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Conducting Transportation System Management Studies of Taxicabs: Lessons from the Milwaukee Experience

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From 1978 through 1980, the city of Milwaukee conducted a transportation systems management type study of taxicab service and regulation. In order to provide guidance for other cities considering undertaking similar studies, an evaluation of the Milwaukee study was made. The Milwaukee study was compared against 13 evaluation criteria suggested in the transportation planning literature. The findings of the evaluation were that future taxicab studies could incorporate the strengths of the Milwaukee study and avoid its weaknesses by following 11 guidelines: develop measurable objectives, limit data collection to data needed for problem identification and problem analysis, do field work, maximize use of existing data, emphasize problem identification, set priorities for problems, involve other agencies, involve affected parties, develop alternate solutions, develop strategies for implementation of the recommendations, and require recommendations to be compatible to the maximum extent feasible, but allow early implementation of solutions to serious problems.

In September 1977 and January 1978, the Milwaukee Common Council held hearings on problems affecting the city's taxicab service and on national developments in taxicab service and regulation. The participants in these meetings agreed that a thorough review of the city's taxicab regulations and cab operators' problems was needed.

As these meetings were being held, the Southeastern Wisconsin Regional Planning Commission (SEWRPC) was completing its 1978 transportation system management (TSM) plan (1). The SEWRPC recognized that taxicabs, as providers of an estimated 3.3 million person-trips annually in the Milwaukee area, are a significant part of the urban transportation system.

The SEWRPC was aware of the meetings that had been held in Milwaukee and the attendees' consensus that the cab regulations needed revision. The SEWRPC planners believed that revision of taxicab regulations in Milwaukee would be an appropriate TSM action because reform of the city's regulations could foster improved efficiency and productivity in a part of the transportation system.

The SEWRPC included a recommendation in its 1978 TSM plan that the city undertake a TSM study of the city's taxicab fare and regulatory policies, including the evaluation of policies for encouraging innovative services such as shared-ride taxis. The Department of City Development (DCD), which is Milwaukee's planning department, was designated as the lead agency for the study.

The SEWRPC included in its TSM plan the statement that "similar (taxicab) studies for the remainder of the region will be recommended when the city study is completed as a model." In the interest of providing a useful model for future taxicab studies, a critical evaluation of the Milwaukee study was undertaken (2). The findings of that evaluation are reported, and the caveats and desiderata that should be followed in future taxi studies are emphasized.

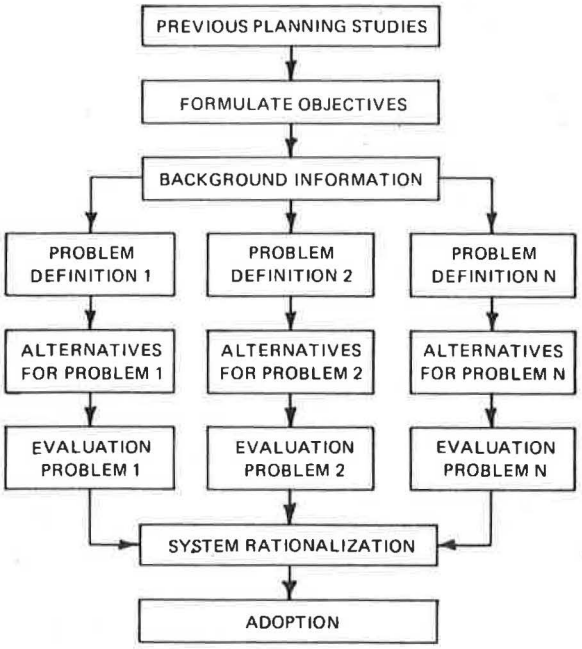
DESIGNING THE MILWAUKEE TAXI STUDY

Work on the taxicab study began with the drafting of a study design. Ten criteria guided the study design preparation:

1. The taxi study should be compatible with the TSM planning process and its results relevant to subsequent TSM planning.
2. The ultimate and essential product of the study would be revised taxicab regulations.
3. Because the taxicab ordinance is a written reflection of public policy, the study must be relevant to policy decisions.
4. The study design must allow for consideration of a range of problems and issues, some interrelated and some independent.
5. The study must produce recommendations that are mutually compatible.
6. The study should seek short-range, low-cost solutions to problems.
7. In anticipation of the study, the Milwaukee Common Council created the advisory committee to guide the study. The study design had to give meaningful responsibilities to this committee.
8. The study design should use the expertise of all agencies involved in taxicab regulation.
9. The principal focus of the study should be on taxicabs as providers of public transportation.
10. The study recommendations should produce an efficient and effective transportation service that has a maximum of positive and a minimum of negative impacts.

Examples of taxicab studies meeting these criteria were sought, but none was found. The lack of an existing taxi study that could readily be used as a model for the Milwaukee study prompted the study staff to adapt the SEWRPC's overall short-range planning process (3) to the needs of the study. This planning process is shown in Figure 1 (1).

Figure 1. Overall short-range transportation planning process.



As finally developed, the study design called for the study to have eight steps.

Step 1 consisted of a review of relevant previous studies (e.g., Milwaukee area and Wisconsin taxicab studies, urban renewal plans that affected cab stands, and local mass transit plans).

Step 2 was the development of measurable objectives for taxicab service and regulation.

Step 3 was the collection of background information. Four types of information were to be collected. In-person interviews with cab owners were to yield information on cab operations; information on current city, county, and suburban taxicab regulations was to be collected through interviews and from local records; taxicab passenger data were to be collected by an in-cab survey; and mail-back surveys and interviews were to yield information on taxicab insurance experience.

Step 4 was the identification of problems. This was to be accomplished through analysis of the background information and through public hearings held by the advisory committee.

Step 5 was the development of alternative solutions for the problems identified. The staff person assigned the problem was required to develop at least two alternative solutions and describe the advantages and disadvantages of each in a brief report to the advisory committee.

Step 6 involved review of the alternative solutions by the advisory committee and selection of the alternative that produced the greatest benefits with the least negative effects. After selection of the recommended alternative, an implementation strategy was to be prepared by the staff that specified the actions required for implementation and identified the agency responsible for implementation.

Step 7--system rationalization--involved the comparison of the study recommendations to eliminate conflicts and inconsistencies.

Step 8--adoption--involved preparing a study report incorporating the recommendations and pertinent background information. On formal adoption of the recommendations by the Common Council, copies of the report would be sent to the implementing agencies identified in the report with a request that they pursue implementation of the recommendations addressed to them.

EVALUATION

Work on the taxi study began in July 1978. The study advisory committee adopted its last recommendation in December 1980 and the study final report was published in June 1982. The study analyzed 21 problems, and 48 actions were recommended as solutions to the problems. To date, 42 recommendations have been fully implemented, 1 partly implemented, and 5 are awaiting action. No recommendations have been rejected.

Through the implementation of so many recommendations, a comprehensive revision of Milwaukee's taxicab regulations was accomplished and the taxi study fulfilled its purpose. In that sense, it can be judged a successful study. But how a purpose is achieved is often as important a consideration as whether it is achieved. To assess how well the taxi study met other important criteria for transportation studies, the study was evaluated against 13 criteria gleaned from the transportation planning and general planning literature. The criteria are listed below. An effective taxicab study

1. Does not deal with irrelevant issues and does not conduct unnecessary analyses;
2. Does not promise results beyond its staff or financial capabilities;
3. Does not take too long relative to its purpose;
4. Considers impacts from multiple viewpoints, e.g., users, operators, regulators;
5. Encourages creativity in problem analysis and solution development;
6. Examines a wide range of options and alternatives;
7. Explicitly identifies trade-offs among alternatives;
8. Has explicit purposes;
9. Includes a comprehensive assessment of problems and deficiencies;
10. Is open to and seeks public involvement;
11. Produces feasible, implementable recommendations;
12. Provides information directly related to decision making and is policy oriented; and
13. Recognizes uncertainty and has a planning period appropriate to the amount of uncertainty.

These criteria are concerned with varying aspects of transportation studies, from the efficiency with which the study is conducted to the thoroughness of the study. The criteria are mutually compatible; it should be possible to design a study that meets all 13 criteria. It is possible to use other criteria that have been suggested for valid transportation studies, but the 13 listed above are particularly appropriate for the type of study considered here.

Evaluation of the taxi study against the criteria revealed some serious weaknesses, but it also revealed some significant strengths. These findings are discussed below.

Irrelevant Issues

In the Milwaukee study, all of the 21 problems addressed were treated as though they were equally important. Yet some problems were more serious than others, and treating the problems equally diverted resources from more important to less important analyses.

Similarly, the ambitious data-collection effort produced a considerable amount of information that went unused in the analysis steps. For example, almost none of the information collected by the taxicab passenger survey was used in the problem analyses. The survey results were interesting in a general way, but the collection of unnecessary data can only be judged a waste of limited resources.

Overpromising

A major concern of the city's cab owners was the high cost of motor vehicle insurance. The study staff had no expertise in insurance matters, and it appeared likely that the city could do little about the cab industry's insurance problem. However, rather than explain this situation to the committee and drop the insurance problem from the study, the staff expended considerable effort preparing a report that merely stated facts already known. This was a clear case of overpromising.

Timeliness

Early in the study process, the advisory committee decided that every problem brought to its attention should be researched and that problems could be suggested for consideration at any time during the study. The decision had three effects. First, it made the study comprehensive, with a large number of different problems being considered. Second, it necessitated extending the study schedule because problems that were suggested late in the study could not be analyzed within the proposed schedule. Third, it created inefficiency. Problems that emerged late in the study often were related to problems investigated earlier. Had all problems been identified at the same time, data collection for and analysis of similar problems could have been combined and staff time and money could have been saved.

It took 2.5 years to accomplish steps 1-6 of the study process and another 1.5 years to complete steps 7 and 8. This delay was problematic. Even acknowledging the implementation of almost all of the study's recommendations, the published final report could have provided guidance to decision makers in the 1.5 years between completion of the study and submission of the final report. In addition, it is inconsistent for a study with a 5-year planning perspective to take 4 years to complete the final report.

Multiple Viewpoints

The chief mechanism used in the taxi study to ensure that differing viewpoints were considered was the study advisory committee. The committee took an active role in the study. It was common for a subcommittee of interested staff and advisory committee members to review the draft report on a problem, critique it, and suggest changes. This procedure was used with every complex problem and with every problem on which the advisory committee was divided. This process ensured consideration of differing viewpoints.

Creativity

Mandating that alternative solutions be considered, and the use of the review subcommittees and informal staff brainstorming sessions, encouraged creativity.

Many Alternatives

As previously noted, the study design required consideration of multiple alternatives. Only one problem--antiquated cab regulations--was found to be so clear-cut that the development of a range of alternatives was not warranted. In that case, the only feasible recommendations were the repeal of the completely obsolete regulations and the revision of regulations that were applicable to current conditions, but included antiquated language.

Trade-Offs

Trade-offs among alternatives and among recommendations were explicitly analyzed in steps 6 and 7 of the study. Interestingly, when step 7 (system rationalization) was undertaken, it was found that almost none of the recommendations was mutually incompatible or inconsistent. The high compatibility resulted from two factors. First, the study staff was small and the staff members were aware of each other's research and thinking. Second, the advisory committee was actively involved in the evaluation of alternatives and thus played an integrating function. These influences prevented antagonistic recommendations from being adopted.

Explicit Purposes

The Milwaukee taxicab regulation and operation study proposed to be a comprehensive review of the taxi industry's operational and service characteristics and the impact of public action on taxicab operation and service. In particular, the study proposed to recommend revisions to the city's regulations, as needed, to achieve a strengthened industry and to improve public service. These purposes proved to be sufficiently specific to adequately guide the study.

Comprehensive Assessment of Problems

A systematic assessment of problems and deficiencies as intended by the study design did not occur. It was originally intended that the background information collected in step 3 of the study would be evaluated against the objectives for taxicab service and regulation developed in step 2, and problems would thereby be identified. Instead, because of the misapplication of a consensus-building technique, the advisory committee adopted objectives that were not measurable and could not be used to identify problems.

However, this weakness in the study process was largely offset by the study's almost total openness to problems identified in other ways, such as staff and advisory committee judgments based on background data and consumer, cab owner, and cab driver complaints voiced at advisory committee hearings.

Public Involvement

The study's openness is important. As noted, the committee held numerous hearings at which anyone could comment on the work currently under review or suggest additional problems for study. However, the committee did not actively advertise these hearings, and many times they were attended only by cab drivers and owners.

Almost no comment was obtained from cab users at the public hearings. The taxi passenger survey did ask patrons to rate the service and supplied room for written comments. The responses to that question and the written comments were reported to the committee, as were complaints received by the city during the study.

In retrospect, although more could have been done to obtain the general public's input for the study,

the study appears to have had adequate, albeit not overwhelming, public involvement.

Feasible Recommendations

The explicitly required implementation strategies, and review of them by the advisory committee, appears to have ensured that the recommendations made were feasible.

Appropriate Information

The study was particularly sensitive to the need for information relevant to policy decisions. During the evaluation of alternative solutions, care was taken to describe the policy implications of the different alternatives when their advantages and disadvantages were being described.

Uncertainty

The taxi industry is currently in a state of flux (4). However, the industry has relatively low capital needs (a cab, radio, and meter can be bought for $7,300 or less) and is relatively unconstrained by labor agreements. As a result, it can respond to change quicker than other modes of public transportation. In light of the changing conditions in the taxi business, and the industry's own efforts to accommodate change, the 5-year planning perspective chosen for the study appears appropriate.

RECOMMENDATIONS

The Milwaukee study design had both considerable strengths and weaknesses. Its weaknesses were that it wasted study resources by collecting data before a need was clearly established, by attempting analyses beyond the capabilities of the staff, by failing to set priorities for problems and drop or defer low-priority problems, and by failing to more actively seek the input of cab users and the general public. Study strengths included producing feasible, implementable results and providing information needed for intelligent decision making. These strengths derived from the use of an appropriate short-range planning perspective, from the consideration of multiple viewpoints in problem analysis, from the requirements that two or more alternative solutions be considered for each problem and that the advantages and disadvantages of each alternative be fully described, and from the creativity engendered by subcommittee review of proposals and informal staff brainstorming.

Based on this evaluation of the Milwaukee study, some suggested guidelines are discussed below for avoiding the pitfalls of the Milwaukee study and for incorporating the Milwaukee study's best features into other taxicab studies.

Develop Measurable Objectives

As part of the after-the-fact evaluation given the Milwaukee study, the study was compared with similar studies prepared in other cities. One surprising finding was that none of the studies used measurable objectives of the type widely recommended for transportation studies.

In light of this finding, it is appropriate for planners to recognize that goal setting for taxicab service and regulation is an innovation. Their aim should be to get started, gain experience, prove the value of the exercise, and develop a basis for further evaluation of service and regulation.

It is recommended that the planners begin with objectives for which pertinent data are easily obtained. For example, a goal to improve taxicab safety could have as its measurable objective the minimization of the proportion of taxicabs failing inspection for hazardous defects. The data needed to assess achievement of this objective should be available from reports on the periodic taxicab vehicle inspections held in most cities.

Such setting of objectives would show the value of being able to assess the status of service and regulation and should encourage taxi regulators to collect additional data regarding the quality of service and the effects of regulation.

Limit Data Collection to Data Needed for Problem Identification and Analyses

There is a tendency to overcompensate for the lack of useful historical data on cab regulation and service by collecting copious amounts on current conditions. Often, much of this information proves irrelevant to the study.

This happened in Milwaukee. The data collected in an expensive and time-consuming taxicab passenger survey was not germane to any of the problems subsequently investigated. The small amount of survey data that was used could have been acquired from other sources at less cost.

Data collection should occur in two phases. The first phase should be the acquisition of the minimum amount of data needed to provide a general overview of taxicab operation and regulation in an area. Included in this phase is the compilation of the data available for use in comparing the existing service and regulations with the adopted objectives.

The second phase is the collection of data needed for the individual problem analyses. At this point, detailed information should be collected on the specific aspects of cab operation or regulation relevant to a particular problem. Care should be taken to ensure that sufficient information is collected to allow development of alternative solutions and that information on related problems is collected only once.

In both phases, a conscious effort should be made not to collect data unless a convincing reason for doing so is apparent. The experience in Milwaukee was that a taxi study is more likely to err by overcollecting than by undercollecting data.

Do Field Work

Taxi studies are not armchair exercises. This was discovered on two occasions during the Milwaukee study. First, a review of the city's taxicab inspection ordinance suggested that the ordinance was sufficient to ensure that roadworthy taxis were in use. But a study staff person attending one of the twice-yearly inspections saw grossly defective taxis being allowed to return to service. The police, who were conducting the inspection, pointed out that the ordinance did not authorize them to suspend the permits of defective cabs. They believed suspensions were the responsibility of the Utilities and Licenses Committee of the Common Council. The Utilities and Licenses Committee, in turn, thought that the police had been prosecuting owners of unsafe cabs under a different, but related, ordinance. If the staff person had not gone to the inspection, this serious problem would have been overlooked.

On the second occasion, field work revealed a problem to be different than it was originally described. Cab drivers claimed that many problems at the airport occurred because cabs licensed by suburbs were allowed to provide service between the airport and suburban destinations. A field check found that suburban cabs accounted for only 5 per-

cent of the departures from the airport and that Milwaukee permit holders were responsible for the reported problems.

Maximize Use of Existing Data

In many cases data have already been collected that can be used in taxi studies. For example, concern about the condition of Milwaukee taxis prompted questions about the average age of cabs. The information was found to be available in the Utilities and Licenses Committee's records, although it had not been tabulated previously. The need for a more costly survey of cab owners was thereby avoided.

Taxi firms themselves are sources of data that should not be overlooked. The dispatching records and trip sheets maintained by Milwaukee cab companies were more accurate sources of information on origin-destination and time-of-day travel patterns than were the passenger survey conducted by the study. In many cities, cab firms are required to make such records available to city officers.

Emphasize Problem Identification

Problem identification is perhaps the most important step in the taxi study process. A study that does not address perceived problems will be judged irrelevant. The type and number of problems identified will dictate the type and amount of data needed. An early and thorough problem-identification stage will allow the study to be conducted expeditiously and at minimum cost.

Many ways exist for discovering people's concerns about cab service and regulation. The collection of background information will identify some. The comparison of background information with the service and regulation objectives will point out others. Public hearings can be held. Displays that describe the study and ask for comments can be set up at food stores, airports, and shopping centers. Advertisements can be run in the newspapers. Brief, prepaid, preaddressed questionnaires can be distributed to homes and work places and in hotel rooms and taxicabs.

These methods can be used in combination, and there are other methods not mentioned here. The important considerations are that these efforts be intensive and made early in the study. One weakness of the Milwaukee study was that problems were suggested throughout the study process. It became impossible to combine data collection and analysis for similar problems, and many opportunities for more efficient use of staff time were lost.

It is neither possible nor desirable to insulate the study from all changes that possibly require study effort. (In Milwaukee, the largest cab firm closed midway through the study, requiring reexamination of several issues and collection of additional data.) But an early and thorough problem-identification step will minimize the number of surprise problems emerging late in the study and allow the most efficient use of study staff and budget.

Set Priorities for Problems

Once a list of problems is compiled, priorities should be set, ranked from most important to least. The list of priorities should then be used to determine how many problems can be examined with the resources available to the study. Issues that rank below the cutoff point determined by available funding and staffing should either be permanently dropped from consideration or deferred until another opportunity to study them arises. This setting of priorities ensures that the most serious problems are considered and that analysis of less-important problems does not drain resources from more important analyses.

Planners should also be wary of problems that are likely to require disproportionate amounts of study resources. Such problems may be too difficult to be considered in a multifocus study and may require a separate study.

Involve Other Agencies

In most cities, several agencies share responsibility for taxicab regulation: a committee or commission may grant licenses, the police may have responsibility for enforcement of regulations, and the department of public works may designate taxi stands. In many cities, as in Milwaukee, the transportation planning function may be separate from any of the previously mentioned agencies. In such cases, a pooling of expertise is essential.

One strength of the Milwaukee study was that a technical team, which included representatives of the agencies most involved in cab regulation, evolved during the study. This technical team provided peer review of analyses, alternative solutions, and implementation strategies; in turn, the peer review produced convincing analyses, creative solutions, and feasible recommendations. It is strongly recommended that other studies use a technical team approach.

Involve Affected Parties

Cab owners, drivers, patrons, and regulators all have an interest in the way cabs operate. The interests of these parties often differ; sometimes they are directly opposed. A taxi service and regulation study should recognize these tensions and use them to develop acceptable recommendations. To ignore these tensions is to risk having study recommendations rejected by implementing agencies because of the strong and previously unconsidered opposition of an affected party.

The Milwaukee study was fortunate to have an advisory committee that included representatives of the potentially affected parties. The staff was forced to develop analyses and solutions acceptable to the members of the committee; therefore, acceptance of the study's recommendations was more likely.

An additional advantage of having the advisory committee was that the first-hand experience of the members was made available to the study, an asset that produced sounder analyses and more realistic solutions. Also, committee members often became supporters of the study and, in turn, obtained their constituencies' support for study recommendations. Most notably, the committee chairman, an alderman, was an effective advocate of study recommendations with city agencies and the Common Council. An advisory committee should be used in other taxi studies.

Develop Alternative Solutions

Partly because of the differing interests of the parties involved with taxicabs and partly because the circumstances that create taxicab problems can be surprisingly complex, it is essential that alternative solutions be developed for these problems. It is likely that the obvious solutions to taxi problems will either fail to be implemented or be ineffective.

For example, Milwaukee had a problem with drivers refusing service for short trips to and from the airport. The airport is in an area of suburban to

rural development, a typical place for an airport but not the best source of cab business. Cab drivers were reluctant to take low-fare trips to the area around the airport and thereby miss out on longer, higher-fare trips to downtown.

Three alternative solutions were suggested for the problem: (a) stricter enforcement of city and county ordinances prohibiting refusal of service, (b) use of a taxi starter who would see that cabs that had previously received short trips would later get long ones, and (c) a $4.00 minimum fare from the airport. Initially, the minimum fare was the alternative least preferred by the staff and a significant number of advisory committee members. Not surprisingly, cab drivers favored it. As the characteristics of airport tripmaking were considered, and the disadvantages of the other options were described, it became apparent that the minimum fare was the superior alternative. It was put into effect and has nearly eliminated the service-refusal problem.

Develop Implementation Strategies

Transportation planners are rarely taxi regulators, and taxi regulators are rarely transportation planners. For this reason, it is necessary that planners prescribe the actions needed to implement the study's recommendations. The parties involved in cab regulation often have few resources for additional study of how a recommendation should be put into effect. It was the experience of the study staff that Milwaukee's cab regulators welcomed explicit implementation instructions and that explicit instructions helped ensure that recommendations were actually implemented.

Require Rationalization of Recommendations

System rationalization is a means of ensuring that all the effects of the study's recommendations have been considered and of minimizing the recommendations' conflicts with each other. System-rationalization ensures that the study produces the greatest possible overall benefit with the minimum amount of negative effects.

In Milwaukee, for example, the system-rationalization step pointed out that the minimum fare recommended for trips from the airport was in conflict with a study objective that flexibility in fare rates be allowed. It was decided that this conflict would be allowed to stand because it could not be reduced without reducing the recommendation's effectiveness in meeting another, higher-priority study goal: elimination of service refusals.

The system-rationalization step reduces the chance that the study will be accused of making inconsistent recommendations. However, it opened the Milwaukee study to a different charge--that the study was allowing serious problems to continue after feasible solutions had been recommended solely for methodological convenience and purity. The study staff and advisory committee considered this charge and decided that recommendations concerning serious problems should be forwarded for implementation as soon as they were adopted, without waiting for system rationalization. System rationalization was still done and, had any serious conflicts been discovered, suggestions designed to reduce conflicts would have been included in the study's final report along with the recommendations for less-serious problems.

The compromise allowed the study to achieve immediacy and relevance and at the same time remain systematic and comprehensive in its approach. The compromise allowed the study to build a track record of implemented, effective recommendations that facilitated acceptance of later recommendations. The approach should be used by other cities undertaking taxicab studies.

APPLICABILITY

In closing it should be noted that the Milwaukee study has certain characteristics that will limit the applicability of its study design and the recommendations offered in this paper. First, the Milwaukee study design is most appropriately used in urban areas. The key characteristics of the Milwaukee situation are municipal regulation of taxicabs, an institutional framework in which different agencies are responsible for different aspects of taxicab regulation, and a situation in which taxicab regulation and transportation planning are not formally integrated. Depending on how these characteristics vary from place to place, the Milwaukee model will have to be modified or rejected in favor of one that is more appropriate to local conditions.

However, after talks with cab regulators and planners in other areas and examination of other studies of taxicab regulation, it was found that Milwaukee's regulatory structure is typical of the structure found in many other areas, and it may even be the most common type nationally. Thus the Milwaukee experience should be applicable to many other areas.

The second point worth noting is that the Milwaukee study is only one of several types of studies involving taxicabs. It is a short-range study that is chiefly concerned with improving taxicab service and regulation, and it would be inappropriate to use it as a model for the taxicab element of a multimodal long-range plan. Similarly, the Milwaukee study would be an inappropriate model for a study concerned with designing a new taxi-based transit service.

This type of service and regulation study does fulfill a common need, however. As Kirby (5) has observed, there are a number of changes and innovations in taxicab regulation and operation that deserve consideration by regulators and planners in U.S. cities. It appears likely that the need for TSM and taxi studies of the Milwaukee type will increase in the future in response to these innovations and changes.

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Comparison of User-Side Subsidy and Dial-A-Ride Services Operated in Los Angeles

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This study is a comparative analysis of the dial-a-ride and user-side subsidy community transit service operations provided in Los Angeles. The study concentrates on two project areas, Venice and West Central, in which dial-a-ride services operated in 1980 were replaced with user-side subsidy operations in 1981. The dial-a-ride service, as operated in Los Angeles, requires a contractor to provide a specific number of vehicle hours of service per month; the contractor is compensated on that basis. The user pays a fixed fare regardless of the length of trip. The trip must be arranged at least 24 hr in advance and is provided between the hours of 9:00 a.m. and 5:00 p.m. on weekdays. The user-side subsidy program requires the user to purchase coupons that are good for 24-hr service from any participating taxicab company of the user's choosing. The broker subcontracts with the taxicab operators to reimburse them for the coupons they receive. The user is allowed to use up to $5.00 in coupons for each one-way trip and must pay in cash any amount over the coupon limit. Three measures of comparison were used in the analysis: patronage, cost to the user, and cost per passenger. Under equal funding levels, more trips were provided by the user-side subsidy program. The user-side subsidy patronage exceeded the dial-a-ride patronage by 75 percent in Venice and 40 percent in West Central. Dial-a-ride fares were fixed at $0.15/trip in 1980, but a new state law adopted for 1981 financing would have required the city to raise the dial-a-ride fares to an average of $1.40/trip. The user-side subsidy service costs the user an average of $0.92/trip. Over two quarters of operation, the user-side subsidy patronage grew considerably, reducing the cost to an average of $5.63/passenger, approximately 60 percent of the dial-a-ride cost per passenger. The comparisons made in this study indicate that user-side subsidy service is superior to dial-a-ride service for Los Angeles.

The purpose of this paper is to provide a comparative analysis of the dial-a-ride and user-side subsidy methods of providing community transit service in Los Angeles. Both types of service have been and are being operated for elderly and handicapped residents of the city. The operating procedures used may be peculiar to Los Angeles; therefore, the paper contains a brief history and description of the services. Comparisons are made between the dial-a-ride services operated in 1980 and the user-side subsidy services operated in 1981 in the West Central Los Angeles and Venice community transit service areas.

Los Angeles has been operating community transit services since 1973 with the implementation of dial-a-ride projects in two service areas under the federally sponsored Model Cities Program. The city implemented four additional dial-a-ride projects in 1975.

The California State Legislature established a new funding source for community transit service in 1976. The Transportation Development Act (TDA) was amended by Article 4.5 to allow the county transportation planning agency to reserve up to 5 percent of the county's TDA funds for community transit services. Funding for the program came from state sales tax revenue.

The first user-side subsidy service began operating in the Harbor service area in August 1978. A second user-side subsidy demonstration project was initiated in the Echo Park-Silverlake service area under Article 4.5 financing. The early success of this program led to the decision to convert some of the existing dial-a-ride services to user-side subsidy programs.

In fiscal year (FY) 1980-1981, dial-a-ride services were replaced with transportation coupon (user-side subsidy) programs in the West Central Los Angeles and Venice community transit service areas.

DIAL-A-RIDE

As Viewed by the Consumer

Dial-a-ride is a curb-to-curb service that requires route diversion and group loading. The user pays a fixed fare ($0.15/trip during 1980), regardless of the length of trip. The trip must be arranged at least 24 hr in advance and is provided between 9:00 a.m. and 5:00 p.m. on weekdays. The user must understand that the service is not exclusive and that travel times may be long due to route diversions. Trip destinations are limited to 1.5 miles outside of the service area boundary.

Contractor Relations

Dial-a-ride-service is an operator-side subsidy, demand-responsive service that uses either profit or nonprofit companies as providers. The contractor is required to provide a specific number of vehicle hours of service by using vehicles dedicated to dial-a-ride service. The contractor is paid monthly, based on the number of vehicle hours operated. The contracts for West Central and Venice were with Golden State Transit Corporation doing business as Yellow Cab Company. The vehicle-hour rate was $13.58 for West Central and $10.28 for Venice.

The contractor is required to have two-way radio communication between the dispatcher and the vehicles, and the dispatcher is required to load, route, and unload the vehicle to obtain the maximum efficiency. (In practice, this was rarely accomplished.)

Accessible Vehicle Service

The dial-a-ride contract requires the contractor to provide at least one lift-equipped vehicle for each service area for people in wheelchairs who cannot transfer to a standard passenger vehicle. These vehicles are dedicated to dial-a-ride service and are operated in the same manner as the other dial-a-ride vehicles.