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Transportation Brokerage: A Comparative Analysis of 13 Projects

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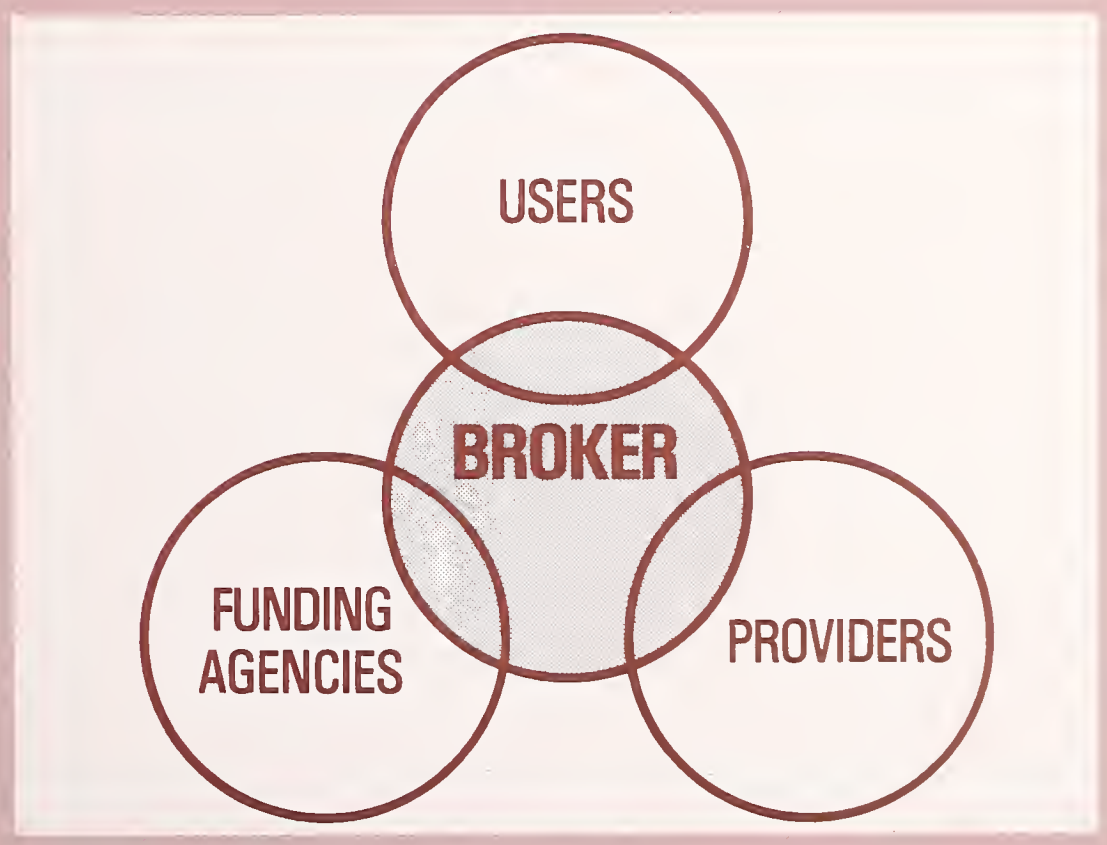
June 1985



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16. Abstract

This report is a comparative study of 13 transportation brokerage projects evaluated under the auspices of UMTA's Service and Methods Demonstration (SMD) Program. Transportation brokerage is characterized as an orientation toward understanding and accommodating the actual demand for transportation as identified by and for specific target markets. The report has two central aims. First, as a compilation of findings, it provides a single, inclusive reference on the concept of transportation brokerage and some of its specific applications. Second, it attempts to draw together the disparate results from the individual projects to identify generalizable and transferable findings.

Several definitional issues (centering around the degree to which the broker directly intervenes in the marketplace) are resolved in the report by defining brokerage as an approach to transportation problem-solving, rather than as an explicit organizational structure or planning process. The 13 projects are then classified into four brokerage types: commuter, elderly and handicapped, decentralized, and integrative. Project impacts are separated into impacts on the intended target markets and on the local institutional environment. Brokerage impacts on target markets ranged from modest improvements in mode split or the structure of service delivery to changes solely in the area of regulatory reform. The impacts of the brokerage projects on the institutional environment, however, were possibly the greatest determinant of brokerage effectiveness.

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PREFACE

This comparative analysis was prepared by the Transportation Systems Center (TSC) under Project Plan Agreement (PPA UM-27), providing project evaluation support for the Urban Mass Transportation Administration's (UMTA) Service and Methods Demonstration (SMD) Program. The purpose of this study is twofold. First, as a compilation of findings from 13 distinct SMD demonstrations and case studies, this report provides a single, inclusive reference on the concept of transportation brokerage and its specific applications. Second, this report attempts to draw together the disparate results from the individual projects to identify generalizable and transferable findings that would be useful to those comtemplating future brokerage projects. Detailed project evaluation reports for many of the brokerage projects cited in this study may be obtained by writing to the Transportation Systems Center, DTS-64, Kendall Square, Cambridge MA, 02142.

Much of the information utilized in this report is drawn from those individual project evaluations. The authors would like to acknowledge the following firms that performed those evaluations:

CACI Inc.	Westport, CT
Cambridge Systematics, Inc.	Los Angeles, CA Minneapolis, MN
Charles River Associates	Dade County, FL Lancaster, PA Pittsburgh, PA
COMSIS Corp.	Bridgeport, CT
Crain and Associates	Mt. View, CA San Diego, CA
DeLeuw, Cather & Co.	Northeastern Illinois
Multisystems, Inc.	Knoxville, TN
Peat, Marwick, Mitchell & Co.	Newport News, VA St. Louis, MO

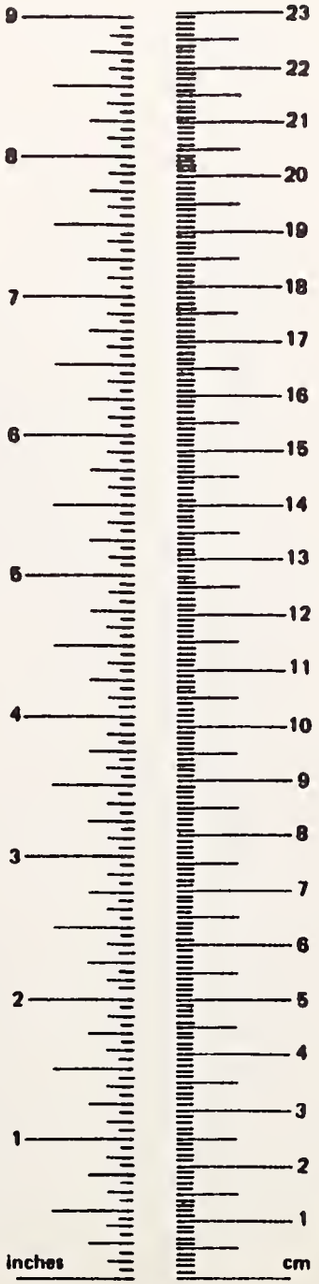
The authors would like to gratefully acknowledge James Bautz of UMTA's SMD Program for the support and guidance provided throughout the course of this study.

METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

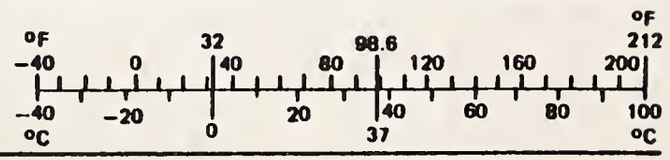
Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.8	kilometers	km
AREA				
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in. = 2.54 cm (exactly). For other exact conversions and more detail tables see NBS Misc. Publ. 286, Units of Weight and Measures. Price $2.25 SD Catalog No. C13 10 286.



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	36	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
TEMPERATURE (exact)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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1. INTRODUCTION

The urban transportation system is composed of numerous transportation resources which are owned, operated and managed by a host of public and private entities. These resources can vary from the empty seats in an automobile trip to a capital-intensive regional rail system. In the aggregate, these resources provide a range of transportation options to the potential user. The discrepancy between the available supply of transportation and the knowledge of potential users about that availability gave rise to an innovative concept termed "transportation brokerage." In its purest form, transportation brokerage is the facilitation of activities aimed at matching targeted demand for services with existing and potential supply of those services.

Beginning in the mid-1970s, the Urban Mass Transportation Administration's (UMTA) Service and Methods Demonstration (SMD) Program sponsored a number of demonstrations and case study evaluations under the general concept of transportation brokerage. Many of the demonstrations are completed and full documentation is available; other projects are still in the process of being formally evaluated. The purpose of this report is to compare this set of demonstration projects and to draw from that comparative analysis those conceptual and operational elements that are transferable to other locations or situations. In addition, a single working definition of the brokerage concept is formulated. The number and variety of demonstrations studied present both an opportunity to draw more valid conclusions about the concept, and a challenge to compare what outwardly appear to be very different projects and outcomes.

The conceptual foundations of transportation brokerage lie within its usage in the private sector. Examples of private sector brokerage include: real estate, stocks and bonds, commodities, insurance, and travel. Here, the term brokerage refers to "an intermediate market function that serves to remove the barriers to the exchange of goods and services between suppliers

and consumers." (11: p. 22)* The purpose of the broker is to locate areas of surplus and need, resolve potential barriers and market imperfections which could restrict the exchange, and finally, to consummate the sale or transaction. (11: p. 2)

The brokerage concept, as applied to transportation, is similar to the private sector concept in that the broker's role is primarily to identify the specific needs of potential riders and match them to the most appropriate transportation provider. In some cases, where a feasible provider does not exist, the broker may, itself, provide the service deemed necessary. One major difference between transportation brokerage and more traditional arrangements is the emphasis in determining specific demand prior to arranging for service delivery. This is in contrast to a more mode-specific, supply-oriented agency that provides a somewhat static service and depends on induced demand for that service.

This report utilizes the findings and ongoing experiences of 13 demonstrations and SMD case studies, all of which were either explicitly or implicitly considered "brokerage" projects. A matrix summarizing the characteristics of each project is provided in Table 1-1. In addition, project profiles are included in Appendix A. The demonstrations exhibited a great deal of variability in terms of targeted users, services brokered, organizational structures and the impacts on those users and the general public as a whole. The common element in all of the brokerage projects was the targeting of specific client groups and the facilitation of transportation services to satisfy their specific demand patterns. Targeted client groups included: special-user groups (elderly, handicapped, low income, commuters), individuals in low-density areas, general populations, and even local human service agencies. Regarding the services offered, the projects spanned mode-specific services, modal integration, regulatory and institutional changes, marketing, and interagency liaison. Organizational mechanisms ranged from an individual broker to an entire transit agency centered around the

* Terms in parentheses denote references listed at the end of this report.

TABLE 1-1 COMPARISON OF BROKERAGE DEMONSTRATIONS

PROJECT SITE	DEMONSTRATION DATES	TARGET GROUPS				SERVICES PROVIDED										ORGANIZATIONAL STRUCTURE
		ELDERLY & HANDICAPPED INDIVIDUALS	SOCIAL SERVICE AGENCIES	COMMUTERS	GENERAL PUBLIC	COMMUTER RIDESHARING	AREAWIDE TRANSIT	COMMUNITY TRANSIT	SERVICE INTEGRATION	E&H SERVICE PROVISION	E&H SERVICE CONTRACTING	SSA COORDINATION	GOODS MOVMENT	MARKETING/INFO DISSEMINATION	REGULATORY REFORM	
KNOXVILLE TENN	10/75-12/78		X	X		X						X		X	X	W/IN UNIVERSITY, THEN CITY DEPT.
MT. VIEW CALIF	2/76-2/77	X								X				X		SINGLE INDIVIDUAL
WESTPORT CONN	4/77-3/79				X		X		X			X	X	X		TRANSIT DISTRICT
MINNEAPOLIS MINN	6/77-2/80			X		X								X		REGIONAL TRANSP. AUTHORITY
LANCASTER PENN	11/77-5/83		X								X	X				NON-PROFIT CORPORATION
NORTHEASTERN ILLINOIS	2/78-6/82	X			X			X		X						REGIONAL TRANSP. AUTHORITY
NEWPORT NEWS VIRGINIA	7/78-7/81	X		X		X				X	X			X	X	TRANSIT DISTRICT
PITTSBURGH PENN	7/78-6/82	X	X								X	X		X	X	NON-PROFIT CORPORATION
BRIDGEPORT CONN	9/79-PRESENT		X		X		X	X	X			X		X		TRANSIT DISTRICT
SAN DIEGO CALIF	8/81-PRESENT	X	X								X	X		X		CITY DEPARTMENT
DADE COUNTY FLA	12/81-PRESENT		X	X	X	X			X			X		X	X	COUNTY GOVERNMENT
ST. LOUIS MISSOURI	NEVER IMPLE.		X	X		X						X		X	X	CITY GOVERNMENT
LOS ANGELES COUNTY	6/82-PRESENT	X		X	X			X								COUNTY TRANSP. COMMISSION

brokerage "philosophy." Finally, concerning impacts, some demonstrations had a relatively significant impact on targeted users while others were more limited in their ability to match potential users and suppliers. As for the impact on the entire transportation system, the results also vary--from modest improvements in mode split to achievements made solely in the area of regulatory or institutional reform (which could lead to systemwide improvements subsequent to the demonstration period).

This report is organized into four distinct parts. Chapter 2 presents a number of past definitions and interpretations of brokerage, as forwarded by brokerage evaluators, practitioners, and academicians. From this discussion, a working definition of brokerage is posited for use in subsequent sections.

In Chapter 3, the brokerage approach is described as it was implemented in the demonstrations and case studies. The first section provides some background to the 13 projects and is organized by the market segment targeted by the broker, keying on unique objectives, client groups and services facilitated. The second and third sections explore several facets of brokerage planning and implementation as evidenced by the projects themselves. Finally, a concluding section summarizes these stages within the brokerage approach and attempts to differentiate the brokerage approach from other approaches and organizational options for transportation problem-solving.

The actual impacts and costs of the brokerage projects are evaluated in Chapter 4. The first section deals with the impacts of the projects on the local institutional environment and, conversely, the impact that the environment had on the projects. This section explores the critical issue of whether a true need for the brokerage was apparent within this environment. Impacts on the travel patterns of targeted market groups and on the supply of transportation services is the subject of the second section. Finally, brokerage costs and resource requirements are explored. This section will also compare brokerage-related costs with the costs associated with other approaches and service delivery mechanisms. The purpose of this chapter is not to judge the individual projects on their apparent success or failure, but to utilize these lessons and perceptions to better understand the brokerage concept itself.

Chapter 5 concludes the analysis with a discussion of the future of transportation brokerage. This discussion will address such questions as: Are demonstration results and "lessons" transferable to other localities? Will non-demonstration brokerages differ from those established with federal support? Is brokerage an explicit organizational function or is it more an implicit approach or transportation philosophy?

This document is intended to serve a number of purposes. First, it should serve as a single synthesis of the findings of those SMD projects categorized under the general rubric of "brokerage." Second, this document should provide a single definitive statement of what brokerage is (and is not). The range and focus of previous definitions and projects has shown a clear need for such a retrospective clarification of the brokerage concept.

Finally, this analysis should provide the future planner or decision-maker contemplating the formation of a brokerage (or comparing organizational options) a better understanding of the merits and operational realities of the concept. As such, the analysis will not strive to document which brokerage was the "best" type for a given situation or that brokerage was the most effective means for solving transportation problems. The range of brokerage strategies that have been utilized, rather, will be presented to aid in these future considerations. It is this improved understanding and realization that will enable brokerage to move from a once perceived panacea to an often viable alternative to traditional, uni-modal transportation agencies and service delivery mechanisms.

2. DEVELOPING A WORKING DEFINITION OF BROKERAGE

In formulating a working definition of brokerage, several steps will be undertaken, each analyzing a set of prior definitions and interpretations. First, the definitions forwarded in the project evaluations (and in some cases project applications) will be presented. As such, these definitions are descriptive in nature and provide insight as to how the concept changed over time. This first step is intended to present the variations of the brokerage concept as envisioned by the grantees and/or interpreted by the project evaluators.

The next step in defining brokerage involves a summary of a number of interpretations and critiques of the brokerage concept. Many of these interpretations revolved around the degree to which the broker intervened in the transportation "market." Such discussions centered on the issue of whether brokerage was an inherently passive activity or required a more activist role to foster needed services. Whereas the first part of this chapter involves describing how the concept was envisioned in the demonstrations, the second step is more of a retrospective critique of the concept and its evolution.

Finally, a set of general brokerage characteristics is posited that attempts to resolve the issue of market intervention and address the underlying issue of whether brokerage is a specific operational process or, alternatively, a general approach to transportation problem-solving. The purpose of this chapter is to provide a clear understanding of the brokerage concept itself with which to later assess the specific experiences of the projects.

2.1 BROKERAGE AS DEFINED BY PROJECT INITIATORS AND EVALUATORS

The set of definitions forwarded by project initiators and evaluators provides an interesting background into how the concept was originally defined

and how it has since evolved. This section follows the development of the brokerage concept as conceived by those involved with the specific projects.

The first brokerage, in Knoxville, Tennessee, foresaw as the purpose of the broker:

> ...to locate areas of surplus and areas of need, to resolve institutional barriers and to consummate the sale. Whatever the form or mode of operation, the broker acts as a clearinghouse by helping buyers find solutions to their needs. The broker is welcomed by the supplier since the broker increases the efficiency of the supplier by locating new market areas and by finding alternatives which relieve the supplier of obligations to serve in marginal markets. The broker helps each supplier find its ecological niche. (11: p. 2)

Knoxville was, in theory, an attempt to reorient the management of transportation toward the dynamic matching of supply and demand, taking neither for granted. While the project originally emphasized commuter ridesharing and social service agency coordination, the Knoxville model of brokerage was not mode-specific; it envisioned becoming involved with whatever target group it identified as potentially being served. The key to this initial definition was the implicit passive, intermediary stance of the broker. It was foreseen that through regulatory and institutional changes, transportation efficiencies could be realized. Additionally, by simply improving the information available to the user, the brokerage would be an effective tool for solving transportation problems.

Several demonstrations represented the adoption of the brokerage concept by transit operators. Brokerage was viewed as a means to accomplish certain paratransit and transit integration objectives. As such, separate "brokerage departments" were established, designed to be coequal with their fixed-route counterparts. Like Knoxville, the Dade County (Miami), Florida, demonstration utilized a definition of brokerage based on matching of demand and supply, but further expanded the role as indicated below:

> Beyond linking consumers with transportation services, the brokerage will fulfill the function of integrating the provision of transportation services with community and economic development objectives throughout Metropolitan Dade County. (15: p. 2)

The Dade County brokerage thus represented an attempt to fully and efficiently utilize all potential suppliers to serve a variety of markets and specific user needs.

A similar project within a transit agency was undertaken in Newport News, Virginia. The "Easyride" brokerage project became involved in services for commuters and the mobility-impaired:

> Easyride, in its role as transportation broker, promotes and facilitates ridesharing in public/private vehicles in much the same manner that a real estate broker advertises and arranges property sales. Easyride also acts as a ridesharing advocate and encourages citizens to participate in ridesharing for their own benefit as well as for larger, societal goals. Easyride also operates special transportation services for the handicapped and works to coordinate the supply of and demand for transportation at social service agencies. (19: p. 2)

The key difference between this brokerage and those mentioned previously was the direct operation of a handicapped transportation service. This service was neither a coordination attempt nor a contracted service, either of which might be loosely defined as brokerage. The reason for this in Newport News was that the broker initially tried to coordinate and offer contracted service, but was unsuccessful. It therefore resorted to providing the service itself to fulfill a need identified as crucial.

Many brokerage projects focused on a single user group such as commuters or elderly and handicapped (E & H) individuals. In targeting a single user group, specific needs and opportunites were to be identified and alternatives explored to serve the travel demands of that group. One brokerage project, housed within the transit agency in Minneapolis, Minnesota, sought to "test the feasibility of using transportation brokerage to promote and coordinate a variety of commuter services." (5: p. 2-2) A key element of this new role for the transit agency was the client orientation of the brokerage as opposed to the service orientation associated with more traditional transit operations.

Another demonstration that targeted a single set of users was the ACCESS demonstration in Allegheny County (Pittsburgh), Pennsylvania. The demonstration established a network of service providers to serve the

transportation needs of the elderly and handicapped (E & H) population that could not use the fixed-route transit system. The ACCESS project was designed to establish the broker as a "marketplace coordinator." On the supply side, the broker contracted with a number of private providers to form an E & H transportation network; on the demand side the broker established relationships with a number of social service agencies (SSAs) to address the transportation needs of their clients. The broker's ability to modulate supply and demand was a departure from the more passive applications suggested by earlier brokerage projects. The ACCESS demonstration also points to an important definitional issue. While many SSA coordination and consolidation projects have considered themselves brokerages, the differentiating factor, at least in Pittsburgh, was the use of a specially created management organization to act as a third-party mediating entity.

While several brokerages have been organizationally housed within transit agencies, and others have worked with operators, two demonstrations involved the transit agency reorganizing itself as a brokerage. The brokerage was not conceived as the paratransit or ridesharing element of an operator--the brokerage was the operator. Demonstrations in Bridgeport and Westport, Connecticut, involved total reorganization of these agencies to better function as a brokerage. The definition of brokerage provided in the Bridgeport evaluation states:

> Brokerage is the combination of management functions that conceives initiatives, and then sees to their orderly development and operation, fostering and applying the necessary planning and evaluation tools and criteria to fine-tune the action to success. (9: p. 37)

The evaluation goes on to define three management functions for brokerage: comprehensive planning, service evaluation, and overall management. To put it another way, this brokerage process would identify needs, assure services met those needs and manage the process within a single planning and operating organization. Market research activities were explicitly foreseen to aid in this process to identify needs, and innovative services (fixed-route, E & H services, community-based transit, shared-ride taxi, employment center bus service) developed to address those needs.

While these "integrative" brokerages may seem a far cry from the passive, intermediary role envisioned for Knoxville, the common element was still a client or demand orientation and the belief that different user groups or target markets required different and often innovative services. Regulatory reform was still an important activity, for many of these innovative services required such regulatory issues to be resolved. These two brokerages did, however, represent a clear departure from passive facilitation of supply in that the matching process very often involved the direct operation of a service deemed necessary.

A final variant to brokerage was termed "decentralized brokerage." The decentralized approach was applied to large metropolitan areas and regions and involved the needs assessment and service identification functions being vested in the hands of localities. The role of the regional body, in managing the areawide "brokerage" program was seen as reviewing locally initiated plans and service policies, channeling funds and offering technical assistance to those localities. The advantage of this approach, as cited by the evaluators, was the ability of the regional body, through funding and technical assistance leverage, to coordinate the various local services and to reconcile these activities with regionwide services, programs and policies.

In the decentralized demonstration in Northeastern Illinois, a variety of local paratransit services were funded including E & H services, as well as community-based and transit feeder services. In the case of the Los Angeles County demonstration, the funds could be used for any transportation purpose, including the "purchase" of additional regional fixed-route service. The catalyst behind each of these demonstrations was a dedicated regional tax to be used for improving local transportation services. The commonality between "decentralized" brokerage and "centralized" brokerage is again the orientation toward identifying disaggregate transportation needs and facilitating the provision of services deemed appropriate to effectively address those needs.

The above discussions illustrate the variety of definitions and variants that have been utilized under the general concept of brokerage as it applies to transportation. This variety may serve to preclude the formulation of a single, all-encompassing definition for brokerage at this point. The above

discussion does suggest, however, two general conclusions. First, one common element found in all brokerages was the **reorientation or refocusing of transportation planning and implementation toward the identification and accommodation of demand rather than the promotion of service.** In concept, a "demand-oriented" agency and "supply-oriented" agency may seem like two ways of viewing the same organization. In practice, however, these two orientations have operated very differently. These differences will become more apparent in Chapter 3.

Second, **the degree of market intervention seems to the key differentiating factor causing a single definition to be elusive.** While it was the intent of most brokerage projects to simply facilitate the matching of supply and demand, many projects resulted in various services being directly provided by the broker. The issue of market intervention by the brokerage is the primary focus of the following discussion concerning the various intrepretations of the brokerage concept and its application to the demonstration projects.

2.2 RETROSPECTIVE INTERPRETATIONS OF BROKERAGE

As discussed above, many of the brokerage demonstrations seem to have outstepped the initial passive, intermediary role outlined for Knoxville and elsewhere. The key point of departure from the original brokerage concept seems to be the actual provision of transportation services by the brokerage organization, defined here as market intervention. The key issue thus becomes: does the brokerage function cease to exist when the broker is forced to directly provide a service, even if that service is deemed necessary to satisfy some unmet demand identified by the broker?

A host of brokerage "analysts" and "interpreters" have forwarded their thoughts on the concept, on the variability exhibited across demonstrations, and on the range of roles assumed by brokers. This section presents a number of those interpretations. Those brokerage interpretations defining a more passive role are presented first; those directly questioning the more activist role discussed last. This section is intended to suggest just what can be concluded about brokerage, given that a single definition may be elusive due to the issue of market intervention.

One interpretation defining a more passive role for the broker postulated that brokerage represented the combining of the planning and implementation function into a single organization. (20) This would result in better coordination between the two functions and, at the same time, the broker would be a proponent of the strategies it was trying to implement. As the broker was assumed to have no clear allegiance to any one mode or target group, this planning-implementation link meant that transportation needs would be addressed in a more effective and organizationally efficient manner. Additionally, the brokerage function was outlined to include project monitoring, and as such represented a dynamic feedback process, whereby this information would be used to "fine-tune" the system of service elements as well as provide input into subsequent planning activities. Thus brokerage was placed into the context of the "traditional" planning process in order to conceptualize the broker's role in this framework.

Another interpretation viewed the broker's functions as persuading various parties to engage in activities related to the objectives of the brokerage. This interpretation further defined the broker's role as:

> The broker, serving some overall public objective, decides upon the type of service it wishes to facilitate which will best meet the needs of the target population(s) and the overall objective. Its role is then to persuade: 1) the parties involved in the provision of the service that it is in their best interest to offer the service, 2) the target population that it is in their best interest to use the service, and 3) the parties involved in the (transportation) environment who stand to oppose the service or whose support is necessary for the support of the service. (2: p. 29)

This interpretation also seems to support the passive, intermediary role outlined for the broker in the Knoxville model and redefines matching as persuasion, but seems to stray somewhat from the demand orientation of earlier definitions.

As stated above, several interpretations focused on the evolution of the brokerage concept from the passive to more active stance in fulfilling brokerage objectives. One interpretation stated:

> If (brokerage) can identify markets and understand each markets' preference for service, it should be able to match supply with

> demand--to broker between markets and services. This intervention can take several forms: the most limited form is that of the pure brokerage which restricts itself to improving the flow of information between buyer and seller; a more activist form is the regulatory approach which seeks to open or close market opportunities; and the most interventionist role which seeks to change the actual supply and demand functions. (14: pp. 4-5)

A similiar interpretation contended that the brokerage concept, as applied in a number of the early demonstrations, had changed to describe approaches to coordinate and integrate service providers and as such represented attempts to actively modulate transportation demand. Whereas brokerage was originally conceived as oriented principally toward demand determination, applications of the concept were actively involved in determining the form and amount of transportation supply. This interpretation contended that earlier efforts had relied on regulatory change--later efforts on negotiated attempts, often fostering a previously nonexistent service. As such the focus of brokerage was management as opposed to planning. This interpretation concluded by pointing to the need for a new breed of transportation professionals, who were skilled managers and negotiators rather than strict planners and technicians. (3)

A final set of interpretations attempted to structure the differing forms and degrees of intervention exhibited by the brokerage concept. One such interpretation explicitly stated:

> The brokerage concept, while intuitively appealing, is a conceptual nightmare. Outside of a common sense notion and commitment to effectively exploiting all transportation options and possibilities within urban areas, there does not seem to be much in the way of commonality in the definitions used. (13: p. 4)

A solution to this dilemma was presented in the form of a brokerage typology. Several researchers delineated a range of possible brokerage roles, which, according to these interpretations, varied most notably with respect to the degree of broker activism in reshaping the market structure. The following is one version of a typology of brokerage roles:

- **passive facilitator** of market transactions (e.g. carpool matching);
- **regulatory activism** limited to the removal of market-distorting rules and practices (e.g. regulatory barriers to vanpooling);

- **entrepreneurial activism** to provide services that would otherwise be unavailable; and

- **comprehensive activism** to change the overall institutional and planning context, and perhaps also to integrate the full array of transit and paratransit. (1: p. 39)

Beyond formulating a brokerage typology, these interpretations further suggested two conclusions related to brokerage. First, brokerage may be just a "tool or attitude toward some preferred (transportation) future." In other words, brokerage was viewed as yet another manifestation of what can also be called multimodalism, systems integration, systems management, public entrepreneurism or a host of other descriptors. Second, while brokerage may represent a slightly different orientation to this "preferred future" than the other terms offered, brokerage really "only accelerates an already present tendency--the evolution toward multimodalism." (13: p. 9)

2.3 BROKERAGE DEFINED AS A TRANSPORTATION APPROACH

While one purpose of this report was to formulate a single definition of "brokerage," the range of applications and variety of interpretations (as documented above) suggests that no single definition is obvious. As illustrated in the first section, no one organizational structure, planning process or institutional arrangement typifies brokerage. Any definitive statement about brokerage would have to emphasize instead the distinctive **approach** adopted by "brokers." This approach refers to the way in which a broker perceives a transportation problem. Whereas the means of addressing and structuring the solution may differ significantly enough so as to preclude a single definition, this brokerage perspective remains the one common element.

For the purposes of this report, brokerage is defined as an approach, characterized by an **orientation toward understanding and accommodating the actual demand for transportation services as identified by and through specific target populations.** This orientation differs from traditional transportation agencies that implement single-mode, often static delivery systems that are intended to serve areawide, aggregate demand for a range of

needs. Whereas this traditional "supply orientation" begins with the service and attempts to induce travel behavior changes, the brokerage approach attempts to understand travel demand behavior on a manageable level and then tailor transportation services to accommodate that demand.

To better delineate the brokerage approach, six components or orientations are enumerated below. Each of the demonstrations examined in this report exhibited one or more of these brokerage components:

Market-oriented
- assesses specific needs of target groups
- designs, facilitates and/or operates tailored services
- serves to inform potential users of options

Action-oriented
- entrepreneurial, geared toward specific tasks
- links planning and implementation
- brokerage viewed as means to task-specific ends

Innovation-oriented
- unbiased toward modes or techniques
- willing to try new and untested methods and services
- confronts rather than creates barriers

Multimodal-oriented
- seeks to achieve best mix of services (public and private)
- promotes range of services and options

Management-oriented
- broker is manager of service elements
- service elements are provided in a number of ways (including direct operation by broker)

Advocacy-oriented
- promotes services it deems necessary to potential suppliers
- promotes services it facilitates to consumers
- promotes services it facilitates to key decision-makers

Given this definition of brokerage as an approach to transportation problem-solving, the complicating issue of the degree of market intervention is largely resolved. Thus, while "entrepreneurial" or "comprehensive" activism (service provision, demand modulation) may not be brokerage as defined in its purest sense of an intermediary role, such activism does still conform to the brokerage approach and can be identified along one or more of the orientations listed above.

3. BROKERAGE PLANNING AND IMPLEMENTATION

With brokerage defined as an approach to transportation problem-solving, this chapter describes the set of brokerage projects and attempts to outline the parameters and processes that define the approach as demonstrated. The demonstrations and case studies can generally be classified into four distinct groups: 1) commuter, 2) elderly and handicapped, 3) decentralized, and 4) integrative and community brokerages. The first part of this chapter describes these four brokerage classifications, keying on the unique objectives, client groups, and set of services facilitated.

The second part of this chapter explores several facets of brokerage planning and implementation as evidenced by the demonstrations themselves. Discussion of the development and planning of the brokerage projects keys on demonstration motivations, antecedents to the projects, brokerage goals and objectives, planning and advocacy, and on the organizational location of the brokerage. Discussion of demonstration implementation keys on: needs assessment, supply determination, and on the actual mechanisms for matching supply and demand. Where appropriate, this discussion also points to differences between the "brokerage approach" and other planning and service delivery mechanisms.

3.1 CLASSIFICATION OF BROKERAGE PROJECTS

3.1.1 Commuter Brokerage

Five demonstration projects involved brokering of services targeted to commuters. The application of the brokerage approach to commuter transportation was founded in the realization that "there was substantial unused capacity in both public and private vehicles (i.e. empty seats in autos and buses)" and that the public sector needed to "look for ways to utilize this unused capacity to meet ... mobility needs." (19: pg. 2) Brokerage could, in effect, provide the necessary bridge between those with excess

capacity and those able to utilize that capacity. In most cases it was felt that simply improving the availability of information on pooling opportunities was the key to effectuating this match. As such, the commuter brokerage projects were similar in most respects to the host of ridesharing agencies and projects established in the 1970's.

Commuters are a target market particularly suited to brokerage for several reasons. First, commuters tend to exhibit very routinized travel patterns. Second, a range of service alternatives exists to serve this market, including car- and vanpooling as well as fixed-route and subscription transit. Finally, a common residential or employment trip-end helps to facilitate matches and provides a commonality among potential users.

The brokerage demonstrations involving commuter services included: Knoxville, Newport News, St. Louis, Dade County, and Minneapolis (the latter involved solely with ridesharing). The Knoxville, Newport News and Minneapolis projects each involved employer-based ridesharing services as well as vanpool leasing. Concerning the provision of vans, one project involved leasing directly through the brokerage agency; one involved leasing via a third-party provider; and one site promoted the availability of vans from a ridesharing agency in an adjacent urban area. The St. Louis and Dade County brokerages originally envisioned ridesharing elements as part of a more comprehensive effort aimed at providing a range of services to a number of client groups. The Dade County brokerage has deemphasized its ridesharing element in favor of other paratransit priorities and the St. Louis demonstration did not develop beyond the planning stages.

The basic goal of commuter brokerage (as with most ridesharing programs) was to increase vehicle occupancy and thereby reduce auto usage and induce concomitant benefits related to air quality, energy conservation, and congestion. The project objectives for the commuter brokerages were all generally aimed at facilitating the use of this excess capacity, such as:

- promote alternative modes (change mode split)
- educate the public as to the virtues of ridesharing
- better coordinate the range of services promoted

- better coordinate the set of agencies involved
- facilitate the necessary reforms to regulatory and institutional arrangements

Ridesharing programs, as implemented within the brokerage approach, may be the activity that most closely typifies the passive, intermediary function of brokerage. These commuter projects involved: 1) contacting employers for support and surveying purposes, 2) surveying employees to determine individual demand and supply opportunities, 3) matching that demand with identified supply (whether that be a van, bus or car), and 4) providing assistance and follow-up to effectuate the actual match. As such, demand determination was not based on projections or estimations, but on the actual demand determined on a disaggregate level. Supply, similarly, was based on actual pooling opportunities and utilized user-supported modes. The broker presumably had no vested interest in promoting any given mode, although van leasing arrangements may have influenced marketing programs, just as brokerages housed within transit agencies may be influenced by and potentially affect fixed-route bus operations.

3.1.2 Elderly and Handicapped Brokerage

The brokerage approach has also been applied to the needs of elderly and handicapped (E & H) individuals requiring specialized transportation. Some demonstrations focused solely on this type of brokerage, including those in Pittsburgh and Lancaster, Pennsylvania, and San Diego and Mountain View, California. E & H brokerages that were part of a larger effort include projects in Knoxville, Dade County, Northeastern Illinois, St. Louis, Bridgeport and Newport News.

While the commuter brokerages seemed to be oriented toward inducing changes in the demand for transportation services, E & H brokers were more oriented toward influencing transportation supply. In that services were generally provided prior to the demonstrations by social service agencies (SSAs) or by public agencies, one function of the E & H broker was to serve existing demand with better quality and more efficient arrangements. One

reason posited for the wide application of the brokerage approach to E & H transportation was the perceived duplication of services and concomitant resource inefficiencies associated with the variety of providers and sponsors of E & H services. The diverse travel patterns of groups and unaffiliated individuals tended to frustrate any means of efficiently serving those needs with a unified system or single service type. Inefficiencies and high costs were attributed to the dedication of vehicles for single purposes and by single SSAs (precluding any economies of scale) and to the use of union labor in the case of publicly provided service. In the case of SSAs, additional inefficiencies were created by the use of agency personnel for transportation activities (who could be more productively used in pursuits more central to the function of the agency).

The purpose, therefore, of most E & H brokerages was to remedy these imperfections by developing a coordinated transportation system providing agencies, and in some cases, unaffiliated individuals, with a more cost efficient and effective way to serve all or some of their travel needs. The objectives, then, of E & H brokerages were generally to:

- identify the needs of the E & H transportation dependent population
- coordinate social service agency activities to better utilize the range of public and private providers
- address institutional and regulatory barriers that serve as impediments to improved transportation productivities
- improve both the quantity and quality of E & H transportation services
- reduce the overall costs of providing E & H transportation service to individual social service agencies, to public sponsors, and to users if possible

Three different mechanisms were used by the brokerages in order to implement their E & H transportation systems: coordination, contracting, and direct provision. The first mechanism generally involved a one-time effort to facilitate a coordinated and more efficient E & H system. This mostly passive activity involved negotiating formal and informal agreements among SSAs to allow for shared-ride trips across sponsoring agencies or providing other

assistance to SSAs to develop a rather loose network of transportation services for the elderly and handicapped. In Knoxville this meant performing "transportation audits" for interested SSAs and assisting these agencies in arranging for better contracted service provision or improved in-house administration and delivery of service. In Bridgeport, the broker assisted local SSAs in establishing the non-profit "Human Services Transportation Consortium" to formalize cooperation among agencies and contract for needed service provision. Finally, in the Northeastern Illinois decentralized demonstration, the broker assisted localities in planning and implementing E & H services, yet this relationship was more than passive in that the regional agency provided the actual operational funding and required that a standardized paratransit vehicle be utilized in many cases.

The second type of E & H brokerage mechanism involved the broker as a contracting agent, by creating a network of providers from which SSAs could purchase service via the broker. This somewhat more activist role still involved the broker as an intermediary (between suppliers, users and funding sources) and very often required that the broker resolve regulatory issues in order to establish this network. These regulatory issues often involved dealing with the local public utilities commission (who regulates potential providers) and with the local transit union (to obtain an agreement assuring that the union would not be negatively affected by the new services).

In Pittsburgh, an independent, third-party management firm was retained by the local transit operator to act as the E & H transportation broker. The role of the broker was to contract with private and non-profit carriers to provide low-cost, accessible transportation for SSA clients and unaffiliated individuals who could not use conventional transit. As an intermediary between suppliers and users, the broker also served as a billing agent, as a registrar of eligible users and as a marketing agent for the service network. The competitive bidding process served to keep costs down and even improve service quality. A similar project in Lancaster, Pennsylvania, involved the establishment of an independent broker to satisfy certain coordination and transit accessibility objectives. The Lancaster Integrated Specialized Transportation System (LISTS) is fully funded by the agencies and programs that sponsor trips for E & H individuals.

In San Diego, the brokerage was housed within a department of the city administration that was charged with developing an alternative to the city-operated dial-a-ride system. The brokerage approach was utilized to better match contracted services with specific target market needs. As such, different arrangements were made for ambulatory users than for those who required lift-equipped service. Service for outlying areas was also provided by a different provider. Some service utilized provider-side subsidy mechanisms; others utilized user-side subsidy mechanisms. Of particular interest to this analysis was the broker's recognition that different needs should and could be served by different and often more responsive means.

Finally, the last E & H brokerage mechanism involved the actual provision of transportation service. In the case of Newport News, the broker exhausted methods to coordinate SSAs or to contractually facilitate a network of providers. Thus, given the determination of need and relationships developed with user groups and SSAs, the broker (housed within a transit agency) deemed the service necessary enough to provide it directly. One private carrier was utilized to provide back-up or overflow service. Another activity undertaken by this broker was the review of Section 16(b)(2) requests by SSAs for specialized vehicles. This allowed the broker to monitor and influence the supply of E & H service in the area. In Mountain View, the broker arranged group trips among targeted low-income elderly and directly transported these clients in a dedicated van.

3.1.3 Decentralized Brokerage

Decentralized brokerage involved the facilitation and coordination of local projects and services by a regional agency. Decentralized brokerages were characterized by delegation of operational and administrative responsibility to subordinate or contracted entities. As such, a decentralized brokerage approach was primarily a management function with the client group being local governments and agencies. In Northeastern Illinois and Los Angeles, the brokerage was really a management entity overseeing individual brokerage efforts within its jurisdiction. The regional government, as a funding agency, solicited proposals from local agencies and

provided technical assistance to those agencies in assessing local needs and developing compatible services. The approach in Northeastern Illinois was resource efficient in that only projects that were deemed feasible would be considered for funding. As such, these decentralized brokers were actually serving to improve the capability of the localities to solve their own problems, with the regional government providing partial funding and technical information.

In Northeastern Illinois, the local projects fostered by the decentralized brokerages included: E & H transportation services, community-based services, and feeder service to the regional transit system. In Los Angeles, technical assistance and information were provided on a range of new or enhanced service options, on manufacturers of bus parts, shelters, wheelchair lifts, on Transportation Systems Management (TSM) improvements, and on more administrative matters such as contracting for service or expertise.

The objectives of the decentralized brokerage demonstration projects included:

- administering the return of regional tax monies to localities
- encouraging a wide variety of transit and paratransit applications to address a range of user needs and markets
- providing necessary technical assistance to localities
- coordinating projects to assure consistency with regional goals and plans

The decentralized brokerage role delegated primary brokerage responsibilities to local agencies, such as needs determination, service design and provider selection. The central broker (housed within a regional agency) exerted control over the services offered at the local level in several ways. The most important control mechanism was as a funding source. The regional broker solicited service proposals from local agencies and competitively awarded funds to those that appeared most feasible and able to fit into the overall regional transportation system. Alternatively, if the funds were allocated on a formula basis, the broker still retained review powers over the appropriate uses of the funds.

Technical assistance was the second control mechanism as the regional broker provided planning and operational guidance to agencies with little expertise or resources to do so on their own. The decentralized broker could thus influence the types of services and projects to be developed. Whereas the Northeastern Illinois broker had discretion over which localities received funds, the Los Angeles broker had to rely on the type and amount of technical assistance provided to influence projects.

Finally, the regional broker required financial and operating data to account for its funds, and thus was able to closely monitor the services being developed and provided. Even though funding was the key mechanism for controlling the type of services fostered and the amount of information returned, localities within the jurisdiction of the regional broker were in no way bound to cooperate with the broker if they did not request funds or technical assistance. As such, the ability of the broker to fully coordinate the range of local transportation service was limited.

3.1.4 Community and Integrative Brokerage

Two final applications of the brokerage approach involved addressing the transportation needs of specific geographic areas or communities and the reorientation of an entire transit agency to reflect the brokerage approach. In both cases, the client group was the general public but involved a reorientation of the way in which needs were determined and services provided. Each application is discussed below.

Community brokerage refers to developing and implementing transportation services designed to meet the needs of the general public in areas unable to warrant traditional, fixed-route service with conventional, full-size buses. As exhibited by the demonstrations, community transportation service included shared-ride taxi service, demand-responsive service in outlying communities, and feeder service to regional trunk lines. In this case, the broker would assess the specific patterns and needs of a community and tailor service and provider options based on those needs and a consensus within the community. Such "paratransit" services were developed by the brokerages in Northeastern

Illinois, Dade County, Bridgeport, Westport, and potentially could be developed in Los Angeles. In some cases the services were designed to act as test agents for potential fixed-route demand; in other cases the services acted as late-night or weekend supplements for conventional transit. Another differentiating factor was the provider of the service--in some cases it was the regional transit operator; in others it was contracted out to private providers; in still others it was provided by an operator or agency within the targeted community.

Integrative brokerage involved the reorientation of an agency toward providing or facilitating a range of service options, each designed to meet the specific needs of individual target markets. The brokerages in Westport and Bridgeport, Connecticut each involved the total restructuring of a transit agency to a market-based services approach. The goal was to serve unique markets with unique services. Market research efforts would identify target groups and their specific needs, service planners would develop tailored services (cognizant of existing resources), and the operational unit or contracted providers would implement the service. The fixed-route system was retained, yet hopefully was more responsive to the actual demand for such service. Westport involved the enhancement of the fixed-route system with supplemental and commuter services, while Bridgeport involved route restructuring to eliminate duplicative and unproductive service. Both demonstrations involved innovative marketing campaigns based on the results of initial and ongoing market research efforts. One advantage of the integrated approach was the ability to price service at differential levels, to more adequately address issues of fare equity, cost of service components and revenue recovery.

The specific types of services fostered by the integrative brokerages included: feeder service to a commuter rail line, an E & H transportation consortium, community-based fixed-route and demand-responsive service, employment center service, and even a small package delivery service.

Building this family of services often required the operator to reorganize and redefine many organizational and institutional practices. In the case of Bridgeport this involved reorganizing the agency to strengthen the management

and planning functions to better assess disaggregate needs and develop services to be operated by the agency itself or by contracting service from other sources. Brokerage thus became the approach taken to achieve this integration.

Other "integration" projects were less ambitious in that they tried to integrate but one or two service elements with the fixed-route system. In the case of ridesharing, it was felt that integration of pooled services with conventional service would enable one to complement rather than compete with the other. In the case of E & H services, the specialized service was viewed as a relief valve to other more costly and capital-intensive options, such as having to acquire vehicles and provide service with union drivers.

3.2 BROKERAGE INITIATION AND DEVELOPMENT

This section describes the brokerage approach itself, as operationalized in the demonstrations and case studies. This involves exploring the development of the projects and the planning process utilized. Those decisions and events leading up to the actual implementation of the brokerage (and its related services) help to explain why the brokerage approach was chosen; how the projects evolved; and what was expected of the projects (both by the brokerage planners and others involved in their conception and implementation). As such, the motives underlying the projects and local experience with multimodalism and public entrepreneurism become key factors in this development. As the projects moved forward toward implementation, certain decisions on goals and objectives and the location of the broker became crucial. Each facet of the project's pre-implementation planning activities will be discussed below.

3.2.1 Demonstration Motivations

The motivations for the brokerage demonstrations provide insight into why the projects were originally conceived. One important issue to be addressed is whether the projects were conceived as the appropriate alternative for

service delivery or simply as an innovation with which to experiment. Put another way, was the brokerage initiated as a response to some widely perceived need or was it simply based on the desire to test what was conceptually a very appealing, albeit ambiguous, approach to transportation problem-solving. Obviously, the projects were designed as demonstrations, and therefore experimentally based. The factors motivating the projects, however, were presumably founded on an agreed-upon need for the perceived benefits that brokerage could provide. Outwardly (as enumerated in the individual evaluations) motivations for the projects included the desire to:

- coordinate among the myriad of services, providers and users;
- improve the efficiency of the service delivery system;
- explore new markets for alternative transportation services;
- test innovative service concepts (shared-ride taxi, computerized carpool matching, third-party vanpool provision, innovative marketing techniques, etc.); and
- fulfill specific legislative and community mandates.

Often underlying these motivations, however, two other factors seemed to drive the initiation of many brokerage projects, including the desire to:

- implement the brokerage approach for its own sake, based on its conceptual merits; and
- receive federal demonstration monies with no matching funds required.

The first set of motivations suggests that some void was present which the broker was envisioned to fill. In other words, a specific problem existed (either a needed service was not being delivered or the existing set of transportation agencies were unable to collectively manage the transportation system) that the brokerage approach was widely perceived to be able to solve. The second set of motivations suggests that the brokerage concept was embraced first, and an entity established to solve as yet undefined problems.

The first brokerage demonstrations, in Knoxville and Mountain View, were primarily motivated by academicians attempting to implement and test an innovative concept. Subsequent demonstrations in Newport News, St. Louis (as

proposed), and Dade County, were also motivated by the desire to form a brokerage, but seemed to lack the needed institutional support or a true understanding of what the brokerage would address. In other words, brokerage seemed to be an end in and of itself rather than a means to solve a particular transportation problem. In Dade County, the target populations were already defined in the proposal with little explanation of how these groups became "targeted." In St. Louis, the fact that no regional body wished to undertake the brokerage role (to address what were identified as regional problems) is testimony to the lack of institutional support. Many of the project evaluations cite the grantee's knowledge of prior brokerage projects, and the desire of the grantee to replicate the approach in their situation. The national exposure afforded the Knoxville demonstration did much to perpetuate this desire to replicate the Knoxville model in other urban areas. Coupled with this was the federal government's desire to fully test the concept in a variety of settings. These factors may have caused later brokerages to be motivated by lure of both the Knoxville story as well as the fact that the government was funding demonstrations under the rubric of brokerage.

It would be naive of this analysis to not acknowledge the strong motivating influence of the demonstration monies. This is not to say that acceptance of the federal demonstration funds was a given or to be assumed across all cases. Many sites, however, did receive planning monies to develop their proposals and no matching monies were required. In the case of the Newport News demonstration, the chairwoman of the transit commission became familiar with the brokerage concept as implemented in Knoxville and subsequently persuaded the rest of the commission to seek a demonstration grant. The evaluation points to the reluctance of the rest of commission and their skepticism toward the concept, yet the fact that no local monies would be required seemed to be an important persuasive factor. (19: p. 21) It might also be said that one reason the Greater Bridgeport Transit District recruited the executive director of the Westport system was to utilize his grantsmanship skills in attaining federal demonstration and planning monies.

Many brokerages were a direct response to formal and informal mandates placed upon the sponsoring organization. In Northeastern Illinois, the brokerage was partially conceived to satisfy the demands of suburban Chicago

taxpayers who perceived themselves as footing a grossly unequal portion of the CBD-oriented system. As such, the brokerage was conceived as a framework to address locally-initiated service proposals, with responsibility and accountability primarily resting with those localities rather than with the regional body. More formal mandates that provided a motivation for the brokerage demonstrations include the projects in Minneapolis and many of the E & H brokerages. In the Twin Cities, the state mandated that the Metropolitan Transit Commission (MTC) "promote carpools and employer vans," and that by January 1, 1980 a regional aggregate statistic be reached of 50 percent drivers and 50 percent passengers. A subsequent, independent study of ridesharing alternatives recommended a brokerage approach and was subsequently adopted by the MTC. (5: pp. 3-5, 3-6) In the case of the E & H brokerages, the brokering organization was often created to address federal legislative mandates requiring transit vehicle accessability or provision for alternative service or, in the case of San Diego, a state mandate to coordinate social service agency transportation programs.

Closely related to the motivations driving the initiation of the brokerage demonstrations were the expectations placed upon the projects by other agencies and groups. Two distinct sets of expectations can be enumerated: those that foresaw negative impacts and those that viewed the brokerage concept as a panacea for all the region's transportation problems. The former expectations revolved around the fear that brokerage was a mechanism or guise to challenge organized transit labor by introducing predominantly privately provided services. This fear was partially alleviated by the 13(c) requirement placed on many of the projects. An equally strong sentiment was the fear by many local transportation agencies (planning and operating alike) that brokerage was designed to diffuse authority or otherwise usurp their influence and responsibilities. Alternatively, some local transportation agencies and decision-making groups placed high expectations on the ability of the brokerage to solve the region's transportation problems. Bridgeport is a good example of this, whereby the brokerage concept was viewed (and promoted) as the salvation for a deteriorating bus system. Expectations for the Bridgeport brokerage to satisfy economic and community development objectives were perhaps premature given that the broker was to rebuild the transit system literally "from scratch." These suspicions and

overexpectations probably placed undue pressure on the brokers and may have affected the manner in which other organizations and individuals reacted to the broker upon implementation.

The above discussion strongly suggests that while the motivations for many of the projects were founded on the proported benefits of the approach itself, a myriad of other motivations also drove the projects. It should again be stressed that the brokerage demonstrations were experiments of a rather novel concept, and the approach probably could not have been sold to local decision-makers solely on its conceptual merits alone. Seldom was brokerage sold as the most effective organizational alternative for solving the area's transportation problems. Brokerage proponents may well have had to combine the potential of the approach with the lure of federal demonstration monies to convince local decision-makers and the transportation community to try brokerage.

3.2.2 Demonstration Antecedents

An issue related to brokerage motivations is whether the brokerages were part of an evolutionary trend toward multimodalism and demand-responsive service options. If, as some brokerage analysts contend, such an evolution is needed, then prior attempts at brokerage-type services and organizations should be in evidence at the demonstration sites. This issue is also directly tied to the issue of concept transferability, for it attempts to associate brokerage effectiveness with the presence of this evolutionary pattern toward the demand-oriented, multimodal ideals.

The antecedents to the demonstrations, however, do not strongly support this trend; instead, a great deal of variability exists among brokerage predecessors in the demonstrations. In some cases, demonstrations were undertaken in cities with distinct histories of innovation in transportation and clearly stated desires to coordinate and integrate the disparate elements of the system. In Knoxville, a clear precedent was set by the ridesharing efforts of the Tennessee Valley Authority and the prior matching and research efforts of the University of Tennessee. In Minneapolis, the brokerage was

preceded by the comprehensive vanpooling program pioneered by the 3M Corporation, and areawide ridesharing programs sponsored by the state and by various downtown business organizations. As such, the brokerage approach was conceived to build upon these efforts and provide a single focal point for commuters to be matched with available services.

In other demonstrations, a strong history of innovation and diversification was apparently lacking. In these cases the brokerage was more a starting point for this evolution than a step along an established path toward such ideals. In Westport and Dade County, a major reason for the brokerage was to explore ways of using local taxi operators to provide new and expanded services without relying on conventional means (i.e., a full-size bus with union operators). In San Diego, the brokerage approach (with taxi and user-side subsidy elements) was another in a series of attempts to coordinate social service agencies. In Pittsburgh and Lancaster, the brokerage approach was preceded only by a series of coordination studies which recommended the approach.

Finally, a few demonstrations seemed to draw on the experiences of other, earlier brokerage demonstrations. In Bridgeport, the board of directors were specifically interested in applying the integrative approach utilized in Westport to revitalize their ailing system. In Newport News, while there was substantial ridesharing and subscription bus activity to the local shipyard prior to brokerage inception, one major motivating factor was the successful vanpooling program in neighboring Norfolk, Virginia. The Lancaster project directly drew on the experiences and results of the Pittsburgh project, both organizationally and operationally.

The above examples point to the fact that the brokerage demonstrations themselves did not represent a distinct stage in an overall evolutionary trend toward multimodalism or diversification. In fact, the brokerage was often the initial step toward such ideals, and as such, unable to build upon the experiences and precedents set by prior attempts and programs. This means that, in the case of the demonstrations, attitudes and organizational relationships were often formed after inception of the formal brokerage function, rather than as a response to a clear evolutionary trend.

3.2.3 Brokerage Goals and Objectives

A major determinant of the form that the brokerage takes and of its eventual effectiveness is the specific goals and objectives that the broker sets for itself. The first section of this chapter outlined some of the broader goals and objectives associated with each of the four brokerage types. The following discussion explores some of the issues surrounding the formulation of these objectives and the possible ramifications of selecting certain goals. The first issue concerns whether the objectives of the projects were directly related to the critical local problems they were intended to address. This is directly related to the underlying motivations of the projects and will only be touched upon here. The second issue concerns the specificity of individual project objectives (i.e., were the objectives so broad as to elude evaluation or accountability?) Thirdly, was the set of goals and objectives so ambitious as to be unrealistic or unable to be implemented in a single effort? Finally, were there any specific but unstated objectives underlying the brokerage?

Concerning the relation of brokerage goals and objectives to perceived local needs, some projects were clearly born out of a deliberate process to define the critical transportation problem areas, and then consider alternative approaches to solving such problems. Such a process then generated a set of objectives geared to both the local set of problems and the unique ability of the brokerage approach to address those problems. The Lancaster E & H brokerage was a clear example of such a process. The regional planning commission conducted a comprehensive analysis of the existing paratransit network, identified specific problem areas of duplication and inefficiencies, and established overall goals for a coordinated system. This process also produced a set of organizational alternatives geared to address these problem areas and goals. A new, non-profit brokerage entity was chosen for its ability to act as an unbiased intermediary between carriers and social service agencies.

Conversely, the architects of some demonstration projects seemed to embrace the brokerage concept first, and then define problems and concomitant project objectives to justify the demonstration. The Newport News

demonstration may be one example of this "reversed" process. As cited above, project initiation was largely due to the interest of a Peninsula Transportation District commissioner (the district being the eventual grant recipient) in the Knoxville project. In some sense, Newport News wanted to try the Knoxville approach themselves, with subsequent project development providing a justification for this desire to implement a brokerage.

The second issue related to brokerage goals and objectives concerns how specific the objectives were that drove the projects. In some cases, the objectives were so vague that any meaningful evaluation or accountability was virtually impossible. These objectives, for example, included such non-descript elements as: improve mobility, reduce congestion, coordinate, facilitate, and increase the efficiency and effectiveness of the transportation system. Measures of success in attaining such objectives are difficult to formulate and even harder to quantify. As such, evaluating the effectiveness of the approach becomes very subjective. In defense of such objectives, it might be said that more specific objectives could not be established, for if brokerage is an approach to a problem, specifics of its functioning and even short-term purpose may be undefinable during early stages of project development. Additionally, broad-based, nonspecific objectives can be a very effective political tool for garnering support from a range of advocacy groups and decision-makers.

In some cases, the individual objectives may have been too specific--for example, predicting specific levels of effectiveness for particular project elements. In Dade County, specific accomplishments were forecasted such as percent increases in taxi and bus ridership and productivity. For the same reasons cited above, this may cause too harsh an evaluation when specific milestones are not reached, due to changing priorities or unforeseen circumstances.

The issue of specificity may be critical in the development of a brokerage project. Too vague an objective may result in unguided results or undue expectations. On the other hand, too specific an objective may limit the flexibility of the brokerage to better refine needs and opportunities. Additionally, very specific objectives may place premature overexpectations on the project by supporters and opponents alike.

The third consideration in assessing the goals established for brokerage efforts is the overall scope of such sets of objectives. Again, this is closely related to the purpose of the broker. Too limited a set of objectives and targeted needs may be counter to the integrative and coordinative purpose of the broker (i.e., the desire of the broker to utilize all modes and resources to effectively match needs and opportunities). Alternatively, those demonstrations that were all-encompassing seemed to suffer from a series of frustrations and harsh assessments based on the fact that specific objectives were not met. The Knoxville brokerage seems to exemplify this problem. Objectives for the brokerage included: improved goods movement, improved employment opportunities for the low-income rural population, social service agency coordination, and increased service provision opportunities for small and minority businesses. While limited accomplishments were realized in some of these areas, the fact that the broker became "bogged down" with commuter ridesharing and concomitant institutional and regulatory change restricted the staff from developing most of the other elements.

The preponderance of overambitious objectives may be due to several factors. First, such all-encompassing objectives may be a response to a perceived need to be comprehensive enough to warrant a federal demonstration grant or to gain widespread political and institutional support. Secondly, an overambitious project may be due to the desire to be a comprehensive broker without thinking through the ability of the organization to fulfill such a self-imposed mandate or the willingness of local organizations to allow the approach to be truly tested. In fairness to the local initiators of the first projects, ambitious charters may have been partially due to the untested nature of the concept. Project developers really did not know what to expect, and therefore had little information on the effective range of activities that could be accomplished, or even attempted under the brokerage approach.

Finally, in some cases it may have been the more implicit goals and objectives that were of greatest importance in guiding the brokerage. While such underlying objectives are not necessarily informal so as to hide their intent, their possible sensitivity may have precluded their formalization. In the case of Northeastern Illinois, the Regional Transportation Authority was attempting to strengthen a relatively weak suburban support base. The

evaluation pointed out "the paratransit program, which only accounted for $1.3 million annually, of a regional operating budget of $506 million and a suburban bus component of $36.7 million, very positively influenced the suburbs toward the RTA." (12: p. 122) In Westport, while the goals of the demonstration were simply to integrate the transit system and meet the needs of different markets, the implicit objective was clearly to influence and utilize the private taxi operators to provide non-conventional services. While regular Westport bus drivers were non-union, the reluctance of many of the demonstrations to explicitly express the desire to use private providers was partially due to the anticipated resistance on the part of organized labor and by those groups who desired for one reason or another to avoid the issue.

3.2.4 Pre-Implementation Planning and Advocacy

While the exact function of the brokerage may be determined only by the role it evolves into over time, a certain degree of advance planning and advocacy work was necessary to assure the feasibility of the brokerage in the given situation, as well as to chart the initial path for the new or changed organization. The amount of such pre-implementation planning is clearly determined by the local environment, yet an illustrative list of activities can be suggested from the demonstrations. In addition, pre-implementation advocacy activities of the projects will be discussed separately.

Planning - While the reasons for such planning were numerous, perhaps the most important benefit of this initial process was building the needed consensus to assure the acceptance of the broker by the transportation environment as a whole. By their very nature, the brokerages did not operate in a vacuum, and as such the ability to gain needed support or at least neutralize strong opposition was one of the most decisive factors in determining the success and effectiveness of the broker (as will be discussed in the next chapter). Another reason for advanced planning was to assess and formulate a preliminary inventory of the needs and opportunities that the broker would attempt to influence. While detailed target demand determination and supply availability was generally a major ongoing focus of the brokerage, this preliminary stage would presumably determine if indeed a need existed for the broker's services.

Given that the formal brokerage organization was often not yet established during this planning phase, a variety of groups and agencies could be involved. In the case of the demonstrations, such planning was often undertaken not only by the ultimate sponsoring organization, but by a regional planning agency, a group of ad hoc entrepreneurs interested in establishing a brokerage function for the area, or a third-party such as a consulting firm, academic research team, or the federal demonstration sponsors. With little or no formal implementation responsibilities, the planning entity often developed a far more ambitious project than was practical. Once implemented, the lack of planning involvement by key operating agencies often had a negative impact on the projects. In Knoxville, the brokerage was conceived by staff of the University of Tennessee, but once moved to the city administration, tensions between the city and the transit union were partially transferred to the brokerage. Similarly, in Pittsburgh, the brokerage was developed at a university. When transferred to the local transit operator for implementation, a very lengthy gestation period ensued (including protracted legal and institutional concerns).

Often this pre-implementation planning served more basic functions such as funding determination or decisions related to organizational location, staffing or the overall feasibility of implementing the brokerage concept itself. These steps may sound almost as a given, yet many of the demonstration evaluations pointed to the needs for well developed and rationalized plans. The evaluation of the Newport News demonstration stated this need clearly:

> The Easyride experience emphasizes that brokerage programs require early definition and focus. A realistic course of action must be defined when the program is initiated to avoid overextending staff and resources and to help ensure that program goals are accomplished. (19: p. 144)

Advocacy - In this context, pre-implementation advocacy refers both to the efforts to change the regulatory and legal environment to that which would benefit the brokerage function as well as efforts to solicit the support and/or ongoing involvement of the agencies and groups necessary for the approach to be effective (as mentioned above). The first advocacy activity was more formal and often necessitated complex negotiated agreements between the broker (or its sponsor) and affected parties such as the transit labor

union, other impacted operators, and public regulatory bodies, to name a few. Examples of such negotiated agreements included the various 13(c) agreements reached--some very time consuming and constricting of brokerage productivity potential (Knoxville); others quite straight forward and expeditious (Newport News). Formal litigation played a role in the advocacy activities of some demonstrations. In Westport, a lengthly and bitter court battle held up project implementation and centered around the allegations of one local taxi operator that the demonstration violated Section 3(e) protections of the UMT Act of 1964. In Pittsburgh, several regulatory conflicts centered around the issue of whether the transit operator or the state public utilities commission should regulate paratransit providers. 13(c) negotiations also played a role in Pittsburgh as a number of taxi operators sought similar protections as those being negotiated between the transit operator (as the grant recipient) and the local transit labor union. While ACCESS's regulatory challenge was based on the local situation, the 13(c) and 3(e) challenges were based on the use of federal funds to support the brokerage and its proposed services.

Planning as a distinct implementation phase - in response to a growing awareness by the federal sponsors as to the need for a structured and detailed planning phase in brokerage development and implementation, later demonstrations translated this awareness into an explicit two-phase demonstration process. Service and Methods grants were awarded for planning activities first, and upon full determination of the feasibility of the brokerage in the given location, an implementation grant was awarded. In Newport News and St. Louis, therefore, many of the above steps were undertaken prior to award of the full demonstration grant. While a grant was never awarded in St. Louis, the scope of work that was developed for the planning phase provides a good example of brokerage planning. Specifically some of the steps included:

- negotiate 13(c) agreement with local transit union
- inventory area ridesharing and special services providers
- develop ridesharing and special services promotional campaigns
- evaluate and design computer rideshare matching program

- draft and lobby for model legislation which would remove legal obstacles to brokerage activities
- appoint and meet with a brokerage advisory board and task forces to obtain support and advice
- recruit brokerage staff and establish the brokerage office (18: pp. 6-7)

3.2.5 Location of the Brokerage

As mentioned above, the entity that planned the brokerage was often not the agency to actually implement it. One key aspect of the projects' development, therefore, was the selection of an appropriate organization within which to house the brokerage. As implied by its original definition, the broker was conceived to be an unbiased intermediary--an entrepreneur with ties, but no allegiance to any one organization or mode. In practice, the majority of brokerages were not entirely autonomous and generally resided within an established agency. As encapsulated in Table 1-1, the organizational location of the brokerage included: 1) an existing transit operator, 2) a municipal agency (part of the city), and 3) a regional agency or planning organization.

Most brokerages housed within a transit agency were located in a separate paratransit or special services department. In most cases, this entity existed prior to the formalization of the brokerage function, but in some cases a new organizational unit was formed. These brokerages can be categorized into three types, varying with their ties to top management and their integration into the entire organization. The first type of brokerage was fully integrated into the agency (Bridgeport and Westport). While operating and maintenance departments still existed, the overall management of the property was oriented toward the brokerage approach and diversification meant all modes were treated equally by top management. The second type of transit-located brokerage had a separate but complementary role in the overall agency (Northeastern Illinois, Dade County, and Newport News). The broker was established as a separate department, yet maintained close ties to management and other departments. The final type of brokerage housed within a transit agency was relatively disassociated from the rest of the property (Pittsburgh

and Minneapolis). In Minneapolis, the broker was both physically and organizationally removed from the management and operations of the MTC. The reasoning for this was twofold--to locate the brokerage closer to the suburban employment concentrations and to maintain a certain amount of autonomy, enabling the broker to function as a third-party.

A few of the brokerages were housed within city departments, including: Public Transportation Services (Knoxville), Finance (San Diego) and the St. Louis brokerage which would have been initially located within the city Department of Streets. Two advantages of this location were that the city was presumed to not be modally-biased and that the city staff was closer to the local decision-making structure (council, etc.) than other organizations.

Several brokerages were located within regional agencies. One goal for the broker was therefore to address the localized needs of various subregional and special user groups. Many of the brokerages housed within transit agencies also served this purpose with the broker working to establish community-level and feeder services. The application of the brokerage concept to the Los Angeles County demonstration was another case of a regional agency (in this case a commission charged with planning and tax revenue dispersement) "brokering" local transportation needs. One advantage often cited for regional location was that it enabled the broker to coordinate and integrate services and programs offered on a local level. Duplication and inefficiencies could thus presumably be avoided or corrected.

As noted above, the brokerage approach requires a certain amount of autonomy in order for the broker to accomplish its intermediary role. Several demonstrations adopted this stance by establishing a new organization to act as the broker. In Knoxville, Commuter Pool was originally a non-profit entity (established by the university) but later moved to the city. Two E & H brokerages (Pittsburgh and Lancaster) embodied the third-party notion as non-profit entities charged with formalizing arrangements with providers, clients and social service agencies. In the case of Lancaster, other alternatives were considered, but a new entity formed as an "unbiased arbitrator between carriers and agencies." (6: p. 9-10) It should be noted that in all the above cases, the third-party entities were generally not the grant recipients but were directly responsible to those organizations.

Brokerage, as housed within an existing agency, exhibited several advantages over establishing a new organization. In many cases, savings were realized on start-up and ongoing administrative costs in that ancillary services (accounting, payroll, data and word processing, etc.) were in place and could be utilized or purchased. In addition, the broker often drew upon the existing expertise within an agency, especially since the brokerage role often required at least an appreciation of a wide range of disciplines, modal technologies, and planning skills. Finally, by establishing the brokerage within an existing agency, the broker could often realize the immediate recognition afforded that agency. This may have enabled the broker to spend less time simply educating the local transportation "community" of its existence.

Utilizing this recognition, however, could also be detrimental in that the broker was "buying into" existing relationships and factions associated with the parent agency. Additionally, by being housed within an established agency, the broker may have tended (or at least be perceived) to favor the existing services and programs of that organization. The role that organizational location played in brokerage effectiveness will be further discussed in Chapter 4.

3.3 BROKERAGE IMPLEMENTATION

This section details the actual techniques, procedures and specific functions of the brokerages as demonstrated in the projects. The discussion revolves around the conceptual foundation of the brokerage approach - the actual matching of transportation demand and supply. To briefly reiterate the dynamics of the brokerage concept (as outlined by its architects), research on target markets would identify specific travel demands and research on existing and potential supply options would identify innovative service options. The broker thus played the role of facilitating the matching of targeted demand with the appropriate provider(s). To explore the methods utilized by the demonstrations, discussion of brokerage implementation is divided into three elements: 1) needs assessment/demand forecasting, 2) supply determination, and 3) the actual forms of brokering utilized.

3.3.1 Needs Assessment/Demand Forecasting

Many of the demonstrations envisioned the use of market research to better identify specific travel patterns and transportation needs. Part of this desire was based on the perceived state of transit service planning. Such planning for new services was often based solely on grossly aggregate demand projections or on standardized "rules of thumb." While this may overstate the shortcomings of conventional transit planning, brokerage was a clear attempt to identify the transportation needs of specific markets. These markets were to be defined by: 1) socioeconomic characteristics (income, age, health, etc.), 2) trip purposes (work, shopping, school, etc.), 3) spatial patterns (suburban community, CBD, employment center, etc.), and temporal patterns (time of day, day of the week, season, etc.). By identifying individual characteristics along these parameters and aggregating them into unique market groups, the broker could better determine the appropriate service to satisfy the travel needs associated with each market.

While comprehensive market research was proposed for many of the demonstrations, needs determination was actually effectuated by a number of other techniques, ranging from the more traditional to market-oriented. Those techniques actually utilized include the use of: a) local demographics, b) national census data or data from other localities, c) locally-generated projections (produced for other purposes), d) past studies and forecasts, e) interaction with representatives of the target groups to be served, and f) the actual surveying of target groups.

Several projects used a variety of the above techniques to assess demand. In the case of the planned St. Louis brokerage, three data elements were used to determine the demand for coordinated E & H services: a) 1980 census data, b) data from agencies serving the mentally retarded and developmentally disabled, and c) national averages for tripmaking rates among the elderly and handicapped. (18: p. 19) From this myriad of diverse data sources, specific trip generation rates for the entire area were forecasted.

Several problems may be associated with the above listed techniques. The use of national data, local census data, and estimates borrowed from other

cities and situations seems contrary to the brokerage approach, that is identifying actual demand for specific trips and purposes. Gross assumptions as to the similarities between the target group's characteristics and those exhibited in the more aggregate statistics placed limitations on the ability of the broker to design the most effective service(s). Other brokerages that relied on forecasts from past planning efforts (or for other purposes) also ran the risk of assuming a very different set of characteristics than those actually exhibited by the target group. Finally, sole reliance on target group interaction without quantitative support data may have also suffered from an erroneous statement of needs and travel behavior.

The Bridgeport brokerage developed a demand determination process that combined several of the above elements in an attempt to produce more meaningful demand estimations. The interim report descibed this process as: 1) an introductory meeting with representatives of the targeted group or area, 2) initial use of secondary data on demographics, the location of major generators, and existing travel patterns, 3) more intensive, but informal contacts with target group (through focus groups or personal interviews), and 4) if needed, special detailed data collection (household O-D survey, survey on-board existing service, etc.). (9: pp. 54-55) The evaluator pointed out, however, that because of Bridgeport's difficulty in establishing their overall comprehensive planning and management approach, such a market research program was only applied to one service area. (9: p. 56)

The failure of most brokerages to implement a more comprehensive market research effort may have been due to several factors. In some cases, a reasonably well-defined market already existed (i.e., clients of social service agencies), and thus the focus was shifted to supply changes instead of demand determination. In many cases, the needs assessment may have been viewed more as a justification for the brokerage project and less as a tool for developing responsive services. In the case of Bridgeport, demand estimation was foregone in early projects due to political pressures to get fixed-route service on the street.

While the brokerage approach, by definition, implies the use of such market-oriented techniques (such as surveying and establishing a dialog with

specific market groups) many of the demonstrations used more conventional demand estimation techniques. It is unclear whether more comprehensive demand determination strategies would have produced different demonstration results. What is clear is that the demonstrations did not, for the most part, represent a reorientation of the manner in which specific needs are defined and actual demand determined.

3.3.2 Supply Determination

The other half of the brokerage dynamic is the identification of existing and potential suppliers to provide the services deemed necessary by the demand determination exercise. Brokerage architects considered this a distinct departure from the traditional reliance on fixed-route transit to fulfill all public transportation needs. The broker was not viewed as an advocate for any single mode, but "an advocate and coordinator for more efficient use of all forms of transportation." (16: p. 62)

In practice, two types of supply determination strategies seemed to emerge from the demonstrations, the first being an inventorying of opportunities and the second being the development of a set of innovative service options and subsequent identification of a candidate target population or geographic area within which to implement those service strategies. The first strategy, the formulation of a supply inventory, was utilized by many of the early brokerages and those concerned with a wide range of target groups. The purpose of the inventory was to determine the range of potential suppliers and the cost effectiveness of, and regulatory impediments to, each type of supplier and type of service. Sometimes this inventory was conducted prior to the actual implementation of the brokerage by the local planning agency and/or brokerage promoters; other times it was conducted as part of the brokerage itself. Most of the E & H brokerages developed inventories of private, for-profit providers and non-profit agencies prior to the explicit decision to form a brokerage. The Newport News demonstration, on the other hand, is exemplary of the projects that conducted such inventories as part of the brokerage function itself. In that case, the broker surveyed the set of private operators in the area, surveyed employees to determine pooling vehicle

opportunities, and surveyed park-and-ride lots to determine utilization. While the direct surveying of potential providers seemed to be consistent with the brokerage concept, in most cases response rates were very low and such surveying often served to elicit territorial responses from the local public provider. Later projects, therefore, seemed to rely on less direct inventorying techniques.

The other supply determination strategy represents the antithesis to the above approach. The strategy involved developing a single innovative service type (or set of services), which used heretofore underutilized providers or service arrangements, and applied this innovative service to target groups identified as appropriate to test the service concepts. In some cases, this may have involved attempts to utilize shared-ride taxi operations to serve certain special user groups; in others it may have meant the use of private operators to contain costs. Dade County is one example of this strategy, whereby five service options were developed and plans made to apply each innovative type to one or more geographic locations with special travel needs. In Westport, the motivation was clearly to utilize taxi operators to provide non-conventional services such as supplemental service, E & H service, package delivery, and feeder service. In both cases, it seems that the general service type and even supplier were determined before specific needs and demand levels were identified. As such, the projects were more a demonstration of preconceived service innovations (albeit supporting multimodalism) than an attempt to establish the brokerage approach on an ongoing basis.

3.3.3 Forms of Brokering

While the several forms of brokering or information exchange have been alluded to in previous sections, a brief characterization might classify these types as: 1) trip matching, 2) coordination and facilitation, and 3) information dissemination. Each is discussed below.

Trip matching - Many of the brokerages actively performed individualized matching services for commuters, special user groups and even the general

public. In the case of commuters, such matching involved the surveying of individuals and the computerized or manual matching of like work trips. The recipient of the match was not obligated to rideshare, but the premise was that improved information regarding the benefits of such mutual arrangements coupled with the matching service would induce a travel change in favor of shared rides. In the case of special user groups, brokers often performed the actual scheduling of trips to meet individualized demand. Information was most often received over the telephone, and the broker's (or its agent's) task was to efficiently schedule trips to accommodate all eligible trips. Finally, some of the brokerages offered general matching services, whereby an individual could call the brokerage office, provide the broker with information on his/her trip needs, and the broker (with his/her knowledge of the range of services available) would provide travel alternatives. This type of brokering will be further discussed as information dissemination.

Coordination and facilitation - Another type of brokering was a more discrete function, often a onetime effort to address a particular need. This included the establishment of a coordinated social service agency transportation network (as was accomplished in Bridgeport), the development and implementation of a user-side subsidy program as well as many others described earlier. This type of brokering could be as formal as contracting or directly providing service or as informal as influencing an employer to establish an in-house transportation program. The distinguishing factor, however, was that it was most often a onetime activity with the brokerage itself moving on to other targeted problems and identified needs. The advocacy and regulatory reform activities often pursued by brokers might also be considered part of this role as such facilitation and institutional change was often necessary to address very specific issues and services (such as working with insurance firms to foster favorable, non-restrictive rates for vanpool owners and operators).

Information dissemination - A final form of brokering was the development and dissemination of information. This information was intended to provide targeted individuals with persuasive and descriptive materials aimed at inducing certain travel changes. Many of the demonstrations retained professional marketing firms to develop sophisticated campaigns (via all forms

of media) to provide such information. In some cases, targeted campaigns were aimed at employment sites, specific residential areas, or special users (elderly, handicapped, low income). In addition to such campaigns and marketing materials, brokerages often established a centralized information clearinghouse to assist a myriad of potential consumers, including: providers, local planning agencies, social service agencies, other affiliated groups, and unaffiliated individuals.

The demonstrations typically used more than one form of the above brokering types, applying whatever technique was most appropriate for the situation. In some cases where one type of brokering failed, another type was adopted. The Newport News demonstration provides an example of this situation whereby the broker, failing to facilitate an effective, coordinated elderly and handicapped network was forced to provide most of the actual service itself.

3.4 SUMMARY AND INSIGHTS

The above discussion points to the fact that the brokerage approach, as implemented, did not generally contain all the elements of the approach (market-orientation, etc.) as defined at the conclusion of Chapter 2. For example, needs assessment and demand determination never seemed to achieve the comprehensive market segmentation elements envisioned in Bridgeport and elsewhere. Demand assessment was often only conducted as part of the project initiation phase, with little done subsequent to the start of the demonstrations. Thus, demand characteristics and forecasts compiled during initiation were often retained throughout the life of the demonstration (as long as five years). Similarly, supply determination was accomplished less to discover opportunities for other service providers and more to justify the need for a new service. That new "service" was, in many cases, provided by the broker directly, and often the service was designed prior to demand determination. When such inventories of other providers were undertaken, poor response rates and skepticism on the part of private providers and other public agencies alike served to frustrate attempts to utilize existing supply opportunites.

In fact, the above discussion suggests that, in most cases, the brokerage approach as implemented differed little from other approaches being utilized in other cities. Commuter brokerages differed little from other ridesharing programs, many of which offered a range of options to commuters, surveyed employees to determine demand and supply opportunities, promoted transit as well as pooling modes, and addressed the institutional and regulatory barriers to pooling. As will be discussed in the next chapter, one reason for the broker's inability to differentiate itself from other ridesharing programs was its relative inability to influence the area's conventional transit system. The lack of control over fixed-route transit meant that the broker was not able to satisfy targeted needs with the full range of services possible.

In the case of the elderly and handicapped brokerage projects, a host of other demonstrations and local projects adopted similar approaches to initiate, coordinate, consolidate, or integrate service for targeted E & H individuals. The concepts of user-side subsidies, social service agency coordination and service contracting were by no means unique to the brokerage approach. A key issue, in fact, among brokerage and coordination researchers is whether coordination should be considered a subelement or technique within the brokerage approach or whether brokerage should be considered one form of E & H service coordination. The concepts of coordination and brokerage seem to often result in very similar service options, institutional arrangements and user groups served.

The technical assistance and funding mechanisms of the decentralized brokerage projects were derived from a desire to effectively facilitate and coordinate local projects and target specific user groups. This desire, however, and the resulting programs were not unique to the brokerage projects or only possible under the brokerage approach. Technical assistance from regional agencies for local governments has been successfully tested by the Metropolitan Transportation Commission in the San Francisco Bay area and elsewhere. Similarly, the MTC allocates funds to localities from dedicated regional sales tax revenues.

Finally, the integrative brokerage approach is very similar to the concept of the "full service transit agency." Bridgeport and Westport represented

attempts to facilitate a range of services to meet a variety of targeted needs. Newport News offered ridesharing, fixed-route, and E & H services under the auspices of brokerage. Such attempts by a transit agency to integrate a set of services are not unique to brokerage. The transit agencies in Phoenix, Houston, Baltimore, Orange County (California), and Seattle all offer ridesharing and E & H services in addition to more traditional transit service. As with the brokerage projects, some directly operate E & H service, others sponsor coordinated service, still others contract for service. As an example of a non-brokerage agency with a similar, diverse, program and set of services, Seattle Metro operates lift-equipped buses and sponsors a user-side subsidy program utilizing contracted taxi operators. Additionally, Metro is now operating the Seattle Commuter Pool ridesharing effort. The purpose of the E & H and ridesharing programs are to integrate Metro's services with other transportation resources, including taxi operators and private car- and vanpools. Service integration, and the adoption of the "full service transit agency" approach, seem to have been initiated independent of the brokerage concept and have fostered a similar range of services as that of the brokerage demonstration projects.

It might be concluded, therefore, that there was little intrinsically unique about the brokerage approach, as it was tested in the set of demonstration and case study projects. The implemented projects exhibited little radically different from a number of other approaches that have been termed third-party ridesharing, coordination, or transit integration (full service transit agency). These other approaches generally seemed to result in very similar services, for identical user groups, and under analagous institutional arrangements.

Even if the services and programs of the brokerage projects were very similar to other approaches, however, were the brokerages more effective in meeting their objectives and solving transportation problems than other approaches, other arrangements? While the projects may have deviated somewhat from the original intent of brokerage (as defined in Chapter 2) this does not preclude their having a significant impact on targeted users or on the transportation system. The impacts and costs associated with the brokerage projects is the subject of the next chapter and similar comparisons are made with other approaches and programs.

4. BROKERAGE IMPACTS AND COSTS

This chapter discusses the actual results of the brokerage projects in terms of their ability to fulfill stated objectives and solve local transportation problems. The objectives of the demonstrations, however, need to first be framed in the context of the organizational environment within which the brokerages operated. Discussion of project effectiveness (and any direct comparisons) would be meaningless without first exploring the institutional settings and, in particular, the impact that this environment had on the broker. Subsequent sections on target market impacts and costs are based on this initial discussion of institutional issues.

As final, comprehensive evaluations have not been completed for all the projects discussed in this report, actual impact assessments are available for only 8 of the 13 demonstrations. Where appropriate, brokerage effectiveness is compared with other, more traditional approaches to solving transportation problems and providing needed services. The discussion of specific impacts (Sections 4.2 and 4.3) is divided into the four brokerage types: commuter, E & H, decentralized, and integrative/community brokerage projects.

4.1 INSTITUTIONAL IMPACTS

Brokerage is as much an institutional innovation as it is a change in transportation planning or operating procedures. Given the intermediary role which characterizes the brokerage approach, the broker must establish formal and informal relationships with a variety of existing organizations including service providers, user groups, planning, regulatory and funding agencies, and the local political establishment. Each of these organizations has its own priorities, alliances and conflicts with other organizations, and sense of "territory" over some aspect of local transportation. The broker is a newcomer to this organizational environment, and before it can begin to function effectively, it must find an appropriate "niche" for itself. The term "niche" is defined here to mean a particular role within the existing

organizational environment that is both well suited to the brokerage approach and non-threatening to other organizations with whom the broker must deal.

This section examines the brokerage projects in terms of their ability to find or create a suitable niche for themselves within the local organizational environment. The concept of an organizational niche is crucial to understanding brokerage effectiveness; where such a niche already existed, the brokerage had a much easier time in gaining credibility and initiating brokerage activities. Brokerages that had to create a niche for themselves generally required a much longer implementation phase; in some cases, they failed to progress beyond the planning phase. The following discussion elaborates on the distinction between those brokerages that were created in order to fill a pre-established niche and those that had to develop or find this niche during implementation.

4.1.1 Brokerages Having Pre-Established Niches

Approximately half of the brokerage projects had a niche already created for them in the local organizational environment. These projects were typically initiated to address a well defined and widely acknowledged transportation problem or deficiency in transportation service that could not be effectively handled by existing institutions. In Pittsburgh and Lancaster, for example, advisory committees comprised of potential users, paratransit service providers, planning agencies, and regulatory bodies recommended brokerage as the preferred approach for developing a coordinated system of transportation services for the elderly and handicapped. These endorsements enabled the brokerages to circumvent or more easily overcome several potential institutional barriers. First, the brokerages were afforded immediate recognition and legitimacy within the local transportation community; they were not obliged to spend significant time and resources early in their development to market themselves or the brokerage concept to other organizations. Second, since participants on the advisory committees included potential rivals of the brokerages, endorsement by the committees helped to eliminate some sources of opposition. Third, the advisory committees helped to define the initial set of goals, priorities, and scope of activities for

the brokerages. This not only saved valuable time and resources during the implementation phase, but it helped to establish "territorial limits" within which the broker could expect to operate without encroaching on someone else's turf.

The Northeastern Illinois decentralized brokerage was selected by the Regional Transportation Authority (RTA) as the preferred solution to specific demands placed on the RTA's Board of Directors. These demands were so diverse that the existing service delivery structure was unable to effectively address the range of issues. The evaluation report clarifies the niche that the broker fit into:

> The project would broker innovative paratransit services, thereby responding to the RTA's need to place additional service in the suburbs and to develop experience with E & H services. Since the RTA was a planning, funding and coordinating agency (not operating service directly), it was ideally suited to play a brokerage role. It had an independent board which was at arm's length from the carriers and which could represent regional interests. In addition, enabling legislation gave the RTA power to fund, regulate, contract with, or operate a broad range of services (12: pg. 8)

Since the Northeastern Illinois brokerage was conceived and created by a single agency, it did not necessarily enjoy a consensus endorsement from other local organizations as in Pittsburgh or Lancaster. On the other hand, the brokerage was delegated substantial regulatory and funding authority by the RTA. This authority, to select and fund local paratransit projects, gave the brokerage considerable leverage in dealing with local communities about proposed projects, service standards, and reporting requirements.

In contrast to the Northeastern Illinois project, the Los Angeles Technical Assistance Office (TAO) was endowed with relatively little regulatory or funding authority. Funding for local transportation projects in Los Angeles County is allocated according to a pre-defined formula, and the TAO has no legal authority to withhold these funds regardless of the merits of the proposed project. Consequently, the TAO must rely on the negotiating skills and technical reputation of its staff to convince local areas to develop more appropriate transportation projects. While the TAO has now managed to gain some degree of respect and acceptance from the communities it

serves, the development process has been much slower than that experienced in Northeastern Illinois. Even now, the TAO has relatively little ability to dissuade a community from implementing a "bad" transportation project, if that is what the community wants to do.

Two other brokerage projects were created by a "parent" organization to deal with a specific transportation problem that was not being effectively addressed by the existing institutional environment. In Minneapolis, a commuter brokerage was instituted by the Metropolitan Transit Commission (MTC) in response to a state mandate that made the MTC responsible for promoting ridesharing in the Twin Cities area. This responsibility was, in turn, delegated to the brokerage. In San Diego, an E & H brokerage was initiated by the city to oversee the transfer of the city-owned dial-a-ride service to private operators.

The one common element in each of the above brokerage projects was their initiation in response to a well defined local transportation problem, whether that problem was identified by a single organization, as in Northeastern Illinois, or by a consortium of organizations, as in Pittsburgh. The presence of a specific transportation problem helped focus initial goals and objectives for the brokerage, and in some cases delineated the scope of brokerage activities. It also meant that there was at least one established organization willing to sponsor and delegate some of its powers to the brokerage. As we show in the next section, these two factors -- an initial sense of direction and some institutional power to deal with other organizations -- had to be present before the brokerage could have any impact on its environment.

4.1.2 Brokerages That Had to Create Their Own Niche

In contrast to those brokerage projects that were established in response to a specific local transportation problem were projects whose principal motivation seemed to be the institutionalization of the brokerage concept itself to solve a broad, but unspecified range of transportation problems. These projects often were spearheaded by an energetic entrepreneur who

perceived brokerage to be an innovative and more effective approach to transportation management, or who felt that brokerage may be a general panacea for a variety of transportation problems. Without an initial mandate to solve specific problems, the brokerage's first task was to create a niche for itself by 1) convincing the local transportation environment of the need for a broker and 2) finding a suitable "home" among the existing organizations.

Brokerages that had to create their own niche encountered far more opposition and had much greater difficulty gaining recognition and acceptance from existing organizations. In St. Louis, early efforts to locate the proposed brokerage within a regional transportation agency met with failure. The regional planning agency viewed proposed brokerage activities in ridesharing as duplicating its own current efforts, while the regional transit authority was concerned that initiatives in ridesharing and E & H paratransit services would aggravate already sensitive contractual negotiations with the local transit union. Brokerage proponents finally reached an agreement with the City of St. Louis to locate it in the Department of Streets, but in doing so, they severely limited the geographic scope of the brokerage's authority. Without the endorsement or active cooperation of the regional agencies, it was unlikely that the broker would accomplish any significant results in its proposed ridesharing or coordination activities. It was therefore never funded beyond the planning stage.

In Knoxville, the brokerage was hindered by its inability to communicate its overall mission to other local organizations, and because of biases directed against it by association with its parent organization. When the Knoxville Commuter Pool (KCP) was transferred from the University of Tennessee to the City of Knoxville, existing labor tensions between the city and the local transit union were strained even further and directed toward the brokerage. Multimodalism, as espoused by the brokerage staff, was interpreted as anti-unionism, and the broker's efforts in ridesharing were seen as a means of curtailing transit routes. As a result, the KCP was never able to develop a cooperative relationship with the transit authority and had to limit its ridesharing activities to those areas not served by transit.

Brokers without a clearly defined role or organizational mandate also experienced problems in gaining acceptance internally by other parts of their parent organization. In Newport News, the paratransit brokerage (Easyride) was ostensibly given departmental status, co-equal to that of fixed-route bus operations. In practice, however, Easyride was generally perceived as having a mission that was tangential to the rest of the transit agency. As a result, it was given relatively little attention and even less support by transit management. This situation improved somewhat after Easyride's formal charge was redefined to promote existing (fixed-route) services first and recommend alternatives only when necessary. (19: p 34)

Externally, Easyride, like KCP in Knoxville, was saddled with biases directed against its parent organization. This problem is exemplified by the efforts of Easyride to make greater use of private bus operators. The Peninsula area already had extensive private bus operations, and Easyride viewed their utilization as a key opportunity to expand transit service to outlying areas. The broker sent surveys to 15 local private operators; it received only 4 replies and only one expression of interest. The evaluators attribute this failure to establish a more productive relationship to a longstanding animosity between the private operators and the public transit authority which housed the broker. (19: p 24)

The Knoxville, Newport News, and St. Louis brokerage projects were unable to gain sufficient credibility within their local organizational environment to carry out the ambitious programs originally conceived by their initiators. St. Louis, as discussed above, never made it beyond the planning stage. Knoxville, despite some success in statewide ridesharing regulatory reform while housed at the University of Tennessee, and Newport News evolved into rather conventional third-party ridesharing programs. These projects managed to achieve some success in ridesharing because 1) there was little need for the broker to interact with other local organizations on this activity, and 2) the broker was not competing against any existing public organization. In effect, therefore, the brokerages found a small niche where they could function without interfering with existing transportation institutions, but this limited their overall impact on regional transportation and meant that the broader goals they had established for themselves were not met.

Other brokerage projects were somewhat more successful in creating a niche for themselves, even though such a niche was not evident during project inception and start-up. A common characteristic distinguishing these more successful brokerages was the existence of an institutional environment that was willing to delegate some of its power to the brokerage.

In Dade County, as in Newport News, the brokerage was housed in the transit authority and given the responsibility to develop paratransit services. Unlike Newport News, however, the Dade County brokerage directed much of its early efforts to taxicab regulatory reform. After a series of protracted political and legal battles, the brokerage succeeded in eliminating municipal taxi licenses, and put all taxis under county control with regulatory authority vested in the brokerage. This regulatory control over the taxi industry provided the broker with a supply of paratransit vehicles that could be used to initiate a variety of innovative services, including shared-ride taxi feeders to bus and rail stations, neighborhood circulation service, specialized transit service for the elderly and handicapped, and even late night and weekend replacements for fixed-route buses. The Dade County brokerage was also aided by a general reorganization of the transit authority (unrelated to the establishment of the brokerage) which placed the brokerage office, bus and rail service planning, and transit marketing under the same Director. One consequence of this move is that the brokerage is now better able to coordinate paratransit with conventional, fixed-route services without having to work directly with the bus or rail operating divisions.

The Westport and Bridgeport brokerage demonstrations are distinguishable from the other brokerage projects in that they represent the adoption of the brokerage approach by the entire transit agency. Consequently, at these sites, the brokerage enjoyed both an established organizational identity and the institutional powers of the transit agency. Westport utilized these powers to develop an integrated community transit system comprised of a publicly operated fixed-route bus service supplemented by a privately operated shared-ride taxi service for targeted markets.

In Bridgeport, brokerage was institutionalized in an Office of Planning and Demonstrations within the transit district. This organizational unit was answerable to the Executive Director of the transit district, who was himself a strong advocate of brokerage. The office was responsible for both fixed-route and paratransit service planning and for the district's transit fare policy. This arrangement gave the brokerage staff considerable power within the transit district and enabled the brokerage to use the full authority of the district in its dealings with other local organizations. The brokerage, in effect, had control over most public transportation elements in the greater Bridgeport region, and therefore did not need to establish many of the critical links to other transportation organizations that characterized most of the other brokerage projects.

Not even Bridgeport, however, was immune from institutional problems. The Bridgeport brokerage evaluation notes that while local politics played a minor role in impacting the effectiveness of the broker, the transit district's own board of directors seemed to have a profound effect on the ability of the brokerage staff to carry out their mission. The board exerted considerable influence in prioritizing certain facets of the demonstration and in pushing for immediate results that had the effect of maintaining the status quo and stifling some of the innovations pursued by the brokerage. The evaluation further noted that:

> ... in Bridgeport, board members have typically challenged initiatives from the standpoint of jurisdictional equity, political repercussions, and financial prudence, ... these review procedures have often caused implicit modifications in technical design, scoping or timing of service development plans, though they may not have been overtly intended as such. (9: pp. 125-126)

4.1.3 Summary: The Institutionalization of Brokerge

Despite the diversity of outcomes from efforts to establish transportation brokerages within local institutional environments, several generalizable findings do seem to emerge. These findings are summarized below.

1. Before a brokerage can begin to have any impact on local transportation problems, it must establish a niche for itself within the local institutional environment. A successful niche has three critical components: 1) a well defined set of local transportation problems or issues that are not currently being addressed by existing organizations; 2) the accumulation of sufficient power or institutional authority to deal with those problems; and 3) a home and identity for the broker within the local organizational environment. Brokerages that were created by existing organizations as the preferred alternative to a specific transportation problem had such a niche already established for them; they could begin to carry out brokerage activities much sooner than those projects that had to find a niche after they were established.

2. Brokerages must acquire their power from the existing institutional environment. Power can either be delegated to the brokerage from its parent organization or be transferred by mutual consent from one or more established organizations. Before established organizations relinquish any of their power to the broker, they must be convinced that 1) the broker is addressing a problem of importance to them, and 2) brokerage is the most appropriate way to address the problem.

3. Unless the need for a brokerage is widely accepted by the existing institutional environment, it is virtually impossible to create a brokerage as an independent entity without direct ties to an established organization. In other words, a brokerage that is superimposed on an existing institutional environment which is unsure or even hostile to the broker's role will not have the "natural fit" needed to effectively carry out its stated goals and objectives.

4. Brokerages housed in an established organization assume the identity of that parent organization in their relationships with other local institutions. This identity can be either an asset or a liability depending on the specific circumstances. Brokerages that have to find a parent organization must be particularly careful that interorganizational relationships do not conflict with the broker's ability to carry out its goals and objectives.

5. Brokerages housed in an established organization also must establish an "internal niche" for themselves within the organization. To do this, the mission or role of the broker must be 1) well defined and endorsed by upper management, or 2) independent of and nonthreatening to the powers of established organizational units.

The amount of consideration given to such interorganizational issues in the brokerage planning stages seems to have had a profound impact on the effectiveness of the brokers. It might be concluded that one reason for the ineffectiveness of many of the brokerage projects was the intended or unintended failure to form a consensus among the relevant organizations as to the role of the broker within the local institutional environment. What agreements and sign-offs were made prior to implementation were, in many cases, only those required to receive the federal grant.

The absence of a meaningful consensus prior to implementation often resulted in the inability of the broker to fulfill its goals and objectives as territorial and proprietary attitudes surfaced from a variety of sources, including: area operators (public and private), social service agencies (not wanting to relegate responsibility to the broker), and other planning bodies (who perceived the broker as competing with their own missions). Of course, even if all these parties had been involved throughout the planning stage, such issues may still have arisen. An initial agreement, however, as to the proper role of the broker within the existing or modified institutional environment might have done much to assure a niche for the brokerage and allowed it to concentrate more on implementing various brokerage activities. The Knoxville evaluation noted that "a greater deal of very valuable and much needed staff time was devoted to defending policies rather than implementing them." (16: p. 10-4)

Those projects without a clear niche seemed to have been primarily motivated by the desire to test the brokerage concept itself, rather than to implement brokerage in response to a specific transportation problem. As such, brokerage effectiveness should be viewed as a two-phase process: 1) the ability of the brokerage to create an appropriate institutional niche for itself; and 2) given that niche, the ability to fulfill stated objectives.

The lack of a clear niche within which to operate seems to have had a profound effect on the projects, and the assessment of brokerage impacts will be viewed in this light.

4.2 BROKERAGE IMPACTS ON TARGET MARKETS

4.2.1 Commuter Brokerage Impacts

The three demonstrations for which evaluation data is available on commuter brokerage include Minneapolis, Knoxville and Newport News. The targeting of commuter transportation needs was the primary focus of these three projects and similar techniques were utilized. The matching techniques and employer focus were considered innovative at the time, but not unique to brokerages. In fact, the ridesharing elements of the demonstrations differed little from many of the other carpool demonstration projects promulgated by the Federal Highway and Urban Mass Transportation Administrations. The approach taken, however, was consistent with the brokerage ideal. This approach involved identifying and addressing regulatory and institutional impediments to ridesharing, and developing alternative services (car-, van-, and buspools and conventional transit). Potential users were surveyed and matching services provided to inform the individuals of their specific travel options. While not the only sites to experiment with certain innovative ridesharing techniques, the projects were among the first to implement third-party vanpool programs, multi-employment site targeting, and computerized matching services.

Table 4-1 summarizes some of the impacts of the three demonstrations. These results can be viewed in two ways: first, as to the specific impact they had on the demand for and supply of alternative commuter services and, second, as compared to the set of non-brokerage demonstrations mentioned above. The impacts summarized in Table 4-1 should be viewed in light of the differences in local travel patterns, employment demographics, pre-demonstration ridesharing levels and certain national, exogenous factors such as the 1979 energy crisis. The effect of the 1979 energy crisis probably had as much of an impact on the results of the Minneapolis and Newport News demonstrations as did the direct effectiveness of the respective brokerage programs.

TABLE 4-1

COMMUTER BROKERAGE IMPACTS

Impact	Knoxville	Minneapolis	Newport News
% of applicants to become poolers	6%	14%	5% (from solo) 2% (from pooling)
% targeted employees to become poolers	1.7%	2.8%	1.6%
# of poolers (target employees)	1460 (87,000)	2000 (70,000)	850 (54,000)
# of vans formed	60	62	20 *
Est. VMT reduction (in miles/year)	not available	3.4 million	1.7 million
Est. Gas savings (gallons/year)	n/a	500,000	115,000
Est. Gas savings per pooler (gallons/year)	n/a	250	135

(* including Tidewater Transit vans)

The impacts that the commuter brokerage projects had on their intended market were not significantly different than the impacts of most ridesharing programs, whether they were called brokerage or not. Impacts on target markets are often revealed as the percentage of those completing matching surveys who became ridesharers or switched to pooling modes. This percentage (ranging from 5-14 percent) compares with a national average for a sample of ridesharing programs of 10-20 percent. (21: p. 43) A related statistic is the percentage of the targeted employment base to become new ridesharers as a result of the demonstration. This percentage ranges from 1.6 to 2.8 percent for the brokerage projects, as compared with a national average of 2-4 percent. (21: pp. 42, 43)

While the relative success of the commuter brokerage demonstrations in inducing ridesharing seems to be equal to or less than that of other ridesharing programs, one cannot conclude that the brokerage approach was less effective than other methods. One explanation for the inability of the commuter brokerage demonstrations to effect significant changes in their areas' mode split was that ridesharing activity was already relatively high in the three cities as compared to the national average. Employer programs in Minneapolis (3-M Corp.), Knoxville (Tennessee Valley Authority) and Newport News (Newport News Shipyard) had been visible both in their respective localities as well as nationally. In addition, prior public ridesharing efforts had been undertaken in each of the cities in response to the 1973-74 energy crisis. It has been concluded, therefore, by project evaluators and other observers that the ridesharing markets in each of these cities might have been saturated by the time the demonstrations were implemented.

A more disturbing finding from the brokerage demonstrations concerned the brokers' lack of influence over the conventional fixed-route bus systems which they presumably complemented. While the broker was envisioned to promote all alternative commute modes (including transit with both public and private providers), the projects had little, if any, positive impact on the bus system. Significant new ridership was not induced on the fixed-route component and considerable shifting occurred back and forth between pooling modes and transit.

The significance of this lack of influence over fixed-route services is magnified by the fact that two of the commuter brokerages resided in transit agencies. Presumably, as an arm of the transit agency, the brokerage should have been able to convince top management, as well as the service planning and operations departments, of the vital importance of integrating all elements of shared-ride modes into a brokered system. What little interaction that did occur between brokerage staff and fixed-route service planners had little effect on service or overall commute options. In Minneapolis, no major route or schedule changes were justified from the data gathered by the broker, and the minor changes made in Newport News were unable to prevent the ultimate cancellation of the respective runs or routes. While, outwardly the projects appeared to have differentiated themselves from the majority of ridesharing

programs in their ties to fixed-route transit services, the inability to internally integrate the full range of commute options meant that the project differed little from most ridesharing programs. Thus, the apparent advantages of locating the broker within a transit agency were never realized in the demonstrations.

4.2.2 Elderly and Handicapped Brokerage Impacts

While the commuter brokerages keyed on influencing the demand for transportation services, the E & H brokers were oriented more toward influencing the supply of transportation services. In that service was generally provided prior to the demonstrations (in the form of social service agency or public agency provided service), a primary function of the E & H broker was to serve existing demand with more efficient arrangements. As mentioned in Section 3.1, three mechanisms were generally utilized to facilitate a new E & H transportation network or system: coordination, contracting, and direct provision. The broker's ability to create such a system and facilitate more efficient and effective services was again dependent on whether a true need existed for the broker and whether the institutional environment was supportive of the approach.

The impacts of the E & H brokerage projects seemed to fall into three categories: impacts on the supply of E & H transportation services, impacts on social service agencies (SSAs), and impacts on the individual E & H users. These objectives are consistent with the overall goal of the E & H projects to facilitate an improved system. Each is discussed below.

The ability of the E & H brokerages to induce supply improvements necessary to form such a system was, in great part, determined by the control the broker was able to exert over transportation providers. Pittsburgh demonstration evaluation provides a good discussion of the potential supply impacts. The discussion is framed in terms of the perceived market failures that the brokerage was envisioned to correct. The five market failures that were identified included: 1) duplication of supply in some areas, 2) insufficient supply in other areas, 3) constrictive regulatory control over

providers, 4) fragmented or undefined demand, and 5) ineffective flow of information to users and SSAs.

Those failures were remedied in several ways. First, the broker was able to resolve duplication and inefficiency problems by consolidating carriers into a unified network. Using its control of entry (which it had acquired through a change in the local paratransit regulations), the broker adjusted the traditional service areas of various carriers so that potential shared-ride trips would be served by only one or two carriers. Second, the broker was able to lower cost by establishing an annual competitive bidding process whereby carriers competed with one another to be designated the carrier for a sector. Third, insufficient supply in certain areas, and at certain times, was resolved by the broker's establishment of a geographically complete network. The expanded network resulted in service for all sections of the county and at times (late night and weekend) which carriers might otherwise not serve.

An interesting point made by the Pittsburgh evaluation speculated about the difference in supply and demand impacts if the user-side subsidy program had been implemented without the assistance of a broker. While some increased demand and improved supply was envisioned, the lack of regulatory control would call into question the ability of the subsidy mechanism alone to expand geographic coverage and promote competition among carriers (which resulted in better service and lower cost to the subsidizing agency). Therefore, unlike other coordination mechanisms, the brokerage approach in Pittsburgh constituted an effective combination of formal regulatory powers, binding service agreements, and informal mediation between suppliers and consumers of E & H transportation services. It is unlikely that similar success could have been achieved without the explicit role of the broker.

The Pittsburgh example of supply impacts does not hold for all the E & H brokerage projects, as slightly different systems were established elsewhere. A one-time effort to establish a consolidated system in Bridgeport did result in significant supply and productivity improvements. The previous system, which was loosely coordinated, involved 9 vehicles and served 493 weekly trips. The Human Service Transportation Consortium, utilizing 15 new

vehicles, served a significantly greater number of trips (3650 weekly trips). Productivity, measured in trips per vehicle hour, increased from 1.88 to 3.74. (4: pp. 69-70) In Lancaster, an autonomous broker was established outside of the transit authority and without formal regulatory powers, but it also was able to implement similar service contracts as those in Pittsburgh. A common element in each of these three projects was the selection of the brokerage approach as the preferred solution to very specific problems in supplying adequate services for targeted individuals.

With the brokered system in place, impacts on SSAs depended on the ability of the broker to coordinate, consolidate and match arranged services with the transportation needs of those agencies. The broker attempted to offer SSAs a more cost-effective means of transporting their clients, thus allowing participating agencies to subsidize more trips at a given funding level or utilize previous transportation monies for other activities. While the issue of brokerage cost will be addressed in the next section, a number of SSA impacts were suggested by the evaluations, including:

- the ability to access certain transportation subsidy programs, particularly those offered by the sponsoring transit agency;
- the ability to use agency-owned vehicles more efficiently (e.g., provide group trips with agency vehicles and single trips with brokered services);
- relieving the agencies from having to negotiate service agreements with private providers;
- relieving the agencies from some scheduling and other administrative tasks; and,
- the ability to offer trips to previously unaccessible locations and activities.

Concerning the cost effectiveness of the brokered service to SSAs, the Lancaster evaluation investigated the perceptions of agency managers toward the availability of brokered trips. Sixty-five percent of those agency managers surveyed believed that utilizing the broker resulted in either lower transportation costs or costs rising more slowly than without the brokerage. (6: p. 85) The Lancaster evaluation also revealed that the quality of service provided to the SSAs did not suffer as a result of switching trips to the

brokered system. Seventy-eight percent of those agency managers responding felt that brokered service quality was equal to or better than that previously provided. It should be noted, however, that brokerage benefits to SSAs were somewhat tainted by the fact that agencies used the brokerage to provide trips that were either very costly or very difficult to provide; that agencies often still provided a number of trips outside the auspices of the brokerage; and that many SSAs in the brokerage area chose not to utilize the brokerage. Nevertheless, the ability of the broker to establish an E & H service network, provide agencies with cost-effective alternatives, and even expand service areas and levels should not be overlooked.

Discussion of brokerage impacts on individual users is limited by the fact that data are available from only two demonstrations (Pittsburgh and Mt. View). It should be noted that those projects represented new or expanded service available to the E & H population. As such, induced changes in travel behavior were more likely than in the other projects that represented new service options for agencies but which had no direct impact on individual tripmaking. In the case of Knoxville, SSA "audits" enabled agencies to improve contracted service arrangements; in San Diego, the new set of service arrangements may have improved efficiency, but tighter eligibility meant fewer participants and limits on travel may have meant less tripmaking by individuals still using the system.

The Pittsburgh evaluation, however, provides an interesting assessment of that broker's impact on elderly and handicapped individuals. A detailed travel diary survey of ACCESS users revealed that the increase in service area, the availability of service to handicapped and elderly individuals not affiliated with an agency, and the availability of substantial user-side subsidies to certain nonambulatory individuals resulted in significant improvements in mobility for E & H users. For example, of those ACCESS users making regularly scheduled trips, 40 percent previously made the trip as an auto passenger and 15 percent used premium-ride taxi or jitney service. Only some 20 percent of the respondents used fixed-route transit or trips provided in an agency vehicle. ACCESS, therefore represented a shift from more expensive or constraining (relying on friends or family) travel modes, and not simply a shift from one agency-provided mode to another. Additionally, 46

percent of ACCESS respondents felt they could go places they previously could not and 32 percent felt they could travel to destinations farther away than before. Thirty-four percent felt they could make trips at different times than before and 36 percent felt they could travel on different days. An analysis of the diary data (by the evaluation contractor) suggested that the "results support the hypothesis that ACCESS has led to increased tripmaking by the severely handicapped," and that "the data strongly suggest that ACCESS has played a role in improving the mobility of the handicapped." (7: p. 150)

The Pittsburgh, Lancaster, and Bridgeport projects created E & H systems as a direct response to a local consensus that a clear need existed for a broker and that the organizational environment was willing to support the approach. However, the E & H elements of Newport News and Knoxville seemed to lack this consensus as to the true need for a broker. Throughout each of these demonstrations, the inability to fully co-opt the support of SSAs and user groups meant that the broker spent much of its time advocating the role of the broker rather than working with these groups to establish an agreed-upon E & H transportation network or service strategy.

In Newport News, user dissatisfaction and burgeoning costs forced the broker into directly providing the E & H service itself. This may have also been due to the fact that the broker was part of an operating authority and that service provision was a more familiar role to that organization than was consensus-building and mediation. One might speculate that, in lieu of the broker, the same end result (service directly provided by the transit agency) would have occurred because the agency was required by federal mandate to provide accessible service. In Knoxville, heavy commitment to the commuter element resulted in the deemphasis of SSA brokering. This deemphasis was at least partially due to a low level of interest among SSAs for the broker's services. Thus, while the impact of the broker, in both cases, may have been nominal improvements in service for selected individuals or agencies, the underlying objective of facilitating a coordinated E & H network never materialized.

In summary, the most effective E & H brokers were able to work within their local institutional and regulatory environments to restructure a loosely

knit set of service providers and purchasers into a manageable, marketable network. The creation of this network produced a variety of benefits including improved service quality and coverage, relief from various transportation adminstrative burdens for participating social service agencies, and, occasionally, lowered transportation costs. The key to brokerage effectiveness seemed to be the presence of a clear need for coordination and an agreement among the relevant organizations and groups that brokerage was an appropriate means for achieving that end. Where such a need was not evident or where the brokerage approach seemed to have been implemented for its own sake, a viable network was not fostered and the success of the broker in meeting stated objectives was severely limited.

4.2.3 Decentralized and Integrative Brokerage Impacts

Even though each of these two types of brokerages involved more than one demonstration, final evaluation results are available for only Westport (integrated) and Northeastern Illinois (decentralized). In the case of the Bridgeport integrative brokerage project, interim results of a more qualitative nature are available. As such, comparative impacts cannot be formulated. The following discussion does, however, outline some of the individual impacts reported in these evaluations.

The evaluation of the Northeastern Illinois decentralized brokerage did not focus on the specific impacts of the individual local projects, but rather on the relationship of the regional agency to the localities desiring service (which was central to the objectives of the broker). Thus, information on the travel behavior impacts associated with the different projects is either non-existent or scant. Supply impacts, as they relate to regional service coverage, were significant. The brokered services (for 24 locally initiated projects) covered 39 percent of the total RTA service area. The RTA was able to fund and indirectly manage a variety of targeted service types in a growing set of suburban communities. The primary advantage to the RTA was the ability to facilitate services throughout the region and place the major implementation and day-to-day management responsibilities on the local agencies and governments. Service efficiency and effectiveness (again relative to the

region) was accomplished in part by a competitive proposal process. Through such a process, coupled with the overall monitoring functions of the RTA, the regional agency was able to exert sufficient control over the projects while the accountability for the projects rested with the local operators and initiators. This control was tempered by an occasional weak local manager, which required the RTA to step in and play a more direct role than it desired.

One of the most significant impacts of the decentralized broker was not related to any overall air quality or mobility or congestion improvements, but to the effectiveness of the paratransit program in improving the image of the RTA. Transportation services were facilitated in the suburban portions of the region at a relatively small cost ($1.3 million for the paratransit program as compared to $147 million for total RTA suburban service and $506 million for total RTA service in 1980).

The development and marketing of the Westport integrated transit system did seem to have a significant impact on the travel behavior of area residents. The evaluation points to the success of the Maxytaxy (shared-ride taxi service) "in tapping new markets and expanding the appeal of taxi service." (4: p. 6-14) Pre-demonstration weekly taxi ridership was approximately 1400 patrons; mature Maxytaxy ridership was 2500 weekly patrons. The integration of service elements (fixed-route commuter, daytime, supplemental and shared-ride taxi) transformed these disparate services into a community transportation network. A general population survey revealed that some 60 percent of the respondents had used the system in the previous year. The evaluation points to the impact on the community as "adding a new dimension to individual life styles and providing new color in the town's social fabric." (4: p. 8-1) This integration of service elements, however, resulted in a doubling of operating costs for the transit system, while the patronage on the Maxytaxy increased overall system ridership by only 13 percent. Thus, Westport was unable to fulfill one of its primary objectives of offering more responsive services without impacting the system's subsidization scheme (the average subsidy increased from 52 to 89 cents per passenger). (4: pp. 7-11, 9-5)

The most profound impact that the Westport brokerage had was on the local taxi industry. Of the two taxi companies in existence prior to the project, the non-contracted firm went bankrupt while the contracted operator sold its premium-ride taxi and limousine business to concentrate solely on the management of the Maxytaxy. This is not to suggest that the development of Maxytaxy was the sole reason for the demise of exclusive-ride taxi service, for the evaluation points to several other factors including increased costs and an antiquated fare structure. (4: pp. 8-4, 8-5) Even with these taxi operator failures, evaluation surveys indicated that there was still a definite market for regular taxi service in Westport. Thirty percent of Maxytaxy users stated that they would use premium-ride taxi service in the absence of the shared-ride service. This is not to say the integrated system developed in Westport was unsuccessful in introducing a new range of service options to the community. The network truly strived to serve a majority of trip needs and key those services to the actual needs of users.

As mentioned in Section 4.1, the Bridgeport demonstration may have been the one case where the broker was able to create a niche for itself, even when a clear need for brokerage did not exist prior to implementation. Bridgeport represented a case where the approach was embraced first and problems to be addressed found during implementation. Even without a clear mandate for brokerage, however, Bridgeport was relatively successful in meeting its goal, "to create a diversified, multimodal, regional transportation system, where service components were tailored to the characteristics of individual markets." (9: pg. ix) Although the full range of services anticipated has not yet materialized, the transit agency has been able to institutionalize a brokerage approach and, albeit slowly, has established a range of services and reoriented the management and planning of the agency toward more market-oriented strategies. It is doubtful whether such services would have been developed in the absence of the brokerage approach in that the orientation of most transit agencies is geared to one mode and paratransit innovations often viewed as competitve rather than as synergistic complements.

4.3 BROKERAGE COSTS AND RESOURCE REQUIREMENTS

The costs associated with the brokerage demonstrations varied greatly due to differences in the scope of activities, organizational location, staffing, and the size and characteristics of the host urban area. Consequently, a single set of comprehensive, comparative cost measures would be difficult, if not impossible, to develop. In addition, the demonstration nature of these brokerage projects raise questions about the transferability of cost data to other applications which are not federally funded or subject to federal grant requirements.

To approach the question of brokerage cost (with the above caveats in mind), each brokerage type (commuter, E & H, decentralized, and transit integration) is addressed separately. This discussion will attempt to document the overall cost of brokerage in terms of 1) the cost incurred by an organization above and beyond its traditional functions, or 2) the costs of initiating a new organization. The costs of implementing and operating specific services (such as a ridesharing matching program or E & H transportation service) will not be discussed here since these services have been implemented elsewhere without a broker. Interested readers are referred to the individual reports or to more generic treatments of the costs for specific service concepts. Finally, because cost data amenable to this analysis were available for only a few of the projects (specifically, those with completed evaluations), the following examples should only be used as exemplary cost ranges and not as directly transferable estimates, even for comparable brokerage organizations.

4.3.1 Commuter Brokerage Costs

Of the three commuter brokerage demonstrations for which final evaluations are available, two were located within transit agencies (Newport News and Minneapolis) and the third (Knoxville) initially formed as a separate entity. To assess the costs of each project, two questions can be asked. First, what additional functions and costs were incurred by the broker that would not be incurred by another ridesharing agency? Second, what additional functions and

costs did the brokered services represent above and beyond the conventional services of the "parent" agency?

In the case of Newport News and Minneapolis, the commuter brokerage operated in the same fashion as the majority of ridesharing agencies in the United States. While the brokerage approach may have inspired the transit agencies to experiment with commute alternatives, the primary function of the broker was still rideshare marketing and matching. These two brokerages, therefore, were generally indistinguishable from other ridesharing agencies. This is supported by the fact that the annual costs associated with Newport News ($97,000 - $104,000) and Minneapolis ($290,000 - $330,000) were well within the range of costs associated with other ridesharing programs throughout the U.S. ($26,000 to $750,000, with a median annual cost of $300,000). (21: p. 113) It should be noted that one differentiating facet of the Minneapolis project was the fact that the brokerage function was spread among four separate entities. While overall management was handled from the transit agency's main office, day-to-day matching activities were handled at a satellite office at one of the employment centers. In addition, vanpool leasing and marketing/planning were each handled by separate vendors. The impact of this fragmentation (other than on communications) may have been unduly high overhead costs as separate staffs and ancillary functions were required for each element.

As the Newport News and Minneapolis brokers both operated within existing transit agencies, the above cited annual costs could be considered the brokerage costs incurred by the agency above and beyond the costs of providing traditional, fixed-route service. The components of this added cost to the agency included: separate staffs and office space, specialized planning activities and staffs, and the direct costs of commuter brokering (matching, marketing, and vanpool provision). Minneapolis provides a good example of the labor intensive nature of the brokerage function. Excluding start-up and direct vanpool costs, the cost of the Minneapolis brokerage were broken down into component elements of: 77 percent direct labor, 14 percent office overhead, and 9 percent direct expenses (marketing materials production). (5: p. 10-11)

Knoxville, on the other hand, operated as a relatively autonomous organization for almost two years and was then moved to the Department of Public Transportation of the City of Knoxville for the last year of the demonstration. Knoxville's annual cost of $150,000 is consistent with the national statistics cited above, but is misleading because it does not account for a number of start-up activities undertaken prior to "normal" operation under the city. These activities included: software development for the computerized matching program ($85,000), planning for social service agency activities ($24,000), evaluation and research ($158,000), and institutional and regulatory reform activities ($84,000), all of which were in addition to marketing, matching, vanpool provision, and related administrative costs (comprising the annual element). Knoxville thus exhibited certain costs above those associated with most ridesharing agencies. It is difficult to claim these additional costs represented the true cost of brokerage, yet such costs were incurred as a result of activities aimed at institutionalizing a more market-oriented approach to transportation problems in Knoxville. Had the broker been able to fully facilitate the institutionalization necessary to form a comprehensive brokerage (i.e., able to influence all commute modes and a greater number of commuters) such comparisons to more traditional ridesharing agencies would not be appropriate.

4.3.2 Elderly and Handicapped Brokerage Costs

E & H brokerage costs are somewhat more identifiable, for the cost of the brokerage was directly related to the coordinative function it performed. Given that transportation service was, in most cases, being provided prior to the broker's intervention (albeit duplicative and uncoordinated), the true cost of the brokerage was the administrative cost associated with performing the intermediary function. If E & H brokerage costs are divided into an operating element (direct costs of service agreements and other contractual arrangements) and an administrative element, the latter can be considered the additional costs incurred by utilizing a broker (as opposed to more informal and uncoordinated systems). It should be noted that in many cases, service coverage and even service quality was improved as a result of the broker's intervention. The additional costs of these elements, however, would be

difficult to determine as the overall E & H service cost facing a region prior to the broker was most often unknown or only vaguely understood.

The proportion of administrative costs (as a function of total costs) was a valid indication of relative cost of E & H brokerage. This percentage ranged from 12-30 percent, as exhibited by the projects in Pittsburgh, Lancaster, Newport News, and San Diego. For the actual administrative, operating, and total costs associated with each of the E & H projects, the reader is referred to the individual evaluation reports.

In Pittsburgh (ACCESS) and Lancaster (LISTS), administrative costs were generally comprised of the staff, office, and overhead costs associated with their autonomous position as a relatively independent entity. The staff's responsibilities were related entirely to brokerage work, whereas projects serving multiple markets or as part of a larger organization tended to use staff for various activities (some unrelated to brokerage).

Both brokers were able to significantly reduce the proportion of administrative costs to total costs during the course of the evaluation period. Pittsburgh's administrative costs decreased from 29.5 percent during the first year of operation to 14.6 percent in its final demonstration year. (7: p. 48) Lancaster's costs decreased from 21.2 percent to 15.6 percent (with a low of 11.6 percent in the third and middle year of operation). (6: p. 33) This reduction in the relative proportion of administrative costs was due to several factors. First, administrative costs generally remained constant as operating costs increased due to system growth (more users and contracting agencies). Second, project maturity (3-5 years experience) often meant that administrative tasks became more routine and "bugs worked out," contributing to the constancy of administrative costs while the systems grew in size and complexity. Finally, in the case of Pittsburgh, ACCESS was forced to lease lift-equipped vans (identified as a crucial E & H need) during the first year or so of operation until a provider in the marketplace could be found to offer the service on its own.

The Newport News brokerage (Handi-ride) exhibited an administrative cost proportion of 30 percent during its one full year of E & H service operation.

While Handi-ride was part of a more comprehensive brokerage and existed within an existing agency (thus enabling staff to work on more than just E & H brokerage) high administrative costs were due to the need for a dispatcher. This staff person allocated service between agency-operated vehicles and contracted taxi services. Such a function was unnecessary in the two Pennsylvania projects as the user-side subsidy mechanism alleviated the need for any centralized dispatching by the broker (although some schedule adjusting was performed). Without a dispatching function, the administrative costs facing Handi-ride would have been closer to 20 percent. (19: p. 52)

Finally, in San Diego, the brokerage approach was implemented to convert the existing, publicly-provided dial-a-ride system over to a user-side subsidy service utilizing a number of private providers and provider types (taxi, chair car, SSA vehicles). The demonstration grant was used to administer the conversion (not to subsidize users), of which 15 percent was used for permanent staff, 29 percent for temporary staff (clerical and eligibility screeners), 14 percent for evaluation, and the remaining 42 percent on general administrative items (printing, computer services, overhead, etc.). While this may be considered the start-up costs associated with the San Diego brokerage, the first full year of operation witnessed administrative costs amounting to 14 percent of total costs.

The question remains, however, do the administrative costs associated with brokerage warrant the benefits derived from the broker's existence? Those benefits that might be classified as unique to the brokerage approach include: 1) the institutional and regulatory reforms effectuated, 2) the contractual arrangements made with private and non-profit providers, and 3) the ability to market services to affiliated (with an SSA) and unaffiliated users. While some of these benefits have been realized via other arrangements, the unique stance of the broker (as neither a direct supplier nor consumer) tended to bring together all the necessary elements to foster effective change; change that likely would not have occurred under a different arrangement.

4.3.3 Decentralized Brokerage Costs

In assessing the cost effectiveness of this brokerage type, the key question is similar to that for E & H brokerage; what additional costs were incurred by the sponsoring agency for services and administrative activities above and beyond those associated with the agencies' conventional, pre-brokerage functions. In the case of the decentralized brokers, brokerage costs can be viewed two ways. First, if all the services facilitated by the regional broker are attributable to the broker, and not simply to the availability of a specific regional funding source, then the total (operating and adminstrative) costs of the brokerage program should be used. The Northeastern Illinois evaluation frames the cost effectiveness issue in this way:

> In addition to the per-unit cost issues, there are equity concerns regarding cost of services in the suburbs versus RTA tax revenues generated. Many suburban residents feel that tax revenues generated in the suburbs outweigh the services received. Consequently, while the cost per unit of paratransit is greater than that for conventional service, the overall cost of the paratransit (brokerage) program ($1.3 million) is small compared to the cost ($36.7 million) of conventional suburban bus. If not for the paratransit program, many suburban areas would probably have no public transportation services. (12: p. S-16)

Thus, cost effectiveness of the decentralized brokerage arrangement was viewed in terms of the RTA's ability to appease suburban tax equity conerns with relatively nominal funding requirements.

A second way to view decentralized brokerage costs would be to consider only the administrative costs associated with the broker's intervention role in allocating the regional tax funds. If it is assumed that the funds would otherwise be distributed in a more conventional, passive manner (such as through strict formulas), then only the project's adminstrative costs should be considered in determining the incremental cost of the broker (as was the case with the E & H brokers). While the actual costs of administering the Northeastern Illinois broker were never separated out from subsidy costs, the program is administered by a staff of 12 (9 full-time) for the 30 operational projects and the ongoing influx of project applications from local agencies. The evaluation estimated that the time spent administering the demonstration

sites averaged 14 - 42 hours per month per project. The Los Angeles decentralized project involves a staff of two planners in the technical assistance office (offering localities assistance in determining effective use of formula-allocated monies). The adminstrative costs of decentralized brokerage, therefore, would consist of staff requirements and related overhead and ancillary costs. The difficulty in fully assessing cost effectiveness is less in determining costs than in quantifying the benefits derived. In the case of Los Angeles, evaluating whether the benefits of technical assistance (as compared to allocation without assistance) outweigh the administrative costs is a difficult, if not impossible exercise.

4.3.4 Integrative Brokerage Costs

The integrative brokerage demonstrations represent the reorientation of an entire transit agency to the brokerage approach. As such, those services and activities in excess of the original operation may comprise the added cost of assuming a brokerage orientation. Integrative brokerage (Bridgeport and Westport) costs can be compared on the basis of before and after the brokerage approach was assumed. Given that brokerage involved an expansion and enhancement of the traditional fixed-route system, the costs associated with this change should be a surrogate for the cost of the brokerage. In Westport, the introduction of several paratransit elements accounted for total monthly system expenses of between $76,000 and $84,000 as compared to the last year of non-brokerage operation, averaging $38,000 per month. In addition, management and marketing contracts amounting to approximately $80,000 were utilized to support the changes over the two-year demonstration period.

The Bridgeport demonstration represented a more ambitious venture and the evaluation provides some interesting insights into the cost of reorganizing the system toward a brokerage orientation. Brokerage is defined in the evaluation as the planning and management activities above and beyond those for the conventional system, and as such the evaluation estimates that the brokerage incurred annual costs of $252,000 over and above the costs of the District's traditional planning activities (estimated by the evaluator to be $100,000 to $150,000 annually). (9: p. 110-112) Over the three and one-third

year period studied, the total cost of brokerage activities was estimated to be $839,000 and the incidence of these costs by brokerage activity were as follows: 49 percent for general brokerage planning (including most service planning), 28.5 percent for community development activities, 14.1 percent for pricing work, 6.7 percent for special planning activities, and 1.6 percent for the planning of an inner-city service. Estimates of the cost of brokerage (above and beyond traditional activities), while cursory at best, are useful tools for assessing the cost of the brokerage function. It would be desirable to provide such indicators for all the demonstrations, yet estimates of project cost above and beyond what would have existed in the absence of the broker would be futile in light of the evaluation data provided and the almost subjective nature of the exercise.

4.4 SUMMARY AND INSIGHTS

The effectiveness of the brokerage projects in fulfilling their intended objectives must be viewed in light of the ability of the broker to fit into a natural "niche," in terms of a true need existing for the broker and its acceptance within the local transportation environment. In the absence of such a niche, the ability of the broker to deal effectively with other local transportation organizations was severely constrained. Without a clear mandate for brokerage, project staff were forced into spending a great deal of time defending the concept, and too little time on actually implementing innovative service alternatives. The degree of consideration afforded the organizational consensus-building process during project inception was a key factor in determining whether the broker would be able to effectively change the existing set of conditions to reflect a market-oriented approach.

Those projects that did not seem to fit into a clear niche were often indistinguishable from a variety of other arrangements and approaches. The commuter brokerage projects exhibited very similar costs and impacts to the majority of conventional ridesharing projects throughout the U.S. In fact, it might be concluded that the demonstrations themselves were indistinguishable from the bulk of ridesharing programs and that the terms "commuter brokerage" and "third-party ridesharing" are interchangable.

It should be noted, however, that the inability of commuter brokerages to realize results above and beyond those associated with the bulk of ridesharing programs in the U.S. was not simply due to the broker's inability to become institutionalized and influence a wider range of service options (including the fixed-route element of their parent agencies and other more innovative options such as club buses, taxi-pooling, high-occupancy vehicle lanes, etc.) Just as important were a variety of related exogenous factors that would have impacted any commute program. Low levels of demand for alternative commute modes during the projects were probably due to stabilizing gasoline prices after the 1979 oil crisis, increased fuel efficiency, and other factors which served to maintain the attractiveness of solo commuting.

The two forces, however, (a constrained set of alternative services and low demand) tended to be intricately related, as better options may have induced a certain amount of additional demand and more demand might have enabled the broker to influence additional service options. Thus, the apparent failure of the commuter brokerage demonstrations to go beyond other ridesharing programs was not necessarily because the concept was inappropriate per se, but because the local conditions prevalent at the time may not have warranted the need for any type of comprehensive commuter program. This again points to the importance of both a true need existing for the broker coupled with its acceptance within the local organizational environment in order for brokerage to fulfill its intended objectives.

Those brokerages that were created as the locally agreed-upon solution to specific problems and did fit into a natural niche produced significant results that might not have been possible under other non-brokerage arrangements. The E & H brokers that were established as semi-autonomous entities were able to combine the appropriate mediatory relationships with providers and users to form an effective network for E & H service delivery. While the approach was organizationally efficient in providing its sponsors a centralized and dedicated management mechanism, and was effective in improving service for some users and in introducing subsidized service for many others that were unaffiliated with social service agencies, the question of whether such benefits outweighed the costs associated with establishing the brokered network remains inconclusive.

The impacts of those brokers set within a well-defined niche were not always directly related to the specific services offered. One of the most significant impacts of decentralized brokerage in Northeastern Illinois may have been the ability of the regional agency to satisfy suburban concerns over the allocation of tax funds, who perceived an unacceptably large share of their tax dollars (prior to the broker) going to support service oriented to downtown Chicago.

Again, the projects seemed to bear out the conclusion that those brokerages that were established as a response to a clearly defined problem and were, at the same time, accepted within the institutional environment as the appropriate response were better able to fulfill their objectives and ultimately realize their intended results.

Somewhere between those brokerages with a clear niche and those without were brokers that were able to create a niche for themselves by reorienting the structure and process of transportation service development and by slowly cultivating the institutionalization of the brokerage role during implementation. The integrative brokerage projects (especially those in Bridgeport and Dade County) were able to totally reorient the management and delivery of existing and new services and in so doing reshape the region's institutional environment toward a more accepting stance. This was accomplished by reorganizing the local transit operator toward a more demand-oriented stucture. This slow and complex task was often frustrated by setbacks and the inability to fully and quickly realize the set of objectives identified during inception, yet some brokers were able to eventually institutionalize the approach and develop a set of innovative services responsive to specific markets.

The degree to which those brokers with a natural niche were able to better fulfill their intended objectives than those projects without such a niche or projects utilizing some other approach cannot be precisely determined. The above discussion does, however, suggest that embracing the brokerage concept alone is not enough to assure successful implementation or the ability to meet stated objectives. The influence of the local organizational environment and its role in mutually determining the need for a broker should not be

underestimated. The next chapter provides some insight into the specific lessons that have been learned from the 13 projects explored here and is intended to assist those contemplating the application of the brokerage approach or considering a range of options for transportation problem solving.

5. CONCLUSIONS: THE FUTURE OF TRANSPORTATION BROKERAGE

While the results of the demonstration brokerages examined here were mixed at best, the reader should keep in mind the experimental nature of the projects. The approach, while intuitively very attractive and plausible, needed the period of testing afforded by the Service and Methods Demonstration Program. Testing the feasibility of the brokerage approach in diverse political and regulatory environments was one of the reasons for funding a number of projects. In general, three steps were involved in moving from the brokerage concept to implementation. First, the appropriate role for the broker within the local transportation environment needed to be clarified. This step included identification of the specific problems that the broker would address and finding an acceptable location for the broker within the existing transportation institutional structure. Second, certain formal regulatory barriers which prevented the broker from carrying out its objectives (e.g., vanpool insurance rates or carrier certification authority) often had to be overcome. Finally, with a clear set of objectives in hand, and institutional and regulatory barriers overcome, the broker could go to work developing service alternatives.

Unfortunately, in many cases the time required to complete the first two steps often consumed the entire demonstration period. In other cases, such issues were dealt with throughout project implementation, distracting staff from other, more visible project elements. It should be noted that implementation was often frustrated by the timing and effort necessary to receive the federal grant, but local uncertainties played an equally as important role in frustrating project start-up. Community transportation needs, political attitudes, and economic conditions often changed during project implementation, presenting new demands on the broker and concomitant barriers and attitudes. While this might be an oversimplification of the reasons behind the mixed success of the demonstrations, it does point to some of the overriding, unforeseen frustrations experienced by many of the brokerage sites.

The purpose of this concluding section is to speculate on the future of transportation brokerage, based upon both its demonstration results and upon future conditions likely to affect its widespread adoption as a new approach to urban transportation problem-solving and service delivery. First, this section attempts to extract the transferable findings from the evaluations. This transferability is discussed as it relates to other localities and political/institutional environments. Second, possible differences between demonstration brokerages and future brokerages are assessed to determine the unique aspects associated with the demonstrations per se. Finally the underlying question driving this analysis is redressed: Is brokerage an implicit "frame-of-mind" or an explicit "recipe for success"?

5.1 TRANSFERABLE FINDINGS

The transferability of the brokerage approach will be greatly determined by local circumstances and the progressiveness of those institutions responsible for the transportation system and its component parts. The brokerage approach is not appropriate for all localities and situations. A key conclusion from the demonstrations should be that the workability of the concept in a given urban area or situation may only be determined by actual experience. **This is because the brokerage approach primarily involves institutional and attitudinal change rather than more tangible, physical** change. The individual evaluations do, however, provide a number a valuable insights concerning the transferable elements of the demonstration brokerages. While such transferable elements will not be a fool-proof predictor of future brokerage success, they may serve to assist decision-makers and planners in understanding the simplicity of the concept but the complexity of its effective application.

Discussions of transferability, within the individual evaluations, generally took the form of lessons to be learned from the particular brokerage at hand. Given that a more rigorous, comparative testing of various brokerage mechanisms was not and cannot be produced, these lessons should serve as the initial guide to those contemplating forming or facilitating a brokerage. By learning from the mistakes, experiences, and achievements of the projects,

decisions about future brokerage applications may be made in a more rational and locally acceptable manner. The following is a set of transferable lessons as extracted from the evaluations and is organized by the three steps enumerated above.

Lessons on Institutional Change

- Institutionalization of the brokerage approach is most successful when it is implemented in response to a clearly defined and widely acknowledged local transportation problem (or set of problems).
- Substantial pre-implementation planning and consensus-building are necessary before the brokerage approach can be operationalized within a given local environment.
- Brokerage advocates must realize that the approach and the projects fostered may be threatening to many established modal entities and planning agencies. Consequently, an important pre-implementation brokerage activity is to assuage the fears of these other organizations.
- A strong local base of support for transportation and public service innovation can be a great asset in gaining acceptance for the brokerage approach.
- The presence of an energetic entrepreneur or core of entrepreneurial managers can do much to facilitate institutionalization and implementation of the brokerage.

Lessons on Regulatory Change

- Regulatory authority over certain local transportation service providers (e.g., taxis and paratransit providers) represents a powerful tool which the brokerage can use to promote various supply objectives. However, these regulatory controls should be used sparingly so as not to compromise the intermediary role of the broker.
- A brokerage acquires only that regulatory or organizational power which is delegated from an existing organization or political body. Consequently, brokerage advocates must first sell local decision-makers and responsible agencies on the merits and potential benefits of the approach.

Lessons on Brokerage Implementation

- o The brokerage should have a clear sense of its goals, target markets, and scope of activities.
- o Brokerage planners need to realize the complexity of the urban transportation system and understand the trade-offs involved in influencing different parts of the system.
- o The brokerage approach offers the flexibility to continually search for better solutions rather than accept the status quo.
- o A comprehensive marketing program is needed to both inform the potential user and as a tool for demand determination (market research).
- o Decentralized brokerage seems to be well suited to very large metropolitan areas and for regional governments or for a wide variety of activities and target groups.
- o Elderly and handicapped brokerages seem to be most effective if the broker:
  - involves social service and regulatory agencies early on
  - utilizes large "anchor" SSAs to generate usage by other SSAs
  - markets service as alternative to agency-provided transportation
  - fosters competition among providers
  - builds on the strengths of existing providers and trip patterns
  - understands and addresses E & H market imperfections

Finally, the Bridgeport evaluation offers a somewhat different conclusion on the subject of brokerage transferability. Paraphrasing from that conclusion:

> Much of the demonstration work is experimental, and is reflected in the results and the costs. Brokerage in the more transferable sense is much more pragmatic. It represents a continuous search for innovation and improvement in the delivery of mass transportation services. A large staff and budget is not required to pursue such a program under normal circumstances, and in most cases it is simply necessary for existing staff to broaden their awareness of concepts, techniques, constraints and resources. Specialized skills can be acquired on an as-needed basis. Funding for most improvements can be realized under existing federal and state programs. The demonstrations have performed a valuable service in not only piloting several potentially useful concepts, but in identifying the major constraints to implementation and effectiveness. This knowledge should help sharpen the focus and reduce the effort of future users of the brokerage approach. (9: p. 133)

Most of the evaluations agreed that, in concept, the brokerage approach is a valid, workable notion if implemented carefully and when accompanied by the right local political, institutional and regulatory conditions. Some pointed to the novelty and experimental nature of the demonstrations as a reason for mixed results; that given the right conditions, support, and proper planning, the concept could be a very effective means to address many future transportation needs. But perhaps the single most important transferable finding and thus key to future applications is that a true need for the broker must exist, i.e. the brokerage needs to make sense given the travel and land use patterns and potential transportation alternatives. Additionally, the brokered alternatives have to make sense in terms of economics, operations and their overall affect on travel patterns. This may seem to be an obvious precondition to any successful project or program. However, in the absence of a clear mandate for the brokerage approach, the barriers to successful institutionalization of the approach are nearly insurmountable.

5.2 DIFFERENCES BETWEEN DEMONSTRATION AND FUTURE BROKERAGES

Several factors suggest that future brokerages may not be close replications of the demonstration projects. This is not to say that future brokerages will not exist, but rather that they will most likely be somewhat different from the demonstrations. These differences, and the reasoning for such differences, include: 1) influence of federal demonstration monies, 2) the impact of the demonstration's mixed results, and 3) the success of those demonstrations with more limited scopes.

First, the influence of federal demonstration monies on the past projects cannot be overstated. The fact that the major financial burden and concomitant accountability did not rest on the local government probably accounted for the lack of vehement opposition during demonstration inception. Without the need for financial commitment, however, local decision-makers and agencies were often not actively involved in the planning process and ongoing commitments were not obtained. Consequently, political and institutional conflict did not arise until after implementation. The lack of meaningful commitments from key participants was one reason for the ineffectiveness of

some of the demonstrations. Future brokerage proposals, however, will undoubtedly need the kind of financial and participatory commitment lacking in these earlier projects. Whereas the experimental status may have appeased many local constituencies in the past, and grant monies served to offset the risk involved in testing the concept, future brokerages may have to acquire a broader base of support for the approach to be even tenable.

This is not to say federal monies will not be available for brokerage planning and operations. In fact, the Section 4(i) (Innovative Techniques and Methods Program) provided some $750,000 for four brokerage projects in FY 83. The change, however, from experimental to operational projects will still necessitate a greater amount of pre-implementation planning and consensus-building to both assure that a greater local match is raised (e.g., at least 25% for Section 4(i) grants) and that the broker's role is an effective and non-competitive mechanism for addressing local transportation problems.

Second, the influence of the demonstration results may cause future decision-makers to be skeptical of the approach, as intuitively appealing as it may be. The fact that few of the demonstration brokerages facilitated overwhelming shifts in travel behavior or improved operating efficiencies may act as a deterrent to future applications. The fact that so many brokerage projects, however, are currently being initiated and implemented would tend to counter this presumption. Projects funded by both the above-mentioned federal monies, as well as state and local sources are being fostered. The difference seems to be that these new projects are existing ridesharing or transit programs renamed or reoriented to reflect the brokerage approach. This is consistent with the fact that many of the demonstration projects differed little from a host of other projects operating under the auspices of third-party ridesharing, coordination, integration, etc. Such brokerage "by name only" runs the risk, however, of ignoring the experiences of the demonstrations or heeding the warnings to fully develop an environment more conducive to the brokerage approach and able to operate within a well-defined niche.

Finally, the relative success of those demonstrations that limited the scope of their activities (targeting only one or two specific markets) may

signal a more limited application of the concept in the future. Indeed, the set of currently forming brokerages seems to be oriented specifically to commuters or to E & H markets. This notion may seem counter to the brokerage concept as effectiveness is seen as contingent on the range of options. Experience has shown, however, the opposite to be true; flexibility in using different alternatives may be more important than the sheer number of options available and user groups served. As also mentioned above, future brokerages will more likely be housed in existing agencies or at least be of a smaller scale. This is because resources may not be available for large staffs and because the staff size and resources available do not seem to be a strong indicator of a successful program.

5.3 CONCLUSIONS

The first section of this analysis concluded by defining brokerage as an approach to urban transportation planning and service delivery. As stated in that definitional section, the "brokerage perspective" or approach is characterized by an orientation toward understanding and accommodating the actual demand for transportation services as identified by and for specific target populations. This orientation differs from traditional transportation agencies which design and operate single-mode, somewhat static delivery systems that are intended to serve areawide, aggregated demand for a range of needs. Whereas this type of "supply-orientation" begins with the service and induces travel behavior changes, the brokerage approach attempts to understand travel behavior on a manageable level and tailor services to those needs.

While the approach may have been common to all the demonstrations analyzed here, the actual techniques utilized and results achieved varied dramatically. As such, brokerage cannot be considered a definitive "recipe for success." What techniques, organizational relationships and specific projects were effective in one situation were often ineffective in another. Brokerage is not a step-by-step plan for solving all transportation problems. Brokerage cannot be neatly packaged like some explicit planning or operational tools and methods. Brokerage is more a "frame-of-mind," a way of approaching a problem, regardless of the resulting solution technique. One brokerage analyst called

brokerage an "attitude geared toward a preferred transportation future" --that preference being for a multimodal, management orientation to meeting actual demand and utilizing existing suppliers to the greatest possible extent. (13: p. 9)

Although the brokerage approach is not an explicit plan or model it does suggest a planning process. This process is atuned to market trends, imperfections, and opportunities. This process seeks to build the necessary consensus up front among suppliers, public agencies, decision-makers and private interests in order to effectively implement a feasible plan and assure that a true market niche exists for the broker's mediatory role. The process is reiterative in that priorities change as travel patterns and institutional relationships change and as new needs and/or opportunities arise. The process is guided by a transportation entrepreneur to keep it dynamic and progressive and to act as a focal point for establishing credibility for the approach.

Finally, as alluded to above, if brokerage is to be manifest in existing organizations and amidst existing institutional arrangements, then the approach becomes far more feasible than establishing an entirely new organization. Such a revolutionary change (superimposing a new organization) would tend to force new institutional relationships upon the environment. The adoption of the brokerage approach by existing and incoming transportation professionals and decision-makers, however, would work to evolve a new environment more conducive to the approach.

Brokerage is not a panacea for all transportation ills; nor is it an explicit blueprint for success. Brokerge is an approach aimed at improving the ability of the transportation system to be an effective, responsive means for satisfying transportation needs. While the approach may or may not become adopted on a widespread basis, the lessons learned and experiences forwarded by this analysis (and by the individual demonstration evaluations) may serve to assist planners and local decision-makers in the future contemplating alternative ways to address transportation issues and those seeking solutions to specific transportation problems and needs.

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APPENDIX

BROKERAGE PROFILE SUMMARIES

Brokerage Profile Summary

Location: Knoxville, Tennessee Dates: 10/75 - 12/78

Title: Knoxville Tennessee Transportation Brokerage

Funding Level: $997,959
Other Sources: $118,580 (local in-kind)

Definition of Brokerage: Identifies and matches transportation demand and supply across a variety of users and providers, and to effect legal and regulatory reforms conducive to the improvement of transportation services.

Location of Brokerage: Knoxville Commuter Pool (first with Univ. of Tenn., then moved to City of Knoxville Dept. of Public Transportation Services, then back to university).

Project elements:

a) Computer rideshare matching, primarily at employer sites.
b) "Seed" vanpool program (51 vans)
c) Act as transportation information broker
d) Promotion of institutional/regulatory change
e) Social service agency brokering
f) Market research activities aimed at determining segmented demand and potential providers

Project Status: Demonstration ended December 1978; Commuter Pool still in existence, primarily as ridesharing agency. Set up Commuter Club to assist poolers.

Distinguishing Features:

Project considered first attempt at brokerage concept. Demo seemed to focus on institutional issues and a "seed" vanpool program to the exclusion of SSA coordination and private sector involvement.

Brokerage Profile Summary

Location: Mountain View, California Dates: 2/76 - 2/77

Title: Community Brokerage of Transportation Services for the Elderly

Funding Level: $152,675
Other Sources: None

Definition of Brokerage: Consists of two elements, Community and Institutional. One is facilitating operation of delivery system by supplying support services (transp.) that enable a client to use primary services; the other, facilitating related institutional change to improve operation of human services delivery system.

Location of Brokerage: Community Services Cooperative (CSC) created by unit of Stanford Univ. Taxi operator involved as "middleman."

Project Elements: Community Broker: a) marketed services at two sites, b) promoted various activities to stimulate demand, c) grouped and scheduled trips, d) operated van, e) coordinated with SSAs, and f) provided escort services where appropriate. Institutional Broker (Project Director): a) contacted public- and private-sector support service agencies, b) evaluated the market for additional services, and coordinated with responsible government entities.

Project Status: Project completed February, 1977. Project continued after demo by various agencies and service to the apartment complexes currently provided by Mt. View Community Services.

Distinquishing Features: Project designed to test one element of a more complex concept; the Integrated Human Services Delivery concept. Transportation viewed as support service to primary service delivery system.

Brokerage Profile Summary

Location: **Westport, Connecticut** Dates: 4/77 - 3/79

Title: Westport Connecticut Integrated Transit System

Funding Level: $610,000
Other Sources: N/A

Definition of Brokerage: Project never "officially" termed brokerage. Two elements of project included: a) implementation of service integration through contractual arrangements with private taxi operators, b) supporting and sustaining integrated services through operational management and "brokerage."

Location of Brokerage: Westport Transit District

Project Elements: Demo included six month planning phase and a two year operational phase. Purpose of demo was to test feasibility of of combining shared-ride taxi and other paratransit service with fixed route bus service. Two major paratransit elements were commuter-oriented minibus services and shared-ride taxi operations for supplemental, E & H, and package delivery service. Integration of operations, maintenance and marketing also achieved.

Project Status: Demonstration ended in March, 1979. Substantial retrenchment occurred (both organizationally and operationally).

Distinquishing Features: Paratransit service operated by local taxi firm who successfully bid for contract. Other local taxi operator filed suit against WTD, and eventually went bankrupt. Contracting operator sold business during demonstration. Community support for District and its services seen as crucial. Demo also pointed to advantage of using existing operator due to their knowledge of the community and some of its travel needs.

Brokerage Profile Summary

Location: **Minneapolis, Minnesota** Dates: 6/77 - 2/80

Title: Minneapolis Ridesharing Commuter Services Demonstration (Share-a-Ride)

Funding Level: $335,000
Other Sources: $560,000-FAUS (including 5% local and 5% state match)

Definition of Brokerage: Promotion and coordination of a variety of commuter services for employees at multi-employer sites. (As such should be classified as "commuter brokerage.")

Location of Brokerage: While MTC downtown office was official coordinator, program decentralized into three elements: 1) MTC Area Office, 2) Van Pool Services, Inc. (VPSI), and 3) Public Service Options.

Project Elements:

a) marketing of service at suburban employment sites
b) matching services for car-, van-, and buspools
c) bus schedule information referral
d) follow-up assistance with pool formation
e) adminstration of vanpool vehicle fleet
f) use of telephone follow-up for carpool matching
g) use of private, non-profit org'n for program design, implementation, and initial marketing
h) use of private, third-party vanpool provider

Project Status: Demonstration ended early in 1980, Share-a-Ride offering area-wide ridesharing services under auspices of MTC and still utilizing VPSI. Changes likely to have occurred since.

Distinquishing Features:

Considered one of the first third-party ridesharing operations and pioneered the telephone follow-up approach. Designed to offer employers/employees a wide-range of commute options. While decentralization was meant to focus activity at sites, project suffered from poor overall management and lack of coordination.

Brokerage Profile Summary

Location: Lancaster County, Pennsylvania Dates: 11/77 - 5/83

Title: Lancaster Elderly and Handicapped Transportation Brokerage

Funding Level: SMD Case Study (no demo $)
Other Sources: Administrative funds from variety of state and local sources

Definition of Brokerage: Improving information flow between sellers and buyers and solving institutional barriers to coordination to better match transportation supply and demand.

Location of Brokerage: Lancaster Integrated Specialized Transportation System (LISTS) a non-profit, single-purpose corporation.

Project Elements:
a) serves transportation needs of county SSAs
b) contracts with paratransit providers
c) handles accounting of USS mechanism
d) serves as designated provider for two public-subsidy programs
e) markets program and maintains "hotline"

Project Status: Still ongoing

Distinquishing Features:

Closely analagous to ACCESS. Considers itself "streamlined" brokerage in that it does not screen users or do all the scheduling. Has had difficult time providing wheelchair service.

Brokerage Profile Summary

Location: Northeastern Illinois Dates: 2/78 - 6/82

Title: Northeastern Illinois RTA Decentralized Paratransit Brokerage Program

Funding Level: $725,000 (incl. $175,000 amendment)
Other Sources: $78,000 (RTA), $60,000 (local)

Definition of Brokerage: Regional transportation agency encourages municipalities to plan, operate, partially fund, implement, and manage a variety of paratransit services in areas that could not support fixed-route service. Regional agency to act as "broker" in generating these new services by coordinating, funding, providing technical staff assistance, and monitoring results.

Location of Brokerage: Northeastern Illinois Regional Transportation Authority (RTA) First in Operations Planning Dept., then in Paratransit Dept.

Project Elements: Project designed to maximize paratransit service with a minimum amount of centralized staff time and resources. Demonstration funded six local projects; half E & H and half general public. RTA awards local projects in a competitive process designed to assure workable services with concrete local support. RTA also procured fleet of paratransit vehicles based on RTA specs.

Project Status: Final demo project initiated in July, 1981. 24 local projects in operation, another 48 applications being reviewed at time of final evaluation publication.

Distinquishing Features:

RTA has expanded public transportation services in the region and done so with minimal resources. In addition, suburban political attitudes are perceived to be more favorable to the regional entity. A few problems did plague the demo, including: RTA intraorganizational conflicts, an arduous vehicle procurement process, local participants feeling paperwork too cumbersome and contracts too involved.

Brokerage Profile Summary

Location: Newport News/Hampton, Virginia Dates: 7/78 - 7/81

Title: Newport News, Virginia EASYRIDE Transportation Brokerage Demonstration

Funding Level: $570,000
Other Sources: $91,810 (state), $58,640 (Sec. 5 funds for E & H service)

Definition of Brokerage: Public or private organization acting as an information center and coordinator for suppliers and users of transportation. Broker acts as ridesharing (both commuter and E & H) advocate and facilitator.

Location of Brokerage: Peninsula Transportation District Commission. EASYRIDE is paratransit counterpart to PENTRAN, the fixed route operator.

Project Elements:

a) employer-based rideshare matching service
b) extensive areawide rideshare marketing
c) identify and coordinate private bus and vanpool operators
d) E & H coordination through Handi-ride service provision
e) Brokering of Tidewater vans to Peninsula commuters
f) Integrating paratransit services with PENTRAN services
g) established Section 16(b)(2) procurement review process
h) user-side subsidy program in conjunction with HANDI-RIDE
i) two-stage phasing; planning and implementation

Project Status: Demonstration ended in July 1981. Office of Brokerage established within PENTRAN and funded with operating monies.

Distinquishing Features:

While aggregate success of EASYRIDE in affecting travel behavior was not as far-reaching as was hoped, project did attempt to coordinate transportation services in region. Project operational during 1979 energy crisis and EASYRIDE played role in contingency planning. EASYRIDE wanted to operate third-party vanpool program, but deemed competitive with TTDC program. Brokering of TTDC vans was solution.

Brokerage Profile Summary

Location: **Pittsburgh, Pennsylvania** Dates: 7/78 - 6/82

Title: Paratransit Brokerage Demonstration Project, Pittsburgh, PA

Funding Level: $2,288,000
Other Sources: local match?

Definition of Brokerage: A third-party, "marketplace" coordinator of service providers and users of elderly and handicapped transportation services.

Location of Brokerage: ACCESS Transportation Services, Inc., a management subsidiary of a transportation consulting firm.

Project Elements: Two major components of project are a) user-side subsidy for those unable to use the Port Authority's (PAT) bus service, and b) brokerage activities. The five basic functions of the brokerage include: 1) soliciting competitive proposals for service delivery and subsequent negotiation (of both for-profit and not-for-profit carriers 2) marketing coordinated system to SSAs and individuals, 3) sells scrip and provides third-party billing, 4) monitors performance of providers, and 5) serves as information clearinghouse for available E & H transportation services.

Project Status: Demo ended June, 1982; Port Authority continuing ACCESS.

Distinquishing Features:

One of the first brokerages not housed within an existing organization. ACCESS attempts to manipulate market by means of USS and annual contractual negotiations with operators. Some coordination existed prior to ACCESS and shared ride incidence actually decreased, yet the quality of service and aggregate per trip costs were improved. Also as ridership grew, management cost did not.

Brokerage Profile Summary

Location: Bridgeport, Connecticut Dates: 9/79 - Present

Title: Transportation Brokerage Demonstration, Bridgeport, Connecticut

Funding Level: $577,395 (Over $2 million total Sections 6 and 8 monies)
Other Sources: $16 million (federal, state and local-capital and operating)

Definition of Brokerage: A management function with TSM at its core. In addition, the brokerage function is comprised of three elements: a) comprehensive planning, b) service development and c) service evaluation.

Location of Brokerage: Greater Bridgeport Transit District, Planning and Demonstrations department

Project Elements: Designed to accomplish more efficient delivery of transportation services through the application of updated planning and operating methods, and the judicious, enlightened use of innovative service and management concepts. Attempting to utilize the process suggested above, several new services were implemented in addition to a rejuvenated fixed-route system. These included: private, non-profit SSA transportation "consortium," and a suburban minibus service. In addition, the GBTD is planning to implement a SRT service, a employment-center ridesharing program, and specific community development projects. In addition, focus group market research is being utilized.

Project Status: Demo near completion, brokerage management process in place. Most recent innovation was implementation of SRT in inner-city neighborhood.

Distinquishing Features: TSM Brokerage Demo part of overall reconstruction of transit system, including pricing and route-level monitoring innovations. SRT and ridesharing elements very slow in "getting off the ground." Political pressures demanded service provision before all alternatives were considered.

Brokerage Profile Summary

Location: San Diego, California Dates: 8/81 - Present

Title: San Diego Private Sector Integration Project - SSA Coordination

Funding Level: $175,000
Other Sources: local match?

Definition of Brokerage: Third-party between contracted providers, subsidized and non-subsidized users and social service agencies with transportation needs.

Location of Brokerage: City of San Diego Paratransit Administration

Project Elements: Project involves conversion of publicly operated DAR to contracted service provision through for-profit and not-for-profit carriers. Elderly, handicapped, and low income individuals must meet specific requirements for subsidized scrip. The city sells scrip to agencies and individuals at subsidized and non-subsidized rates. Four basic service components include: taxi-ambulatory service (USS), wheelchair-accessible service (non-USS), subscription service (temporary service for "old" DAR service) and services being developed to integrate with other DAR services and in non-served areas.

Project Status: Conversion of dial-a-ride system completed and USS mechanism in place. Coordination phase of demonstration just underway.

Distinquishing Features:

Project is analagous to ACCESS (Pittsburgh) in its contractual and USS approach to E & H service provision. Service is also available to low income individuals. SMD demo evolved from prior planning and coordination efforts, which recommended contracting out DAR service and USS mechanism. Two separate, but interconnected representative groups facilitate and monitor coordination activities.

Brokerage Profile Summary

Location: Dade County, Florida Dates: 12/81 - 12/83

Title: Dade County, Florida - Transportation Brokerage Demonstration

Funding Level: $700,000
Other Sources: $175,000 (local match)

Definition of Brokerage: Matching of consumers with providers of the appropriate transportation service(s) to meet travel needs. Also fulfills the function of integrating the provision of transportation services with community and economic development objectives throughout the region.

Location of Brokerage: Dade County Office of Transportation Administration (OTA)

Project Elements:
a) Taxicab and paratransit regulatory revisions
b) Taxi-transit interface services in specific locations
c) Social service agency transportation coordination
In addition to these three specific elements several other objectives have been outlined, including: unified marketing program; usage of computer-assisted routing, scheduling and dispatching system (CARSD) and an MIS; brokering of ride-sharing servies (the latter two elements being funded by other U.S. DOT programs).

Project Status: Taxi deregulation largely complete; taxi feeder service and SSA coordination activities recently implemented.

Distinquishing Features:

OTA received SMD planning funds in 1978 to develop brokerage demonstration plan. Needs assessment and market targeting largely completed during this period. Taxi-related activities consumed a majority of first year and other two elements were postponed at first, but OTA reorganization assisted in removing certain barriers to implementation.

Brokerage Profile Summary

Location: St. Louis, Missouri Dates: Never Implemented

Title: St. Louis Transportation Brokerage Project

Funding Level: $1,465,500 (never fully awarded)
Other Sources: $62,400 (local)

Definition of Brokerage: Development and operation of a management program to efficiently match services of transportation providers with the demand of transportation users.

Location of Brokerage: Initially to be managed by City of St. Louis Street Dept. with services contractually provided by a myriad of sources. Future regional organizational alternatives to be considered.

Project Elements:

Two phase plan: Phase I, pre-implementation activities; Phase II, implementation of ridesharing and E & H work programs. Objectives of brokerage include:

a) increase efficiency of existing providers (public & priv.)
b) locate potential suppliers, currently un- or underutilized
c) serve as clearinghouse for various transportation needs
d) facilitate removal of institutional barriers
e) induce new travel patterns to alleviate peaking problems
f) increase productivity of social service transportation
g) address the broader set of community and national goals

Project Status: Phase I (planning) complete, Phase II never implemented.

Distinquishing Features:

Project consists of a broad set of goals and objectives. Potential for duplication exists as many brokered activities already being provided by other organizations. Seemed to have learned from previous projects by utilizing a discrete pre-implementation phase to deal with institutional and start-up issues (13(C), constituency building, etc.).

Brokerage Profile Summary

Location: **Los Angeles County, California** Dates: 6/82 - Present

Title: LACTC Technical Assistance Office

Funding Level: $329,291 (for two elements, tech ass't and fare impact study
Other Sources: $147,104 (local)

Definition of Brokerage: Not officially termed "brokerage" by applicant, yet similarity to decentralized brokerage concept is clear. Broker acts as facilitator of innovations and service improvements with goal of allowing maximum local choice.

Location of Brokerage: Los Angeles County Transportation Commission (LACTC)

Project Elements: LACTC is managing the allocation of a regional, dedicated sales tax revenue base back to the localities and unincorp. areas. Approximately $70 million/year is to be available to localities to use as they deem fit. To assist these governments in proposing, planning and implementing a variety of transit, paratransit and TSM projects, the LACTC is setting up a "Local Return Technical Assistance Office." The program will be monitored for the first two years of its operation to assess the merits of such a decentralized technical assistance brokerage.

Project Status: Technical assistance ongoing.

Distinquishing Features:

While monies returned to localities is on a fixed-proportional basis, LACTC possesses the leverage of signing off on usage. LACTC is attempting to facilitate the consideration of alternatives by these local agencies.

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