adopted in 1975. More specifically, we asked him to review an element of the plan that would disperse the civic center route to Park Presidio and Geary Boulevard. This route change would provide direct service to seven of our member institutions who currently have cumbersome backtracking service from Marin County. He was also able to outline the history of the original proposal, why the Geary Boulevard element has not been implemented, and the prospect for future implementation. After much discussion, the brokers decided to have a letter written to the bridge district that asks to make a formal presentation on this proposal. JITBA received a quick response to appear before the transportation committee. JITBA members are currently following the proposal through the approval process.

Many of the specific projects JITBA undertakes are handled through committees. When it was decided, for example, to produce a professional slide show for use at new employee orientations, a committee was formed to select the consultant, develop the content for the script, and review the script produced by the consultant. The product is an excellent presentation on alternatives available to the single-occupant vehicle. The slide show has been duplicated and is now in use at new employee orientations at eight of the JITBA institutions.

Marketing efforts have been a special interest of JITBA. Aside from the slide show, a portable display is being developed for use during promotional campaigns. Since the display will be rotated among 13 institutions, the purchase cost of the displays and the cost for the graphic artist to develop the display materials can be justified.

Table 1. Transportation plan objective fulfillment.

Measure of Effectiveness	1978 Condition	Fulfillment of Objectives ^a (%)	
		1980 Condition	Objective
Percentage of automobile trip reduction	0	-16	-10
Percentage of long-term on-street parking reduction	0	-42	-40
Modal split			
Employee trips by transit and shuttle	16	20	+25
Employee trips by ridesharing	15	23	+21
Percentage of off-street physician parking	100	100	+100
Percentage of available short-term parking	100	100	+100

^aShort term from January 1978-April 1980, after neighborhood preferential parking district has been formed.

Table 2. Comparison of employee mode of travel: January 1978 versus April 1980.

Mode	Day Shift				Night Shift				Combined Shifts			
	1978		1980		1978		1980		1978		1980	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent	No.	Percent
Drive alone	596	57	429	41	156	66	145	61	752	59	574	45
Shared ride ^a	167	16	261	25	26	11	35	15	193	15	296	23
Transit ^b	167	16	230	22	36	15	26	11	203	16	256	20
Other ^c	115	11	125	12	19	8	31	13	134	10	156	12
Total	1045		1045		237		237		1282		1282	

^aIncludes automobiles that have a driver and one passenger, carpool, and vanpool passengers and drivers.

^b1980 figures include shuttle, public transit trips, combinations of transit-shuttle and transit-other.

^c1980 figures include walking, taxi, kiss-and-ride, and motorcycle trips.

The final main function of JITBA is personnel development. Most transportation brokers have had little or no prior transportation experience. JITBA sponsored a series of five training sessions for three new transportation brokers. In addition to these official sessions, the JITBA meetings tend to provide state-of-the-art information to the brokers. Special sessions are also conducted. For example, when RIDES implemented a new computer interactive matching system, the brokers were given a demonstration on how the new system works.

EVALUATION

On numerous occasions, progress reports on the transportation programs have been called for, whether it be a report to the hospital-neighborhood steering committee or to an administrative advisory group meeting. Records have been kept on ride-sharing requests, carpool registrations, carpool occupancy checks, garage use, number of transit passes sold, and weekly ridership figures on the employee shuttle.

Children's was fortunate, however, to have the opportunity to complete a comprehensive evaluation of the effectiveness of the hospital's transportation program. The evaluation was actually at the request of the neighborhood organizations. Children's administration began to question the need for a 45-space parking structure (a 1978 Wilbur Smith study recommendation) when the construction bid came in at more than \$800 000. In order to judge the effectiveness of the transportation program and thus reassess the need for the new parking garage, Wilbur Smith and Associates were retained to conduct an evaluation study (2). Table 1 lists the measures of effectiveness used to judge short-term (two years until 1980) objective fulfillment by evaluating the various transportation measures developed in the transportation plan.

Daily employee automobile trips were reduced by 16 percent since 1978; the 1980 reduction objective was 10 percent. Long-term, on-street parking was reduced by 42 percent; the objective was 40 percent.

The 23 percent of employee trips by ridesharing

exceeded the 21 percent short-term objective. The percentage of physician parking off-street and availability of short-term parking were not decreased in the short run. The percentage of employee trips by transit, including trips on the shuttle, did not fulfill the short-term objective of 25 percent. The modal split for transit only increased from 16 to 20 percent.

The evaluation study revealed a large decrease in the percentage of hospital employees who drive alone during the most important shifts, day and night, since 1978. As shown in Table 2, 59 percent or 752 employees traveled alone in 1978; in 1980, 45 percent or 574 employees drove alone.

In terms of fulfilling neighborhood parking objectives, employee long-term, on-street parking during the peak hours of a typical weekday in the surrounding neighborhood zones was reduced from approximately 390 vehicles to 121 vehicles.

CONCLUSION

For the average employee, the transition from the single-occupant vehicle to an alternative is a difficult decision. There have been six major reasons why 178 employees at Children's Hospital have chosen to make that transition during the past two years:

1. The implementation of preferential parking has been a disincentive that has encouraged employees to look for a solution to parking problems;
2. Off-street parking-management policies, including free carpool and vanpool parking, have created an incentive to form ridesharing groups;
3. The core concept in forming and maintaining carpool groups has been strongly promoted to overcome employees' reluctance to share a ride; coupled with a personalized matching system and flexipools, ridesharing has become an acceptable alternative;
4. RIDES has provided a strong support network; aside from providing ridesharing applicants with a computerized matchlist, their promotional assistance during initial ridesharing campaigns was invaluable;
5. The employee shuttle service has provided some employees with crosstown transit service until

MUNI service is implemented; and

6. The forum of JITBA has proved to be an extremely valuable medium for exchanging ideas, advancing public transit improvements, and cooperating on joint marketing efforts.

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Impacts and Effectiveness of Third-Party Vanpooling: Synthesis and Comparison of Findings from Four Demonstration Projects

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This paper presents findings from four federally sponsored experiments designed to test the concept of third-party vanpooling. Under this vanpool provider mechanism, some entity other than the employer or individual is responsible for promoting and organizing vanpools. The four projects, implemented in Knoxville, Tennessee; Norfolk, Virginia; San Francisco, California; and Minneapolis, Minnesota, experimented with a variety of organizational, operational, and financial approaches. Accordingly, the comparative findings regarding implementation issues, vanpool level-of-service characteristics, traveler response, and vanpool economics are widely applicable to other locales. Given the available evidence, third-party vanpooling appears both workable and effective in a range of settings and markets. For a sizable number of commuters, vanpooling is a feasible and attractive mode. Vanpoolers in the four projects are predominantly riders by choice who do not need a car during the day, rarely work overtime, and commute relatively long distances. For these individuals, the benefits of vanpooling, such as lower commuting costs, less hassle, and the possibility of eliminating a household automobile, more than compensate for the added time spent in collecting and discharging other passengers. Vanpool drivers exhibit considerable entrepreneurship in terms of adapting vanpool operating policies and amenity levels to passenger preferences and setting fares to reflect individual passenger circuitry and van occupancy levels. The concept of using third-party vans as seeds appears to be effective in encouraging privately operated vanpools to use purchased or leased vehicles. Finally, third-party vanpooling offers considerable flexibility in terms of how, where, and at what rate vanpool services are introduced within an urban area. For some transit operators, this mechanism represents a feasible alternative to the expansion of peak-period fixed-route transit service in low-density markets.

Between 1975 and 1977 the Urban Mass Transportation Administration's (UMTA) Service and Methods Demonstration (SMD) program sponsored four vanpool projects in Knoxville, Tennessee; Norfolk, Virginia; San Francisco (Golden Gate Corridor), California; and Minneapolis, Minnesota. At that time, vanpooling was still a novel commuting mode. Although employer-sponsored vanpool programs were expanding

rapidly (accounting for several hundred operating vanpools), significant institutional obstacles and market barriers inhibited the formation of vanpools. These included restrictive state regulations, limited availability of financing and insurance for vanpools, and general uncertainties about the operational and economic feasibility of large ridesharing units, particularly those comprised of employees of different firms. With national interest in high-occupancy modes mounting in response to energy and environmental concerns, there was a need for an innovative vanpool provider mechanism under which some entity other than the employer or individual (that is, a third party) would be responsible for promoting and organizing vanpools. Accordingly, the SMD program embarked on a multi-project research and demonstration effort to test the feasibility and costs of a third-party-provider mechanism and to ascertain the effectiveness of this organizational approach for serving the multiemployer commuter market.

As can be seen from Table 1, the projects differed in terms of the type of organizations that performed the third-party function, geographic and target-group focus, marketing approaches, van acquisition and deployment strategies, user charge and passenger fare structures, and driver incentives. The Knoxville and Minneapolis vanpool programs were part of broader brokerage operations that encompassed other computer ridesharing modes and (in Knoxville) social-service agency transportation. The demonstrations in Norfolk and San Francisco's Golden Gate Corridor, however, were primarily oriented toward vanpooling. Collectively, then, the