

# Private Sector Options for Commuter Transportation



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Final Report March 1984

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Prepared for University Research and Training Program Urban Mass Transportation Administration Washington, D.C. 20590

Distributed in Cooperation with Technology Sharing Program Office of the Secretary of Transportation

DOT-I-85-09

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## Technical Report Documentation Page

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U.S. Department of Transpo	ortation		September, 19	983
Urban Mass Transportation	Administratio	n	Sopremeer, r.	
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Washington, D.C. 20590				
13. Supplementary Notes				
16. Abstract				
This study examines the in	stitutional a	nd economic feasi	hility of inc	reacing
the utilization of the pri	vate sector t	o provide and org	anize commute	er transporta-
tion services. These incl	ude both priv	ate services not	subsidized wi	th public
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on case studies of urban a	reas where th	ese services exis	t, the report	
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17. Key Words Private commuter	huses	18 Distribution Statement		
vanpools, commuter paratra	nsit hus-	Available to t	he public the	rough the
pools, subscription buses	emplover	National Techn	ical Informat	ion Service.
ridesharing. commuter tran	sportation	Springfield. V	irginia 2216	51
public-private sector coop	eration		0	
19. Security Classif. (of this report)	20. Security Closs	if. (of this page)	21. No. of Pages	22. Price
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## Acknowledgments

Many people deserve special thanks for their contributions to this report. Although it is not possible to cite each of the many individuals who gave generously of their time and information to the research team, without their assistance this study could not have been completed. They literally provided the raw material for this report. Several persons were especially helpful in providing us with information and insights. Jim Echols and Jeff Becker of Tidewater Transit were instrumental in helping us to understand the key role played by transit agency fiscal incentive systems in stimulating innovation. Bill Bourne and Jim Carson of Commuter Bus Lines generously shared company data and years of accumulated knowledge with us. Private bus company owners in Boston, Hartford, and Houston also provided us with a wealth of operating and organizational information. Jim Bautz, our contract monitor, gave us perceptive guidance and criticism throughout the project, and was tolerant of the fact that the research process sometimes takes longer than anticipated. His support and forebearance were much appreciated.

The Word Processing Center of the School of Social Sciences produced the final report. Special thanks are due to Kathy Alberti for her usual superior performance in accomplishing this task.

### EXECUTIVE SUMMARY

### I. Study Context and Scope

During the past several years, increasing interest has been focused on the use of the private sector to improve the performance of urban commuter transportation. This upsurge of interest in the private sector reflects a growing recognition that attempting to provide and finance collective forms of commuter transportation exclusively through the public sector is not a cost-effective policy. Accordingly, many transportation planners and policy makers are now seeking to make use of the resources of the private sector--in the form of service provision, organization, and/or financing--to supplement and, in some cases, supplant the traditional activities of public transportation providers.

This study is an evaluation of the private sector's potential to assume a major role in the delivery of collective forms of commuter transportation. The "private sector options" analyzed in this study are commuter transportation strategies for which the private sector is, at a minimum, responsible for organizing and financing the service. These options include commuter bus service provided by private bus companies--either unsubsidized or operated under contract to a public agency, employer organized commuter ridesharing programs, and vanpooling services organized by transit agencies, private employers, and ridesharing agencies. By examining the use of these strategies in several metropolitan areas, this study seeks to determine the conditions under which they are utilized, to identify the obstacles to more widespread adoption; and to assess their appropriateness and cost-effectiveness. Because a variety of economic, legal, political, and organizational factors affect the feasibility of those strategies, this study addresses both their institutional and economic dimensions.

II. Private Sector Strategies

Six major types of private sector strategies are examined in this study. They are as follows:

(1) <u>Privately Provided Unsubsidized Commuter Bus Service</u>. This can take any of three forms.

<u>Regular route service</u>, the traditional form of commuter bus service, is essentially the same as public transit commuter express service. It operates on a fixed schedule and usually involves several bus runs daily. Demand is not pre-organized; trips can be purchased either singly or through weekly or monthly passes.

<u>Subscription bus services</u> are targeted at a specific employment location and group of passengers. Fares are paid in advance on a weekly or monthly basis and the passenger receives a reserved seat. Subscription service is usually contingent upon a minimum revenue: operation begins only when a sufficient number of passengers have been obtained, and service is suspended if ridership falls below the required minimum.

<u>Buspools</u> have many variants: carpool-type operations where the owner-driver sets rules, collects fares, and is employed at the destination site; employer sponsored services which utilize worker-drivers and employer

owned equipment; and bus company organized services which also utilize worker-drivers. The key feature of buspools is that the driver's main source of income is full-time employment at the job (destination ) site. Workerdrivers are consequently paid relatively little: a free commute plus a small wage or a percentage of revenues. Although buspools are not necessarily operated on a formal reservation basis, tickets are usually purchased weekly or monthly.

## (2) Contracts with Private Bus Operators for Commuter Services

Public agencies can contract with private bus operators for regular route, subscription, or buspool service. Most commonly, public agencies contract for regular route and subscription service, usually an express service that operates only during the peak period.

## (3) Service Turnovers from Public Transit Agencies to Private Operators

Another strategy which public agencies can utilize to involve private bus companies in commuter service is to turn over some of the transit agency's routes to private carriers to be operated without subsidy. In several metropolitan areas private bus operators are still active in the commuter field, which suggests that there is an interest in providing this kind of service.

## (4) Facilitating Private Commuter Bus Services Through Marketing and Equipment Assistance

Public agencies can strengthen the ability of private bus operators to provide unsubsidized commuter bus service by marketing their services to riders and employers, by making park and ride lots available, and by assisting them in obtaining new equipment. Public agencies can also purchase new buses and lease them to private operators, enabling the latter to avoid the need to accumulate the capital and to take the risks of purchasing new vehicles.

## (5) Transit Agency Ridesharing Programs

Another strategy transit agencies can use to increase the total supply of privately provided commuter services is to support or sponsor a ridesharing program. This can involve providing a matching service for prospective carpools and vanpools, organizing vanpools via third party providers, or providing vehicles for vanpools and administering a vanpool program.

## (6) Employer Sponsored Ridesharing Programs

The employer ridesharing programs of primary interest in this study were those sponsored by large companies or employer associations. Due to the size of the employee population, these major programs have the potential to make an impact on peak period transportation requirements and conditions, at least at the local level. Vanpooling has been the major growth area in most programs.

## III. The Data Base

Private sector strategies were examined in eight metropolitan areas where they have been an important aspect of commuter transportation.

- In the <u>Boston</u> region, a large amount of private, unsubsidized regular route commuter service is still being operated. In addition, the region's transit agency has seriously considered the option of service turnovers and has actually done this for one route.
- -- In the <u>Hartford</u> area, the region's transit agency contracts for commuter bus service on six routes, and one privately provided unsubsidized commuter route remains. Many private employers in the region have organized ridesharing programs, including some with major vanpool programs. Employers have also organized a multi-company venture in ridesharing and TSM type strategies.
- In the <u>Norfolk</u> (Virginia) region, the regional transit agency has developed a large vanpool program rather than expand its peak period express bus service. It also facilitates the many private commuter bus operations in the area through marketing and a bus lease program. A large number of private buspool services are provided to the region's major employment sites.
- -- In the <u>Newport News</u> region, the transit agency operates a vanpool and carpool program and is actively considering ways of brokering some of its existing commuter bus service to private bus operators. In this region also, there is a substantial amount of private buspool activity.
- -- In the <u>North Bay</u> area of the San Francisco Bay Area, the area's transit agency contracts for subscription bus service and operates a major vanpool and carpool program as an alternative to large scale expansion of its express bus service.
- -- In the <u>San Jose</u> region, a large employer's association has promoted the development of company ridesharing programs. In addition, the transit agency and the regional ridesharing agency jointly operate a vanpool-carpool program.
- -- In the Los Angeles megalopolis, two counties contract with private bus companies for commuter service. A substantial amount of private buspool and subscription bus service is provided by three large commuter bus operations, typically targeted at large employers. Many large employers in the region have developed major ridesharing programs, and in the El Segundo area, a group of companies has organized an employer's association which is actively involved in all aspects of commuter transportation. The public agencies in Los Angeles County have also conducted a major study of the feasibility of turning over or contracting out some of the regional transit agency's peak period services, and an abortive attempt to implement such strategies was initiated.
- -- In the <u>Houston</u> region, the regional transit agency contracts with private bus companies for most of its peak period express bus service, a program involving over 100 buses. In addition, the transit agency has developed its

own vanpool program. Scores of private employers in the region have implemented vanpool programs for their employees, and approximately 1,000 vanpools now operate in the area.

IV. Factors Affecting the Utilization and Feasibility of Private Sector Strategies

#### Motivation for Utilization by Transit Agencies

Transit agencies have been motivated to utilize private sector strategies by a combination of service, fiscal, and institutional factors. The transit agencies which deployed these strategies have usually faced pressures to expand commuter service. At the same time they encountered financial, political, or organizational constraints to accomplishing this by conventional means, i.e., by simply providing additional commuter bus service with their own vehicles and drivers. Financial considerations typically represented the most important source of motivation. Transit agencies in Hartford, Norfolk, Newport News, and the North Bay area of San Francisco receive their subsidy funds from non-dedicated funding sources; and annually must obtain new appropriations. The policy makers which govern these agencies have compelling political reasons to minimize the contribution from the funding source. In the case of the Norfolk region, for example, each city obtains only as much transit service as it pays for, an obvious incentive to stress cost-effectiveness in service delivery. In a less obvious case, Golden Gate Transit in the North San Francisco Bay area obtains its local subsidy from surplus tolls. The tolls have been raised several times to finance arowing deficits, and political resistance to additional increases is now substantial.

Subsidy and decision making arrangements for public transit thus structure the incentive systems under which the agency's top management operates. A powerful motivation to seek out the most cost-effective means of providing commuter service is created when subsidy sources are not dedicated to transit and when agency policy makers have the ability to link service decisions and financial contributions. When such conditions are not present, transit agency management is likely to rely exclusively on traditional forms of service delivery, preferring to raise fares or cut service during times of fiscal austerity rather than utilize private sector strategies. The monopoly structure of transit provides management with no incentive to innovate unless service and fiscal pressures, in combination with non-dedicated subsidy, create a decision making climate in which cost-effectiveness becomes a more important objective than delivering services through conventional mechanisms.

#### Motivation for Utilization by Private Employers

Insuring that its labor force has access to the work site seems to be the single most important motivator of employer involvement in commuter transportation. Two types of companies are particularly likely to develop a commuter transportation program. The first is companies which have relocated within a metropolitan area, thereby disrupting their employees' normal commuting patterns.

The second type is suburban employers in areas where workers must commute long distances and where severe traffic congestion is present. In most cases, such companies cannot rely upon transit due to their non-central location. They have thus been forced to initiate vanpool and other ridesharing services if they wish to facilitate access to the work site.

### Motivation of Other Government Transportation Agencies

Regional/subregional transportation planning and policy making agencies have been involved in the development of private sector options in Los Angeles, San Francisco, Boston, and Hartford. Two motivations have been present: concerns for service development and for the most cost-effective use of public transportation funds. Agencies which control funds and/or establish policy may also be motivated to strengthen the role of the private sector in commuter transportation in order to use transit subsidies in their most productive manner.

#### Obstacles to Utilization by Transit Agencies

The monopoly organization of public transit which prevails in almost all urban areas creates the major obstacles to more widespread utilization of private sector strategies by transit agencies.

The first obstacle is a set of long standing attitudes about the transit service delivery structure held by most transit managers, who believe that it is both necessary and proper to control all aspects of service delivery. To consider contracting for commuter service, turning existing services over to the private sector, or meeting new service demands with vanpools rather than transit buses would require a revolution in thinking on the part of many managers. In addition, many transit managers do not understand how expensive their agency's peak period services are and fail to recognize the economic advantages of private sector strategies. They prefer conventional strategies for deficit reduction (service cutbacks, fare increases) as these are more compatible with the agency's usual mode of operation and promise substantial short-term financial savings.

The second obstacle to private sector options is the potential loss of political influence which transit managers may perceive to accompany a fundamental alteration of the service delivery system. Contracting, vanpooling, and service turnovers reduce the amount of service the agency directly operates, and may reduce the size of the organization as well. As size is often perceived to be of paramount importance politically, private sector strategies can easily be problematic.

Labor constraints represent a third major obstacle to the use of private sector strategies by transit agencies. The monopoly organization of transit has resulted in the establishment of a quasi-monopolistic labor supply with instutitionalized rights and privileges. Both Section 13(c) of the Urban Mass Transportation Act of 1964 and provisions in local labor contracts can represent formidable barriers to certain private sector strategies, particularly service contracting.

Section 13(c) protections make it difficult to contract out any services which lead to the loss of jobs by existing transit agency employees. It also gives transit unions an important leverage point to attempt to forestall the development of commuter services which they do not operate, such as vanpools. Local labor contracts can be even more restrictive, as some prohibit or severely circumscribe service contracting. They may also specify the minimum size of the bargaining unit, which prevents management from using attrition as an oppportunity for utilizing private sector strategies.

## Obstacles to Private Commuter Bus Services

Several obstacles confront the development of private unsubsidized commuter bus service. The most basic is unfavorable market conditions. This often occurs due to the fact that in most urban areas the best markets for private commuter bus service have been preempted by transit agency commuter bus and rail services. Transit agency services are highly subsidized, so the private operators are unable to compete effectively in these markets and thus will not initiate service. In addition, transit agencies often have the legal ability to preclude other carriers from operating in their markets. Markets without existing transit service are usually not dense enough to support profitable commuter bus service.

Regulation is another potential problem for private operators. In general, regulation does not preclude private service (except when the transit agency is the regulator and the service is directly competitive with transit buses) but it usually restricts new entry into markets already served by an existing private carrier. Thus, regulation is the greatest problem when private bus services already exist. In addition, regulation can prevent timely new entry or fare changes due to cumbersome procedures.

The economic conditions in the private bus industry are another significant obstacle to expansion of commuter services. The vast majority of companies in this industry are small, predominantly charter operators with little or no experience in regular route operations or any commuter services. Moreover, raising the capital for service expansion is difficult for many such companies. This may preclude unsubsidized services entirely and even pose a barrier to participation in service contracting programs.

#### Obstacles to Private Sector Strategies Promoted by Other Government Agencies

Lack of authoritative control over public transportation funds is the primary obstacle to the implementation of private sector strategies promoted by transportation agencies other than the regional public transit agency. When such public agencies directly control the funds for public transit service in their area of jurisdiction, as is the case with Los Angeles and Ventura Counties in Southern California, they have encountered no significant obstacles to contracting for commuter transportation services. When transportation agencies do not directly control public transportation funds, however, their ability to affect decisions about the transit service delivery system is quite limited.

Regional transportation funding and policy making agencies are in a somewhat better position to influence transit agency service delivery policies, but even they face major political obstacles to mandating the use of such strategies as service contracting, service turnovers, and vanpooling. The transit agency may possess sufficient autonomy or political clout to deter such initiatives.

#### Obstacles to Employer Transportation Program

The only significant obstacle to the development of commuter transportation programs by individual employers is lack of motivation. Successful transportation programs require company resources, whether direct monetary outlays or the use of company personnel. Employers who do not perceive the need for commuter ridesharing services for their employees will be unwilling to devote resources to this activity.

#### V. The Economics of Private Sector Strategies

The potential economic advantages of private sector strategies are the primary reason for their growing appeal. No comprehensive analysis exists, however, which enables a public agency to readily compare the cost of transit agency commuter bus operation with that of various forms of privately provided bus service and with vanpooling. The few studies which have considered the comparative costs of public and private provision have differed widely in their methodologies, have examined specific local situations with case-specific cost estimates, and have reached somewhat different conclusions. For example, a study of public and private operation of transit agency express bus routes in Boston concluded that savings would occur with private operation and if the transit agency supplied the vehicles, whereas a Los Angeles study concluded that major public savings would result from public to private conversion even with private sector provision of vehicles.

This study did not attempt a definitive comparison of the costs of public and private commuter services, using instead unit costs derived from the experiences of the operators in the case study areas. Comparisons were made for vanpool service and for all three types of bus service-regular route, subscription, and buspools. Based on simple cost models, comparative costs were obtained for passenger trip lengths of 15, 25 and 40 miles. Using similar load factors for public and private operations, the comparison revealed that the cost per passenger mile of private operation was about 20 to 30 percent less than that of public operation for regular route service and about 20 percent less for long distance subscription service. Private buspool costs were far lower, only 35 to 40 percent of the cost of public agency regular route service and less than 50 percent of the cost of public agency subscription service. Buspool costs were approximately half those of the other two types of privately provided bus service.

Vanpool services are highly cost-competitive with all types of private bus operations, and much less expensive than public agency bus services. Even "high cost" third party vanpools have a large cost advantage over the least expensive public agency bus services. "Low cost" private employer vanpools achieve approximately the same costs per passenger mile as buspools. Transit agency vanpools are 40 to 50 percent less expensive than transit agency commuter bus service.

The cost analysis also revealed that a private operator's cost advantage is significantly eroded when it must supply the vehicles for the service. This is a common practice for contract commuter bus operations. Capital recovery charges can easily represent 20 to 30 percent of the total cost of operation for a private commuter service when the vehicles are new or of recent vintage. Other studies suggest that vehicle costs (including insurance) can be as much as 50 percent of the incremental costs of a new private commuter service. It is apparent that service provision by private operators would result in even greater savings if the operators could obtain the vehicles through public capital subsidies, as public agencies do.

#### VI. Overall Evaluation of Private Sector Strategies

#### Institutional Feasibility

Private sector strategies face major constraints to more widespread utilization by transit agencies. The incentive structures of most public transit agencies are not well-suited to motivating transit managers or policy makers to actively support these

strategies. Unless local subsidy and decision making arrangements encourage maximal cost-effectiveness, the transit agency will be reluctant to alter its traditional service delivery system to pursue such strategies as service contracting and vanpooling. Moreover, labor factors may preclude such strategies by causing management to view them as too potentially contentious. Only agencies with a policy emphasis on cost-effectiveness and a determined, innovative-minded management are likely to be attracted to these strategies.

Institutional feasibility is a less complex issue with respect to private employers, as there are essentially no obstacles to these strategies <u>if</u> the employer is motivated to improve employee commuting. However, employers usually become involved in commuter transportation only because they have an economic incentive to do so. Local factors such as the level of traffic congestion and conditions in the housing and labor markets, and site specific factors such as parking costs and the quality of available transit then determine whether involvement will occur.

#### Markets for Private Sector Strategies

Given the existence of subsidized transit agency commuter express service in most areas and the growing numbers of vanpools, there appears to be at most a very small market for additional unsubsidized private commuter bus services. Private sector initiation of such services is thus likely to be uncommon. Major transit fare increases and/or service reductions (as in Chicago) or the development of large employment sites not well-served by transit (as in Los Angeles) expand the natural market for private bus services, but vanpools are strong competitors in such markets.

The market for service turnovers is similarly limited. Such turnovers are economically feasible only on transit agency routes with high ridership. These routes, however, are the most "profitable" for the transit agency and are unlikely to be converted due to a lack of fiscal incentive. Less productive routes may be unprofitable for private operators, particularly if additional equipment must be purchased to operate the route.

The potential market for service contracting is quite large, as on many commuter routes the substitution of a private operator for transit agency operation will result in lower costs and subsidy. Most transit agencies are not motivated to undertake contracting, however, so these markets are largely illusory. In addition, contracting out existing services may create labor difficulties. Few transit agencies are adding commuter services, which could be contracted out with less formidable labor problems.

The market for employer ridesharing programs is potentially vast, but is primarily a function of the number of large employment sites in a region. Moreover, among large employers, major ridesharing programs are most likely to develop among companies with a suburban location not well served by transit. Even then, employers usually only become involved when the incentives noted previously exist.

#### Economics

Although private sector strategies will almost certainly save money for public agencies, the cost and subsidy savings to date have not been dramatic when viewed from the perspective of the entire transit system. For specific services, contracting and service turnovers could save 25 percent or more. The end result, however, is only a

1 to 3 percent reduction in total agency subsidy because the relevant services are a small part of the agency's entire service delivery system. Vanpooling savings are on the same order of magnitude. Cost savings would be somewhat higher if vehicle capital costs did not have to be included in the operating costs of private operators, and they could obtain vehicles in the same way as public agencies.

There is also an issue of inter-modal competition between van and bus services. Vanpools have proven to be formidable competitors to unsubsidized private bus services in several areas due to their comparable costs per passenger and certain service advantages. This has created problems for private bus operators, and has caused a reevaluation of the relative merits of commuter van and bus service. The cost and flexibility advantages of vanpools have led some transit agencies to emphasize this mode in developing private sector strategies for the future.

### VII. Policy Implications

Given the prevailing economic and institutional conditions surrounding private sector strategies, there is a relatively small likelihood that they will become a significantly more important component of commuter transportation in the near future. Those strategies which require changes in the transit service delivery system confront formidable institutional obstacles. On balance, these obstacles seem to be more important in influencing agency policy toward service delivery than those fiscal and policy forces which encourage a change in the status quo. The five transit agencies in this study which have utilized private sector strategies are a significant percentage of all major transit agencies in the U.S. which have done so. With few exceptions, transit agencies are unwilling to share the responsibility for service provision with private providers and to otherwise decentralize the supply of commuter transportation, even when fiscal incentives exist. Unless significant changes in local subsidy and decision-making arrangements occur, the prospect of a major increase in the use of such strategies seems remote.

Strategies which are primarily the province of the private sector, namely private unsubsidized bus service and employer transportation programs, also face a problematic future. There is litle prospect of a major increase in private bus service given the preemption of most of the best markets by subsidized public transit agencies and the emergence of vanpools as strong unsubsidized competitors. Even the complete cessation of economic regulation of commuter bus service will do little to improve the economic viability of such services. Regulation appears to be an important factor only when markets already exist (NYC, Boston, Los Angeles); there is scant evidence that it prevents new services from being established in other environments.

As for employer transportation activities, this is undeniably a growth area. The factors that have promoted this growth, however, are rooted in urban dynamics and are largely beyond policy control. Developments will continue to be responsive primarily to private employer perceptions of what actions are in their <u>private</u> interests.

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# CHAPTER ONE STUDY CONTEXT AND ORGANIZATION

#### I. Introduction

The contribution which the private sector could make to improving the performance of the urban mass transportation system has been the subject of increased policy attention during the past several years. This upsurge of interest in the private sector reflects three developments.

The first is the now widespread recognition that public sector resources are simply inadequate to develop mass transportation systems which could alleviate all of the problems of urban transportation. Many billions of public dollars spent to construct new or expanded rail transit systems and to subsidize mass transit operations have not eliminated peak period traffic congestion, provided equal levels of access to all urban residents, nor dramatically reduced the energy requirements of urban movements. To achieve any of these objectives would require much higher levels of public expenditures on mass transit than any to date, well beyond what is economically or politically feasible.

Second, there is a growing realization that nearly two decades of emphasis on "public-izing" urban mass transit has contributed substantially to the difficult fiscal situation it now confronts. Public ownership and subsidy of transit have been associated with dramatic cost escalation, and subsidy requirements have grown at an even more alarming rate. Yet despite billions of dollars of subsidy spent annually, the transit industry carries a lower percentage of urban work travel, its primary market, than a decade ago (Fulton, 1983). Public involvement may have saved the transit industry from bankruptcy, but it has proven unable to place it on sound financial footing.

The third development is the increasingly active role which certain elements of the private sector have begun to play in organizing, financing, and providing urban transportation services and facilities. Commuter ridesharing programs have been organized and in some cases financed by employers and developers, employers have subsidized transit passes for their employees, taxi companies and other private firms have become the providers for most publicly subsidized dial-a-ride services, and public agencies and private employers have contracted with private bus companies for commuter bus service. Indeed, the actual and potential roles of the private sector have grown to the point where it is now possible to speak seriously of a "public/private partnership" which may become a powerful force in urban transportation.

This study is concerned with a particular aspect of private sector involvement in urban transportation, namely that pertaining to commuter transportation. As used in the study, the term "private sector strategy" refers to a commuter transportation option in which the private sector is at a minimum responsible for providing service, and may also be primarily responsible for the organization and financing of the service. Examples include commuter bus service provided by private bus companies (whether unsubsidized or operated under contract to a public agency), employer organized ridesharing programs, and vanpooling services organized by private employers, public transit agencies, and ridesharing organizations. The primary options of interest in this study are those services developed by <u>organizations</u>, and not by individuals addressing their personal commuting needs.

The purpose of this study is to evaluate the feasibility of various private sector strategies as means of either improving the cost-effectiveness of peak period public transportation or expanding the supply of collective forms of commuter transportation. By examining the use of these strategies in several different metropolitan areas of the U.S., this study seeks to determine the conditions under which they are utilized, to identify the obstacles to more widespread adoption, and to assess their appropriateness and cost-effectiveness.

The feasibility of private sector strategies is determined by a number of different factors. Anong these factors are the basic economics of the service, the willingness and ability of public agencies to utilize private providers to supply or supplement existing transit services, and the willingness of private employers (or associations of employers) to organize commuter services for their workers. These factors, in turn, are affected by such diverse considerations as the costs of private sector service provision, public transit's labor constraints, employer perceptions of responsibility for their workers' commuting situation, and the financing system for public transit in any particular region. Thus this study addresses both the institutional and economic dimensions of private sector strategies.

## II. The Potential of Private Sector Strategies

Private sector strategies for commuter transportation are already being widely utilized and have demonstrated their value and cost-effectiveness. Numerous large employers have sponsored commuter ridesharing programs, and 25 percent or more of the workforce vanpools to work in some companies in California and Texas. The

motivation for these programs has been to reduce parking costs, to retain or recruit high skill workers when access to the work site is problematic, and to provide employees with a low cost (to the employer) benefit. In Boston, New York City, and Los Angeles, private bus companies have for many years successfully operated unsubsidized commuter bus services. Transit agencies in California, Texas, and Connecticut have contracted with private bus companies to provide peak period express service, saving a substantial amount of money compared to operating the services themselves. In addition, transit agencies in several metropolitan areas operate their own vanpool program with little or no public subsidy. In many cases the motivation for a vanpool program is to avoid the cost of providing additional heavily subsidized peak period transit service.

Private sector strategies have some obvious advantages as means of improving the cost-effectiveness of public transit and increasing the supply of collective forms of commuter transportation. Of primary importance is the fact that they are almost always less expensive than comparable services provided by the public sector. Required subsidies for private commuter bus or vanpool services are either non-existent or much smaller than for peak period public transit services. Moreover, certain private sector options, notably vanpooling, are more flexible than traditional public transit services, and are self-sustaining at much lower levels of ridership. Vanpools can serve markets that are both too far-flung and of inadequate density to be viable for conventional transit services. In addition, most private sector strategies are targeted at serving specific work sites. Therefore, when subsidies are required, it is possible that they may be provided by employers and not from public funds. Work site targeting may also result in a higher level of service to the user than conventional transit services, which typically serve entire areas, not particular companies.

Private sector strategies thus have advantages in both cost and flexibility compared to traditional fixed route transit. As such, they offer considerable promise in addressing two major commuter transportation problems. The first is the high cost of peak period public transit operations. The second is the problem that many employers are now confronting in insuring adequate access to the work site by their employees. Due to the importance of these problems in stimulating consideration and utilization of private sector strategies, they are discussed in more detail below.

## III. The Peak Period Transit Problem

Public transit's peak period problem is something of a paradox. On the surface, it would appear that the peak period is the least of transit's problems, as the two major commuting periods are the time of day when transit enjoys its highest ridership and greatest productivity. In fact, 50 percent or more of all daily transit ridership occurs during the two peak periods in many transit systems. However, this heavy concentration of demand during a relatively short period of the day creates a situation in which peak service is much more expensive to provide than off-peak service. These high peak period costs are a built-in characteristic of the public transit service delivery system which prevails in virtually every large urban area in the U.S.

Basically, the peak period transit problem results from two factors. First, the size of the transit organization is determined by the maximum service requirements. As the peak-to-base differential increases, a relatively higher percentage of labor and vehicle stock is underutilized for most of the service day. Although administrative staff, maintenance and garage facilities, vehicles and drivers are determined by the volume of peak service provided, the revenue generating potential of these inputs exists for only a few hours per day. Thus the peak orientation leads to a low level of productivity in public transit service. Second, existing transit union work rules add to the expense of providing peak service through spread time limitations, overtime provisions, and minimum pay time requirements. These work rules result in drivers being paid for many more hours than actually worked in peak service. Thus the labor cost per unit of service is higher in the peak than in the off-peak.

These two factors are further complicated by the more general cost and efficiency problems of the urban transit industry. The monopolistic structure of transit providers and the lack of efficiency incentives generated by formula-based subsidy mechanisms have allowed a rapid escalation of transit service costs. At the same time, fare revenues have not come close to keeping pace with these costs. Consequently, transit deficits have reached a critical magnitude.

Despite studies which have documented the very expensive nature of peak period service (Oram, 1979 reviews several studies), many transit managers continue to believe that peak service is their most "profitable" due to its high productivity (which translates into more revenue per unit of service than off-peak operations). Their error lies in focusing on the revenue side of the equation and not recognizing that the labor inefficiencies and overhead requirements which result from high peak to base ratios

result in substantial differences in costs for peak and off-peak service. When both the cost and revenue implications are examined, it appears that peak period services often require higher subsidy per passenger than off-peak operations (Oram, 1981). Under these circumstances, service expansion in the peak period simply exacerbates existing financial problems. Even the continuation of the existing service delivery system contributes to financial problems which could be partially alleviated by the use of private sector strategies.

## IV. The Employer Transportation Problem

The existence of an employer transportation problem is of recent vintage. Most observers agree that the 1973-74 energy crisis was the primary catalyst for employers to become seriously concerned about their employees' commuting situation. Previously, this concern had typically extended no further than providing parking for employees' automobiles. The energy crisis, however, forced employers to confront the fact that employee access to the work site was not necessarily assured, and that leaving the entire commuting responsibility with the employee might not be good business sense. If employees could not get to work, or the company could not recruit employees because of transportation problems, then productivity would decline and the firm would suffer.

While the energy crisis made employers aware that employee access could be problematic, employers also began to discover that they were paying a high cost to accommodate their workers preferred means of access, the private automobile with only one person per car. In well-publicized cases, TVA in Knoxville and the 3M Corporation in Minneapolis decided to sponsor alternatives to single occupant auto commuting when they realized that providing needed additional parking facilities would be very expensive. Thus, the employer transportation problem was revealed to have a second dimension, namely the expense of providing parking in situations where its costs were not trivial.

Employers in a number of high growth areas were confronting yet another transportation problem. Companies located in such areas found that as the price of housing escalated, their workers were finding it increasingly difficult to secure affordable housing near the work site. The result was that growing numbers of employees were commuting lengthy distances. Even worse, traffic congestion was an increasingly serious problem in these high growth areas, as little or no expansion of the highway system was being undertaken in response to the ever rising traffic. Thus, not

only were some employees facing long and expensive commutes, travel to work was becoming time consuming and arduous for most employees. Under these circumstances both recruitment and retention of employees became problematic, with significant economic costs to the firm if skilled employees left or new recruits did not accept job offers. Companies finding themselves in this position recognized that their self-interest dictated that they begin to play a role in commuter transportation. Employers which relocated within a metropolitan area also discovered that they needed a transportation program to accommodate the changed commuting needs of their employees.

Finally, in a few areas around the country, employers have found that communities are no longer opening the door to them on an unconditional basis. Local jurisdictions are pleased at the prospect of economic gain which a company would bring to their city or county, but do not wish to suffer the adverse traffic impacts that would result from hundreds or thousands of new commuters using the local streets and roads. Employers have thus found that they are being required to financially contribute to transportation infrastructure improvements--street widenings, traffic signals, freeway overpasses or ramps--as the price of being allowed to locate in a particular area (Orski, 1983). Taking a different tack, local jurisdictions in California, Washington, Virginia, and elsewhere have devised land use regulations which require companies to mitigate the traffic impacts brought about by the employment site. Unless companies develop a plan for compliance, usually based upon ridesharing programs and transit subsidies, they may not locate in the community.

Whatever the specific form of the employer transportation problem, its resolution requires that company's employees have commuting alternatives to the single occupant automobile. The companies which experience these problems, moreover, are typically unable to rely upon a transit agency to provide the needed services, as the problems usually occur in locations not easily or cost-effectively served by transit. Employer transportation problems tend to be much less serious where a high level of transit service is currently being provided. Employers experiencing these problems therefore must fashion transportation alternatives which are cost-effective, as they may be forced to absorb any subsidies involved.

#### V. Organization of the Study

As noted previously, the purpose of this study is to evaluate organized private sector commuter transportation strategies which can improve the cost-effectiveness of

public transit and/or increase the supply of collective forms of commuter transportation. In order to perform this evaluation, private sector transportation activities were examined in eight metropolitan areas: Greater Los Angeles, San Jose (Santa Clara County), the San Francisco Bay Area, Norfolk (VA), Newport News (VA), Hartford, Boston, and Houston. Site visits were made to each of these eight urban areas. In the course of the site visit, numerous interviews were conducted with key personnel from transit agencies, other government agencies involved in transportation, private transportation providers, and private employers or organizations of private employers. These interviews provided information on the process of establishing private sector options and on the institutional context within which these activities have occurred. In addition, information was obtained from planning documents, agency evaluations, and other sources on the economics of public and private provision of commuter transportation. Case studies of the development and current status of private sector strategies in these eight areas are presented in the Appendix of this report. The case studies include necessary background on the transportation and institutional situation in these regions.

In Chapter Two of this volume a synopsis of the case studies is presented. Chapter Two also includes an overview of the private sector strategies which are the subject of this study.

In Chapter Three the utilization of the private sector strategies is analyzed. We seek to explain why transit agencies and employers in the urban areas studied have adopted these options or not, focusing on the motivations for use, the obstacles to these innovations, and the resources available to implement such strategies. This chapter thus represents an analysis of the institutional feasibility of the private sector options under consideration.

Chapter Four consists of an economic analysis of the different options. Several economic issues are addressed, most notably the costs of private operator provision of peak period bus service compared to transit agency provision, the costs of different types of privately provided bus service (e.g., regular route vs. buspool), and the comparative costs of bus and vanpool services. The objective is to determine which comparable services achieve the superior cost-effectiveness.

The results of the institutional and economic analyses form the basis for the overall evaluation of the private sector options, which is presented in Chapter Five. This evaluation focuses on the market opportunities for these strategies, their

institutional feasibility, and the economics of different options. The study concludes in Chapter Six by considering the policy implications of the experiences with private sector commuter transportation strategies in the eight areas studied. Of particular concern is the likely potential for more widespread adoption of these approaches to problem solving, and the role of government policy and financing arrangements in stimulating or retarding these innovations.

# CHAPTER TWO EXPERIENCES WITH PRIVATE SECTOR STRATEGIES IN EIGHT METROPOLITAN AREAS

## I. The Private Sector Strategies

The private sector strategies examined in this study are combinations of types of services and organizational roles and objectives. The services of interest are commuter bus and van services, but this alone is relatively nondescriptive. A strategy is defined by the type of service provided, how it is organized and financed, and the roles of private and public organizations in service provision, organization, and financing.

Six major types of private sector strategies are examined in this study: (1) Privately provided unsubsidized commuter bus service. (2) Commuter bus service operated by a private provider under contract to a public agency. (3) Turnovers of public transit commuter bus services to private operators to provide on an unsubsidized basis. (4) Public agency actions which facilitate the provision of unsubsidized commuter bus service by a private operator. (5) Vanpool programs organized by a transit agency to supplement its other commuter services. (6) Major vanpool programs (and in uncommon cases, commuter bus services) organized and sometimes subsidized by employers and/or employer associations. A brief description of each of these strategies follows.

## A. Unsubsidized Commuter Bus Services

Commuter bus services can be classified as regular route, subscription, or buspool. The primary distinguishing factors are the employment status of the driver and the extent to which demand is pre-organized.

<u>Regular route service</u> is the traditional form of commuter bus service and closely resembles public transit commuter express services. It operates on a fixed schedule and usually involves several bus runs daily. Demand is not pre-organized; trips can be purchased either singly or through weekly or monthly passes. Drivers are usually full-time bus company employees with guaranteed minimum pay for each AM or PM piece of work. Routes, fares, and schedules are typically regulated by the state regulatory authority.

<u>Subscription bus services</u> are targeted at a specific employment location and group of passengers. Fares are paid in advance on a weekly or monthly basis and the passenger receives a reserved seat. Subscription service is usually contingent upon a

minimum revenue: operation begins only when a sufficient number of passengers have been obtained, and service is suspended if ridership falls below the required minimum. Subscription services may be organized by employers, employees or by the bus company itself. The bus company provides both vehicle and driver, and drivers are paid on an hourly or shift basis. Subscription service may be regulated, depending on the nature of state regulatory laws.

<u>Buspools</u> have many variants: carpool-type operations where the owner-driver sets rules, collects fares, and is employed at the destination site; employer sponsored services which utilize worker-drivers and employer owned equipment; and bus company organized services which also utilize worker-drivers. The key feature of buspools is that the driver's main source of income is full-time employment at the job (destination) site. Worker-drivers are consequently paid relatively little: a free commute plus a small wage or a percentage of revenues. Buspools are frequently a "no frills" service which utilize older vehicles with few amenities. Although buspools are not necessarily operated on a formal reservation basis, tickets are usually purchased weekly or monthly. The regulatory status of buspools depends upon the particular form of organization, and it varies from state to state.

## B. Contract Commuter Bus Services

Public agencies can contract with private bus operators for regular route, subscription, or buspool service. The lower costs of private provision are typically the reason for contracting rather than providing the service through the regional transit agency. Most commonly, public agencies contract for regular route and subscription service, usually an express service that operates only during the peak period. For regular route operations the public agency typically establishes the schedule, specifies what type of equipment must be used, and sets service standards--the private carrier's responsibility is to operate the route within the given parameters. In most cases the private operator is paid a flat rate per vehicle service hour or vehicle day regardless of ridership level.

## C. Service Turnovers

Another strategy which public agencies can utilize to involve private bus companies in commuter service is to turn over some of the transit agency's routes to private carriers to be operated without subsidy. In several metropolitan areas private bus operators are still active in the commuter field, which suggests that there is an

interest in providing this kind of service. Despite the lower costs of private operators, however, there often could be a need for fare increases to ensure profitability of an unsubsidized service. Only certain routes would be suitable for this strategy, probably the long distance express routes that already have a relatively good revenue return. Many other routes could not be operated profitably by private operators without some kind of subsidy.

## D. Facilitating Private Commuter Bus Services

Public agencies can also strengthen the private sector so that it is then capable of meeting demands for peak service expansion or for new kinds of services. For instance, the transit agency can act as a broker, passing along requests for worksite service to a private bus company that is willing to do subscription service. The emphasis is on meeting the needs of particular market segments, rather than maintaining transit agency control of all commuter bus operations.

A major impediment to private sector expansion of commuter services is a lack of equipment. Low profit margins make equipment purchasing a risky proposition when entering a new market. Public agencies can alleviate this problem by leasing new or extra equipment to private companies. Leasing can also help support existing services because the private operators often lack the capital to update deteriorating bus fleets.

A transit agency can also support private sector activities within the context of its own program. Private services can be actively marketed in conjunction with public services. Park-and-ride lots can be built for or opened up to passengers on privately operated express routes.

### E. Transit Agency Ridesharing Programs

Another strategy transit agencies can use to increase the total supply of privately provided commuter services is to support or sponsor a ridesharing program. This can involve providing a matching service for prospective carpools and vanpools, organizing vanpools via third party providers, or providing vehicles for vanpools and administering a vanpool program.

Vanpooling is a more cost-effective form of commuter transportation than regular transit service. A vanpool is not initiated until the number of people required to fill the van (between 8 and 15) have been brought together. Because vanpool fares are usually set so that all costs except administrative overhead are covered, the subsidies involved in vanpooling are quite small. Vanpooling also provides a means for targeting service to

very specific markets, and since the only large capital investment (the van) is easily transferred, pools can be dissolved or reorganized as members change jobs or move. Sponsoring a vanpool program can make it possible for transit agencies to provide cost-effective commuter service in suburban areas where residences and employment centers are spatially dispersed.

## F. Employer Sponsored Ridesharing Programs

The employer ridesharing programs of primary interest in this study were those sponsored by large companies or employer associations. Due to the size of the employee population, these major programs have the potential to make an impact on peak period transportation requirements and conditions, at least at the local level. Although all the programs emphasize carpool as well as vanpool formation, vanpooling has been the growth area in most programs. In addition, a few employers have sponsored commuter bus services.

### II. The Case Study Sites

Two major criteria were used to select the eight metropolitan areas which were the subject of the case studies. First, one or more private sector strategies had to have been implemented in the region at a significant level of activity. Second, case study sites were sought in which public agencies, most notably the regional public transit agency, had utilized private sector strategies to improve or increase the availability and/or cost-effectiveness of transportation services. In addition to these criteria, an attempt was made to include regions of significantly different size, reliance on public transit for commuting, institutional structures, and degrees of emphasis on private sector options to address commutation needs.

The eight metropolitan areas selected contain a wide range of private sector activities, commuting situations, and institutional arrangements. They range in size from Newport News, with 350,000 residents, to the Los Angeles megalopolis, with a population of over 11 million. In some regions, such as Norfolk, Newport News, and Hartford, peak period congestion problems are minor, whereas in others, notably San Francisco, Houston and Los Angeles, severe traffic congestion is pervasive. The regional transit agencies in Norfolk, Newport News, and the Northern San Francisco Bay Area have actively sought out private sector strategies for resolving the peak period transit problem, whereas transit agencies in Los Angeles and San Jose have demonstrated little interest in alternatives to conventional transit. In several regions

large employers or employer associations have taken on major responsibilities for improving their employees' commuting situation. In five of the eight regions, private bus operators provide a significant amount of unsubsidized commuter bus service, and in three regions private bus companies provide commuter service under contract to public agencies. Public agencies have attempted to stimulate private unsubsidized commuter bus service in four metropolitan areas, but there has also been resistance in several of the areas to private sector initiatives which do not utilize the transit agency as the commuter bus provider.

Tables 2-1 and 2-2 provide summary information on the eight metropolitan areas and their experiences. Table 2-1 provides basic information on the region itself, while Table 2-2 summarizes the major private sector strategies in each region. The strategies are categorized on the basis of two criteria: (1) the type of organization primarily responsible for establishing the activity, and (2) the nature of the private sector option.

### III. Case Study Summaries

### A. Boston

The Boston metropolitan area is one of the few strongholds of public transportation in the U.S. Demand for transit remains sufficiently high to support unsubsidized private commuter bus service to downtown Boston from outlying suburban areas. Approximately 15 private bus companies operate about 200 buses per day in commuter service. Most of the private carriers are relatively small and operate a mix of school, charter, and local transit services, although two large companies are primarily commuter operators. It is estimated that private commuter bus ridership is comparable to that of commuter rail, about 12,000 to 15,000 commuters per day. In the region's most heavily congested corridor, the private operators carry nearly 5 percent of all commuters.

Despite their important role in Boston's commuter transportation system, the private bus operators are experiencing economic difficulties. Profits are relatively low, many operators have been unable to modernize their fleet due to insufficient earnings, and some recent bankruptcies have occurred. Public sector actions have been among the factors causing the industry's problems. The state regulatory commission had held fares down to the point where profitability is threatened. The Boston region's transit agency, the Massachusetts Bay Transportation Authority (MBTA), has preempted many of the best medium-distance commuter bus routes and also operates competing

URBAN ENVIRONMENT Major City			1 JUC VY RULLI	21801 HA01001	MBIA	NI N	א הוט	Santa ulara
Major City								
	Hartford	Newport News	Norfolk	Northern SF Bay Area	Boston	Houston	Los Angeles	San Jose
Population (in millions)	42	.27	.80	•62	2.8	3.0	7.5	1°3
Congestion	Low	Low	Low	High	High	High	High	High
Geographic Bottlenecks	No	No	Yes	Yes	Yes	°Z	No	° Z
Mode Split- Work Trips Transit Rideshare Auto Alone TRANSIT AGENCY	7% 22 70	4.5% 27.5 68	4.5 % 25.5 70	(G.G. Bridge 29% 32% 40%	(CBD only) 17% 19 63	5% 23,5 73,5	7% 18% 75%	3% 18 79
CHARACTERISTICS Date Public Subsidy Began	1972	mid-70s	mid-70s	1973	1918	(regional) 1979	1958	1972
# Buses	234	100	175	230	1137	400	2821	346
∦ Passengers/Yr (in millions)	18.1	4.3	14.2	10.1	(Bus only) 118.3	39 <b>.</b> 0	257.0	34.7
Peak/Base	2.4	3.0	1.8	5 م ک	2.1	2.5	2.0	1.3
Express as % of Total Service 13' ECONOMIC FNVIRONMFNT	% of pass.	12% of miles 5	% of miles	40% of pass. 8	% of routes '	20% of pass.	25% of miles	14% of miles
Source of Revenue % Fares % Local % State % Federal	46% 0% 27%	35% 30% 32%	45% 21% 5%	50% 28% 16% 5%	(All modes) 22% 41% 9%	18% 51% 8% 23%	(Refore sales tax approved) 39% 0% 45% 16%	9% 55% 30%
L ocal F unding A <b>rr</b> angement	(State) general funds	general funds	general funds	bridge tolls (non-dedicated	dedicated ) property tax	dedicated sales tax	as of 7/82 dedicated sales tax	dedicated sales tax
PRIVATE SECTOR PEAK SERVICE ENVIRONMENT								
Private Bus Companies # subsidized	6 routes	none	none	27 Club	none	13 routes,	l route	none
operations # unsubsidized	l route	54 buses	90-100 buses	DUSES	200 buses	none	80 huses	none
Van pools in Service Area	274	200 (est.)	400 (est.)	200+	225	1913	733	27
## Table 2-2

# Private Sector Strategies by Area and Type of Initiating Organization

Initiating Organization		Type of Serv	ice	
	Contract <u>Bus Service</u>	Ridesharing or Vanpool Program	Unsubsidized Commuter Bus	Service Turnover/ Facilitation
Regional Transit Agency	San Francisco Houston (Hartford)	San Francisco Houston Hartford	none	Norfolk Newport News Boston
Private Employer or Employer Association	NA	Los Angeles San Jose Hartford	none	none
Private Provider	none	none	Norfolk Newport News Boston Los Angeles Hartford	Los Angeles
Other Government Agency	Los Angeles	Boston Los Angeles San Francisco	none	Boston Los Angeles

commuter rail service (both at highly subsidized fares) in several corridors. The MBTA and its unions also generally oppose the initiation of new private commuter bus services within the MBTA district.

The Massachusetts vanpool program, CARAVAN, has also contributed to the industry's problems, as vanpools are extremely competitive with the private bus services and are believed to have diverted some passengers from the latter. After much negotiation, the state DOT and CARAVAN agreed to remove all administrative and marketing subsidy from those vanpools that could potentially compete with private bus services. This amount is too small (about 20¢ per one-way passenger trip), however, to have a significant impact on mode choice, as vanpools already enjoy a much larger economic advantage over private commuter buses.

The public sector is also a potential source of assistance to the Boston region's bus oprators. The state DOT has devised a program of buying buses with state funds and leasing them to private carriers, in this way providing them with access to new equipment for which they could not afford the capital outlay. The DOT also provides employers with information on how to form buspools and subscription bus services and refers employers to interested private carriers.

Due to its chronic fiscal problems, the MBTA is under constant pressure to reduce its costs, and as a result has investigated the potential for turning over some of its express bus routes to private operators. While one route was actually turned over, and at one time several other routes were active candidates for service turnover, the MBTA eventually decided that its financial performance would be impaired by such actions. Consequently, no more routes have been relinquished, although private operators have expressed continuing interest in 14 existing MBTA routes.

### B. Hartford

Both private employers and private bus providers play significant roles in commuter transportation in the Hartford area. Hartford does not have a local public transportation agency, the Connecticut Department of Transportation (ConnDot) is the public transit operator in Hartford and several other Connecticut cities. The absence of a local government institution for public transportation development has helped propel the Hartford business community into a leadership role in urban transportation. The result has been some notable commuter transportation initiatives by the region's private employers. Several major companies have large carpooling, vanpooling, and buspooling programs, most of which have been in place since at least the mid-1970s.

Collectively, the private sector has created the Greater Hartford Ridesharing Corporation (GHRC) to promote and operate vanpooling and carpooling activities among all the employers in the region. In addition, the Chamber of Commerce has become a major actor in transportation planning. It has developed parking management, flex-time, and other TSM plans for downtown Hartford, the focal point of its transportation concerns. The Chamber and GHRC, in combination with ConnDot, are now setting the agenda for commuter transportation in Hartford. Non-traditional alternatives, such as commuter ridesharing and TSM actions, are a key part of that agenda.

Private bus companies have historically played an important role in Hartford's commuter transportation system, but that role has been significantly diminished since ConnDOT began to take over failing private operations in the early 1970s. ConnDOT absorbed a number of commuter routes in this way and also initiated services that competed with routes still being operated by private operators. However, ConnDOT also subsidizes commuter routes being operated by private carriers which are no longer profitable. At present, private bus companies operate seven commuter express routes in the Hartford region, of which all but one are subsidized by ConnDOT. The private bus companies which provide these services now generate most of their income from school bus and charter work; there is little interest in unsubsidized commuter service. Competition from subsidized ConnDOT express bus service and the many private and public vanpool programs in the region (ConnDOT also operates a vanpool program for state employees and for private employees outside the Hartford area) have dimmed the prospects for profitable commuter bus service.

### C. Norfolk, Virginia (Tidewater Region)

The Norfolk-Portsmouth-Virginia Beach SMSA in Virginia, known locally as the Tidewater region, is the home of possibly the most innovative major transit agency in the United States Tidewater Regional Transit (TRT) has adopted a non-traditional approach to the delivery of public transportation, contracting out services in low density markets, avoiding a high peak to base ratio by developing a large vanpool program to serve commuter markets, and generally encouraging the private sector to provide as much collective transportation as it desires. This emphasis on maximizing the cost- effectiveness of its services, even at the expense of the size of the organization, is directly related to TRT's subsidy and decision making process. The municipal general funds of the five cities which comprise its service district are TRT's

only major source of non-federal subsidy. These cities receive only the transit service they pay for, and the municipal funds they use to subsidize TRT have many other claimants. Consequently, the cities place a very high value on cost-effective service delivery. Top management's approach is consistent with this policy orientation.

TRT has made a major commitment to private sector options. It operates only six express bus routes, representing a very small fraction of its total bus service. It has chosen to rely on its own vanpool program and the many private commuter bus services which operate in the region to provide the area's needed commuter service. Its vanpool program has established over 100 vanpools. In addition, TRT promotes the use of private commuter buses and purchases buses for lease to private commuter operations.

The Tidewater region contains an unusual amount of private commuter bus activity. Approximately 90 to 100 buses serve three major employment sites (one in the neighboring Newport News region). The commuter bus operations are organized as buspools and are a low cost, no frills service. Fares are very low, typically \$6.00 to \$12.00 per week. The clientele is almost exclusively blue collar workers. Two types of bus operators provide commuter service: full service bus companies for which commuter service is a supplement to charter and contract work, and individual entrepeneurs who typically combine this enterprise with another source of employment (usually at one of the employment destinations of their commuter bus service). The latter type of operator may own from one to thirty buses.

These private services have been in place for approximately forty years, and meet a market need. Due to low costs of entry and the absence of economic regulation, movement into and out of the "employee hauling" industry is fluid, but the size of the overall industry has apparently remained relatively stable. The major threat to the private commuter buses is vanpooling, which has grown dramatically in the Tidewater region during the past several years. The individual entrepreneurs are quite distressed about TRT's vanpool program, which they claim has unfairly diverted some of their riders. However, there are clear differences in level of service between vanpools and the buspool services which favor the former, and this is the underlying reason for the competitive problems facing the operators. TRT is strongly committed to assisting the private commuter operators--as witness its bus lease program and promotion of private services--but it is also committed to making available a full range of services for the commuter market. While ensuring consumer choice also creates a competitive situation, TRT believes that the market is the best mechanism for matching supply to commuter demand.

### D. Newport News, Virginia

The transit agency for the Newport News - Hampton SMSA, like TRT in the neighboring Tidewater region, has been attracted to innovative means of providing commuter transportation services. The Peninsula Transportation District Commission, whose transit agency is called Pentran, has made a commitment to private sector strategies. PTDC has developed the Easyride brokerage project within Pentran, which operates its vanpool program and establishes employer based ridesharing programs. In addition, Easyride has facilitated the initiation of private commuter bus service both through promotion and by leasing TRT buses to operators.

As in the Tidewater region, there is an active private commuter bus industry, focused on providing service to the Newport News Shipyard Service. Service organization and the structure of the industry are similar to that in the Tidewater region.

PTDC established Easyride in order to provide additional commuter bus service more cost-effectively than by expanding Pentran's commuter bus service. With an already high three to one peak to base ratio, Pentran cannot afford to expand peak service, particularly in view of the financial constraints imposed by a non-dedicated local subsidy source (which contributes one-third of the agency's budget). The cities of Newport News and Hampton are resistant to further subsidy increases, and PTDC policy makers wish to maximize the use of low cost (or no cost) strategies for providing additional commuter transportation.

Easyride has created 47 vanpools and seven buspools in the region, and has helped four of the five major employers establish ridesharing programs. In addition, it is now in the process of implementing a Brokerage Plan, a combination of technical studies-of service costs, market potential, and service delivery options--and eventual implementation of brokered services. The most radical options involve the termination of certain Pentran peak period services and their replacement by private resubsidized commuter bus service using leased vehicles. Whether changes of this magnitude are in fact made will depend largely on Pentran's financial situation; increases in local subsidy requirements are likely to activate some of the shifts of service to the private sector.

### E. San Francisco Bay Area

### 1. North Bay - Marin and Sonoma Counties

The North Bay region of the San Francisco Bay Area contains some of the most affluent suburban and semi-rural areas in the U.S. With the exception of commuter

travel, public transportation usage in this region is minimal. For work travel from the North Bay into downtown San Francisco, however, public transit is a major mode, as all such travel must funnel across the Golden Gate Bridge, which experiences heavy peak period congestion. Consequently, the region's transit operator, Golden Gate Transit (an operating arm of the Golden Gate Bridge Highway, and Transportation District) plays a major role in commuter transportation.

Due to the extreme peaking of its service (the peak to base ratio is five to one) and its constrained local subsidies (surplus bridge tolls), Golden Gate Transit has sought alternatives to expansion of its conventional commuter bus services. Management and policy makers recognize that traditional commuter bus service is very expensive to provide in such a highly peaked bus operation, particularly as many of the commuter routes are quite lengthy (some are 30 miles or more). As a result, GGT has sponsored two private sector options for commuter transportation in its service district, a subsidized subscription bus program and a commuter ridesharing program which emphasizes vanpooling.

GGT's "Club Bus" program originated in 1971 with six routes and fifteen buses, and by 1983 had expanded to fifteen routes and 27 buses. The routes vary in length from twenty to sixty miles. Four private bus companies currently provide the service, operating one to seven buses each. There is substantial competition for the contracts, and a total of eight companies have participated in the program since it began. GGT saves approximately \$580,000 per year (about 25 percent) by contracting for the subscription service rather than providing it with its own vehicles and drivers.

GGT's ridesharing program was developed to accommodate commuter travel growth in the Golden Gate Bridge corridor by a means other than conventional bus service. GGT management was aware that vanpool and transit markets would overlap, and that some diversion from GGT buses would probably occur. Nonetheless, the need for alternatives to major expansion of the commuter bus service was deemed sufficiently important that the vanpool program was authorized despite this concern. GGT's union was less sanguine about this prospect, and delayed for a year in signing the 13(c) agreement needed to purchase the vans for the program. The union initially demanded that vanpools not be started in areas where commuters had easy access to GGT buses, but management refused to agree to this condition. Eventually, the union agreed to sign the 13(c) agreement when GGT guaranteed the size of the bargaining unit for the duration of the vanpool project.

The vanpool project was an immediate success, with thirty vanpools formed in the first six months. By mid-1983, GGT could take credit for 124 operational vanpools, thereby providing a major supplement to its peak period transit services. In 1979, the vanpool program was made an integral part of the Ridesharing Division, which also encompassed carpooling and the subscription bus program. With this step, and its accompanying financial support of these activities, GGT has institutionalized private sector options within its service delivery system. Although top management has yet to fully subscribe to the philosophy that transit supply should be matched to demand characteristics irrespective of the consequences for traditional transit service delivery, it has been quite willing to accept non-traditional alternatives on a programmatic basis when they promise to solve specific problems in a cost-effective fashion.

### 2. San Jose Metropolitan Area

The rapidly growing San Jose region is plagued by severe traffic congestion and high housing costs which have created difficult commuting situations for many of the region's workers. Although public transit has greatly expanded in recent years, it is still a distinctly inferior commuting mode in this low density region, garnering a very small work trip mode share. Conequently, as the region's employers became increasingly concerned about the commuting problems of their employees, it was apparent that public transit alone was not the answer. As a result, when the Santa Clara Manufacturing Group decided to take the lead in stimulating improved employee transportation among its member companies, it opted to emphasize commuter ridesharing.

The SCMG's 80 member companies have a combined employment which represents about 25 percent of all workers in the region. At the urging of the SCMG leadership, 55 of these companies have established their own commuter transportation program. Those programs use the resources of both the public and private sectors to train company transportation coordinators, to accomplish matching of potential carpoolers and vanpoolers, and to obtain vans. In addition, the region's transit operator, the Santa Clara County Transit District, will work with companies to set up new express bus routes to employment sites.

SCCTD also operates the San Jose area's ridesharing program jointly with the regional ridesharing agency. This has been a somewhat problematic joint venture, as the transit agency makes use of the regional ridesharing agency's resources, but promotes transit before ridesharing. In addition, the program has not been notably

successful, having created only four intracounty vanpools (and about 20 inter-county vanpools originating in or destined for another county). SCCTD has recently reorganized its ridesharing activities in an attempt to make them more effective.

### F. Los Angeles

The vast Southern Califonria megalopolis has proven to be a conducive environment for private sector options. Due to the lengthy commutes of many workers and the widespread peak period traffic congestion, both employers and workers have been stimulated to seek out convenient and cost-effective commuting alternatives to the private automobile. While the Southern California Rapid Transit District provides a high level of peak period bus service to downtown Los Angeles and a few other major employment areas, the sheer extent of the commutershed and the myriad of large employment sites make it impossible for the SCRTD to provide good commuter bus service to most workers in the region. Moreover, the SCRTD's high operating costs and relatively peaked operation result in expensive commuter bus service. This has been an obstacle to service expansion given the agency's constrained financial resources. Consequently, both public and private sector actors have been motivated to develop cost-effective commuter transportation options to meet the demands of the region's work force.

The region contains a significant supply of private unsubsidized commuter bus service. Three commuter bus providers have 70 to 80 buspools and subscription buses in service, and in the past even greater numbers of buses have been in operation. Most of these commuter bus services are organized as buspools, and are operated by two large buspool providers. Routes are relatively long, usually 30 to 50 miles, and the buses are destined for very large employment sites, primarily aerospace companies. Although these buspool services are profitable for the operators, there has been little or no expansion in recent years due to problems in developing new markets and vanpool competition. Merely maintaining existing buses is becoming more difficult. However, given the lengthy commutes, the relatively low bus fares (\$16.00 - \$24.00 per week, depending on distance), and the comfort of the bus service relative to driving or even vanpools, it appears probable that most of the unsubsidized buses will survive.

In addition to unsubsidized private commuter bus service, the region is also the site of three privately provided subsidized commuter bus operations. Both Los Angeles and Ventura Counties subsidize peak period service. The former sponsors a subsidized express bus service from a distant suburban area to downtown Los Angeles, whereas

Ventura county helps subsidize a subscription bus service which serves several large office/industrial parks in a high growth employment area. In addition, the Hughes Aircraft Company has developed a subsidized regular route commuter bus operation for employees living within 15 miles of its El Segundo plant. Hughes contracts with a private bus company for this service; it designed the ten routes itself based on the location of potential riders. Subsidies have been considerably greater than anticipated due to lower than anticipated ridership, but Hughes remains committed to the service. In addition, it contracts for three buses per day to provide park-and-ride express bus service for long distance commuters from the northern part of the region and operates a large vanpool program which is also targeted at employees with lengthy commutes.

Many other large employers in the region have established major vanpool programs. For example, the Fluor Corporation in Irvine (Orange County) has had at times over 100 vanpools in its program. The many individual company efforts on behalf of commuter ridesharing are supplemented by a noteworthy multi-employer approach to commuter transportation development, that of the El Segundo Employer's Association. ESEA has taken a leadership position in activating ridesharing activities by its member companies, in studying and supporting TSM type actions, and in lobbying for better transportation for the El Segundo work force.

Public sector agencies have also become interested in the potential of private sector options. As a result of a 1981 inventory of the region's private commuter bus operations, the regional planning agency (SCAG) undertook a subsequent study of the relative merits of public and private provision of commuter bus service. The study concluded that major economic benefits could be reaped by taking the SCRTD's peak period only express routes and turning them over or contracting them out to the private sector. The SCRTD was opposed to any such strategy, however, and its union contract prohibits service contracting. Nonetheless, with a major SCRTD funding shortfall imminent, an activist transit policy maker began to orchestrate support for this private sector strategy. However, before anything could come of this initiative, a local sales tax for transit was upheld by the State Supreme Court, thereby removing the financial incentives to undertake this strategy. Nonetheless, the proposal is expected to be reactivated in 1985 when the SCRTD will again confront serious financial constraints.

### G. Houston

The Houston metropolitan area is the site of two of the most extensive uses of private sector options in the U.S. The region's transit agency, the Metropolitan Transit

Authority, sponsors the largest contract bus operation in the country. The MTA has contracted out 13 of its 17 express bus routes to private bus companies, who operate 112 buses on these routes. This represents more than 10 percent of total MTA service. Houston is also the "vanpool capital of the world," with approximately 2,000 vanpools in operation in the metropolitan area. The vast majority of these vanpools are sponsored by private companies, who have turned to vanpooling as a cost-effective strategy for improving the commuting options available to their employees.

The MTA and the region's employers have resorted to these private sector strategies because other solutions to their problems were essentially unavailable. The rapid development of the Houston region has overwhelmed many of its public systems, and transportation is no exception. Peak period traffic congestion is both severe and pervasive, and threatens to undermine the attractiveness of the region. Until very recently, however, the public transit system was woefully ill-equipped to handle peak period travel demands. Major expansion of transit did not begin until the late 1970s, and by then commuter transportation problems were approaching crisis dimensions. The MTA was under great political pressure to get as much service on the street as possible. Lacking the vehicles and trained personnel to provide all of the extra service, the transit agency turned to the private bus operators in the area and began contracting with them for peak period express service from park-and-ride lots. Some of the routes now contracted out had been previously operated by these private carriers on an unsubsidized basis prior to the formation of the MTA. Thus, a precedent for private operation existed.

Due to the short lead time involved in establishing the contract commuter bus services, the MTA required the operators to supply the vehicles and agree to expand service on short notice. Combined with the difficulty of using the buses for any service other than the peak period only contract operation, this led to high contract prices. Lack of competition was another element keeping contract rates high, as there is so much contract work that all the bus companies in Houston are involved in the system. Contract rates have declined somewhat, but are still high due to the peak only nature of the service, which limits the productive use of drivers and vehicles. These high costs have caused the MTA to plan to eventually take over these express services. Whether this will actually occur is by no means certain.

The MTA's problems in providing a high level of transit service have resulted in most of the region's major employers deciding that they cannot rely upon transit to meet their workers commuting needs. Consequently, they have turned to vanpooling as

the answer to the commuting problem. Most large companies operate their own vanpool program, often at considerable expense. Some companies subsidize 25 percent of operating expenses, and all absorb the administrative costs. Given the transportation needs of their employees, however, this practice is widely accepted as a cost of doing business in Houston. The vanpool programs have been extremely effective, with up to 70 percent of some companies' employees in vanpools. The MTA also operates a vanpool program, but it has been a minor factor in the growth of vanpooling in the region. It primarily serves the political purpose of extending MTA service to portions of the district which have no bus service.

# CHAPTER THREE FACTORS AFFECTING THE UTILIZATION AND FEASIBILITY OF PRIVATE SECTOR STRATEGIES

### I. INTRODUCTION

The privately provided commuter bus and van services analyzed in this study can be initiated by several different types of organizations. Transit agencies can contract with private bus operators for commuter bus service, turn over existing routes to them to operate on an unsubsidized basis, or may facilitate the development of private bus service through marketing, bus leasing, or construction of park and ride lots. They can also develop a vanpool program as an alternative to expansion of peak period bus service. Private employers can develop vanpool programs or subsidize subscription bus or buspool service to their work site. Associations of private employers can also undertake such actions. Government transportation agencies other than the regional/local transit agency can use their funding authority to either directly or indirectly accomplish service contracting and service turnovers and to initiate vanpool programs. Private bus companies can establish new unsubsidized commuter bus services, whether regular route, subscription, or buspool.

The obvious questions are what motivates these organizations to attempt such ventures, and what obstacles stand in the way of their implementation and eventual success. The case studies presented in the Appendix describe the process of initiating and implementing a variety of new commuter bus and van services, as well as the history and current status of those private sector services which have been in operation for some time. The purpose of this chapter is to analyze the factors which affect the utilization of private sector options and determine the likelihood of their successful implementation.

### II. MOTIVATIONS FOR UTILIZING PRIVATE SECTOR STRATEGIES

### A. Transit Agencies

Table 3-1 identifies several factors which affect whether or not transit agencies will pursue private sector strategies. While a different set of factors influenced each of the agencies in this study, there was a definite pattern to the presence or absence of these factors when an agency utilized private sector strategies or did not. Of the factors listed in Table 3-1, the first six appear to be the most important determinants of transit agency motivation.

# Factors Affecting Transit Agency Utilization of

# Private Sector Strategies

Innovation Affecting Factor	Salient Characteristics of Factor
Fiscal situation	Does transit agency face sufficiently severe fiscal pressures that service reductions are necessary to balance budget?
Service situation	Is transit agency under pressure to provide additional peak services or to otherwise take lead role in solving commuter transportation problems?
Management orientation	Does management hold traditional attitude of favoring monopolistic service organization and delivery, or is agency willing to relax control over service delivery system?
Subsidy arrangements	Is local source of subsidy dedicated exclusively to transit, or is it discretionary in nature?
Decision making arrangements for transit agency	Are transit agency policy makers connected directly to governing units which fund agency or not? Do policy makers control allocation of funds to different types of services?
Rational analysis	Have cost studies of peak period services been made which demonstrate that transit agency supplied service is more expensive than alternative methods of service delivery?
Transit's role in commuter transportation	What is transit's contribution to work travel, to control of peak period congestion, and downtown access? Is transit viewed as the solution to commuter problems?
Political situation of transit agency	Are there external political pressures on agency to undertake new services or responsibilities, to reduce subsidy, to maintain low fares? Is there a strong political orientation towards the status quo or towards change?
L abor situation	Does current labor agreement prohibit service contracting or otherwise severely restrict its use? What is strength of transit union in local politics?
Agency characteristics	How long has agency been in public sector? Organizational autonomy of agencydo other institutions have ability to determine its outputs?

### 1. Fiscal and Service Pressures

Among the transit agencies which had adopted a private sector strategy, fiscal and/or service pressures were invariably present. Pressures to expand peak service, or more typically, to reduce projected deficits (and hence the needed subsidy), require an agency to consider how it will achieve these objectives. Tidewater Transit, Pentran and ConnDOT are under pressure to contain subsidy requirements. Golden Gate Transit is faced with demands for additional commuter transportation service, but has decided it cannot afford major expansion of its peak period bus operations. Houston MTA lacks the equipment and organizational resources to provide all the commuter bus service which is needed in the Houston region.

Without such pressures transit agencies almost invariably maintain the status quo for their service delivery system. Although the presence of such pressures does not guarantee that private sector options will be seriously considered, it does create an opportunity to examine alternatives to traditional transit strategies. Whether this opportunity will, in fact, result in the transit agency utilizing a private sector strategy appears to be primarily a function of certain other factors, namely subsidy and decision making arrangements, management attitudes, and rational analysis.

### 2. Subsidy and Decision Making Arrangements

Subsidy and decision making arrangements have a crucial effect on whether transit policy makers will be motivated to investigate and support private sector strategies for commuter transportation delivery. In particular, when non-federal subsidy sources are discretionary, i.e., are not dedicated exclusively to transit, <u>and</u> when policy makers are members of governmental units with a <u>direct</u> financial stake in the agency's cost and service performance, the prospects for policy level support and even advocacy of private sector options are much greater than when these factors are not present. Under such circumstances policymakers and their constituents have a direct interest in the most cost-effective forms of service delivery possible, as subsidy savings can be diverted to other government services or used to lower taxes. Tidewater, Pentran, Golden Gate, and ConnDOT all utilize discretionary sources of subsidy, and in each case the agency's policymakers are accountable to their constituents regarding how the funds are spent. Therefore, the policymakers, and through them the management, have a compelling interest in maximizing the cost-effectiveness of the services for which the agency is responsible.

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It bears noting, moreover, that transit politics is primarily the politics of service delivery. As every transit manager and policymaker knows, good service is good politics. Therefore, strategies which reduce service costs and thereby enable additional services to be produced, or at least allow the current level of service to be maintained, are politically attractive. The policymakers for Tidewater and Pentran have had no difficulty accepting proposals to provide commuter services (as well as other transit services) through mechanisms other than the transit agency's own vehicles and drivers. In the case of Pentran, in fact, the policymakers were the initial advocates of such thinking. Direct control of local subsidies is the key to the development of such attitudes on the part of policymakers.

### 3. Management Attitudes

When an agency's fiscal or service situation is such that it has an incentive to seek out non-traditional strategies for commuter transportation, management attitudes can provide an additional motivation to consider private sector options. If top management is innovative in its approach to problem solving, or at least sufficiently flexible to be willing to experiment with a non-traditional strategy, then private sector strategies will probably become prime candidates for selection. Tidewater Transit best exemplifies this management innovativeness, although it is virtually unique among American transit agencies in its openness to non-traditional problem solving approaches. Nonetheless, Golden Gate Transit, with more traditional top management, has also made extensive use of private sector options because its management has been attracted to their potential for cost-effective problem solving. The success of its initial experiments has led Golden Gate to institutionalize a wide range of privately provided commuter ridesharing services. ConnDOT management has also exhibited flexibility in its approach to peak period service delivery. At one point it favored conventional strategies, but has been persuaded by its internal cost studies that its own services are quite expensive and should in the future be deemphasized in favor of such alternatives as vanpooling and private bus services.

### 4. Rational Analysis

When an agency is under pressure to solve a fiscal or service problem, rational analysis can be another important factor in promoting a private sector strategy. Studies which demonstrate, at least conceptually, the feasibility and cost-effectiveness advantages of private sector options are often a necessary part of building support for

non-conventional responses to commuter service needs. Golden Gate Transit's Ridesharing Division has used studies of this nature to win internal agency support for its initiatives. Cost studies were instrumental in changing ConnDOT's attitudes towards the relative desirability of agency-provided express bus services and private sector options. In addition, both Tidewater Transit and Pentran have done analyses which demonstrate that peak period service is too expensive to be expanded--and in some cases even maintained--other than through non-traditional strategies.

### 5. Limits of Motivations

That service and/or fiscal pressures alone are not sufficient to motivate adoption of private sector strategies is illustrated by recent events in Boston and Los Angeles. The MBTA and the SCRTD have both faced severe fiscal crises within the past two years, but neither agency has turned to private sector strategies to address the problem. Instead, they opted to raise fares and reduce service. The MBTA did demonstrate some interest in service turnovers, but it never neared the point of action. Actors outside the two transit agencies were the principal promoters of service turnovers and contracting, but the agencies are sufficiently autonomous that they could not be compelled to adopt these proposals against their will.

Both organizationally and politically the MBTA and the SCRTD are shielded against the winds of change. Management believes that it should control and provide all transit service in its service district and has a quasi-monopoly on funds for service provision. Politically, the two agencies derive much of their influence from their contribution to commuter transportation. The peak period is the only time of day when a significant portion of the ridership is composed of middle class citizens. With dedicated funding sources and a decision making system in which local policymakers lack the authority to connect service decisions with subsidy allocations, there is little incentive or ability for policymakers to intervene into the agency's internal decision making process. The internal bias is to continue in the traditional service delivery mode.

Houston provides an interesting example of a transit agency experiencing conflicting motivations relative to the organization of its service delivery system. The Houston MTA is under intense pressure to increase the amount of peak period bus service in order to help cope with Houston's serious traffic congestion problem. Its inadequate internal resources have forced it to rely upon the private sector for much of its express bus service. In addition, it is committed to providing service throughout its huge service area, even in areas where ridership will inevitably be low. Consequently,

it has developed its own vanpool program to provide commuter transportation from outlying areas of the region which lack bus service.

On the other hand, MTA's management is essentially traditional in its orientation. Moreover, the agency has ambitious plans for a conventional rail transit system, and enjoys an extremely favorable financial situation due to a dedicated local tax which generates much more revenue than the agency can spend. It is not surprising, therefore, that the MTA plans to terminate its service contracting program--which now provides nearly 25 percent of peak service--as soon as it can build up its bus fleet to a sufficient size to replace the privately provided operations. In this situation it is obvious that expedience has been the primary motivation for undertaking a private sector strategy. The other factors which might provide reinforcing motivations are of the opposite characteristics--traditional transit management, a dedicated local funding source, and decision making arrangements which give local jurisdictions no opportunity to save money by utilizing private sector options.

### B. Employers and Employer Associations

Private employers have been motivated primarily by factors relating to corporate self-interest to organize, and to sometimes subsidize, vanpool and commuter bus services for their employees. The most important of these factors are transportation related problems in recruiting and retaining employees, severe traffic congestion which makes commuting a difficult experience for employees, and the expense of providing employee parking. Some companies have also been motivated by the public relations and civic leadership benefits which can be associated with a visible employer transportation program, although this factor alone does not appear to be sufficient motivation to initiate such a program.

### 1. Access to the Work Site

Insuring that its labor force has access to the work site seems to be the single most important motivator of employer involvement in commuter transportation. Companies which have relocated within a metropolitan area are particularly likely to develop a company transportation program. Fluor in Orange County and Gulf Oil in Houston have vanpool programs that are among the largest in the country, developed in both cases because of company relocation. Both companies also subsidize 25 percent of the vanpool fares. Over half of the companies in the Boston region which sponsor subscription bus/buspool services have done so because they relocated. Fireman's Fund,

which relocated from downtown San Francisco to suburban Marin County, is one of the few companies in the entire Bay Area to initiate a major vanpooling program.

Although many large central city employers are well served by transit, this is usually not the case for employers with a suburban location. Not only does this force workers to commute by automobile, but when the employees are scattered throughout an entire metropolitan area, as is common, commuting trips can be quite lengthy. Employers are beginning to recognize the toll which single occupant automobile commuting exacts from their employees in such circumstances, and some have developed vanpool and carpool programs to help workers cope. Digital Equipment in Boston, Hughes Aircraft and the Aerospace Corporation in Los Angeles, and Aetna Insurance in Hartford are examples of this trend.

### 2. Traffic Congestion

Employers located in areas of severe traffic congestion have traditionally relied upon public transit to provide access for many of their employees. CBD employers in traditional central cities such as Boston, San Francisco, and Hartford still rely mainly on transit as an alternative to automobile commuting. As both companies and traffic congestion have moved to non-central locations, however, the transit alternative has become less viable. Even in some central cities in the Sun Belt transit service cannot be counted on to provide good transportation for most commuters. Traffic congestion has thus prompted many large employers in Texas and Southern California to develop commuting alternatives such as vanpools or bus service. In cities without major congestion problems (e.g., Norfolk) or where transit remains a major means of access to downtown, CBD workers have had to depend primarily on ridesharing agencies for vanpool and carpool programs. Employers have not been motivated to act.

### 3. Parking Costs

Parking costs have also been a major factor in motivating employer programs. Houston employers have used vanpooling as a means of reducing the parking needs of their employees, a particularly significant money saver for downtown companies. By developing a major ridesharing program and even subsidizing vanpool fares, these companies have been able to establish an alternative to free parking for their employees. In suburban locations, most employers continue the practice of providing free parking. The commuter transportation program represents a means of keeping parking requirements from increasing, however, thereby forestalling future costs.

### 4. Other Factors

Other motivations for commuter transportation involvement tend to be company specific. A few companies initiated programs because of regional air quality plans. Energy companies were cognizant of the public relations benefits of ridesharing programs, and almost every company was concerned that energy problems might affect employee commuting. Although these reasons were occasionally voiced, it was apparent that the issues of worker access and company cost were the key motivators of involvement.

Employer associations have been motivated by essentially the same concerns. Traffic congestion and lengthy commutes caused by high housing costs were instrumental in stimulating the formation of employer associations in Santa Clara County and Los Angeles. The magnitude of these problems is much less severe in Hartford, and there the employer association has been more concerned with playing a broad TSM role aimed at developing strategies which improve transportation to and within the CBD.

### C. Other Government Transportation Agencies

Regional/subregional transportation planning and policy making agencies have been involved in the development of private sector options in Los Angeles, San Francisco, Boston, and Hartford. Two motivations have been present: concerns for service development and for the most cost-effective use of public transportation funds. Professionals in these organizations have been motivated to develop programs which fill gaps in the service delivery system, or which complement other programs. Examples include the MTC's Commute Alternatives Program as well as ConnDOT's vanpool programs and its assistance to the Greater Hartford Ridesharing Corporation. Agencies which control funds and/or establish policy may also be motivated to strengthen the role of the private sector in commuter transportation in order to use transit subsidies in their most productive manner. The LACTC's tentative steps towards involving private bus operators in peak period transit services have been motivated by fiscal concerns about public transit in Los Angeles County. EOTC's bus lease program is an attempt to keep Boston's private bus operators afloat and thus maintain an unsubsidized source of commuter bus service. If the Boston bus industry begins to fail on a large scale, there will be pressures to use subsidies to rescue the services.

### D. Private Bus Operators

The obvious motivation for private bus companies to develop additional commuter services is to make a profit. Because this is an economic issue it is analyzed in Chapter Four. As will be discussed later in this chapter, however, there are certain institutional obstacles to the achievement of this objective, notably regulation.

### III. OBSTACLES TO PRIVATE SECTOR STRATEGIES

### A. Transit Agency Initiated Private Sector Strategies

Considering the fiscal problems which are besetting more and more transit agencies, even while demands for peak services continue or increase, it is pertinent to ask why so few agencies have chosen to adopt the commuter transportation strategies which are the focus of this study. What are the primary barriers to more widespread utilization of these strategies? Most of the obstacles have their roots in the monopoly organization of public transit which prevails in almost all U.S. urban areas. The transit monopoly creates several formidable barriers to widespread use of private sector strategies.

### 1. Management Orientation

The first obstacle is a strongly traditional orientation on the part of most American transit managers. The transit industry's history of monopoly organization, under both private and public ownership, has instilled in the management of most transit agencies a belief that it is both necessary and proper to control all aspects of service provision. Peak period express bus service is a staple for most large transit agencies. To consider contracting for commuter service, turning existing services over to the private sector, or meeting new service demands with vanpools rather than transit buses would require a revolution in thinking on the part of many managers. Most transit managers do not understand the high costs of their own peak services and have other strategies available for deficit reduction which do not require the agency to relinquish its monopoly on service provision. Service cutbacks (usually concentrated in off-peak periods), fare increases, and the use of part-time drivers are all means of addressing fiscal problems which are compatible with the traditional transit agency orientation. Management will usually look first to such strategies, and if they promise to solve the immediate problem it will look no more until the next fiscal crisis occurs.

While this response leaves largely intact the structural conditions which underlie the peak period problem, it has some major advantages from the standpoint of a

traditionally oriented management. Private sector strategies probably will not result in major subsidy savings in the short run, and the short run is usually the relevant decision frame. Therefore, why go through the organizational and political trauma, however mild (and it may not be mild), of altering the institutional structure for service delivery when a response thoroughly compatible with existing institutional mechanisms is available and will yield large savings (albeit at a cost to consumers)? Unless there is simply no other feasible option, (e.g., Houston MTA contracting for commuter bus service), or the costs to the agency of conventional alternatives are so high as to be unacceptable (e.g., Golden Gate Transit's ridesharing programs as an alternative to peak service expansion), a traditionally oriented transit agency can usually find a conventional response which will deal with the immediate service/fiscal problem.

### 2. Loss of Political Influence

The second obstacle to private sector strategies is political in nature. Transit agencies derive their political influence from their service provision role. The agency's power base depends in large part upon the fact that it uniquely provides an important public service, that it employs many unionized workers to accomplish this function, and that during the peak period it transports many middle class riders who represent an important constituency. Like any public bureaucracy, the transit agency resists changes in the uniqueness of its status as service provider, fearing the possible dilution of political influence. This influence is seen as essential to maintaining the agency's size and viability.

In addition, the agency itself often measures success in terms of how many buses it operates. Having equated a large operating organization with success, the notion of reducing the size of this bureaucratic empire in the name of cost-effectiveness is not easily accepted. Thus service contracting and service turnovers are typically resisted by traditionally oriented transit agencies.

Even in situations where service contracting now takes place there is reluctance to continue it. The Houston transit agency is planning to phase out the private contractors as it increases its own fleet size. Golden Gate Transit seeks to eventually eliminate subsidies from its subscription bus services, thereby ceasing to contract. The subscription bus service is more cost-effective than the transit agency's own express bus service, but in top management's eyes it is a "ridesharing service," in large part because the agency does not provide it. And ridesharing services should not be subsidized.

Vanpooling is somewhat easier for transit agencies to accept, as the agency continues to play a role in service provision and can count each van as an accomplishment. Golden Gate Transit, Santa Clara County Transit, and Houston MTA, all with traditional top management, have nonetheless found vanpooling to be a compatible activity. All three agencies, in fact, have insisted on controlling the public vanpool program in their service area, further demonstrating that this strategy's political appeal depends in important part on how closely identified it is with the transit agency.

On the other hand, the programs of the latter two transit agencies are languishing, as there is no major incentive for maximizing their impact. They developed the programs because they believed that, as area service providers, they "should" have a vanpool program to complement conventional transit. But unlike Golden Gate Transit, the Houston and Santa Clara County agencies are in an expansionary mode, and vanpooling does not solve major service or fiscal problems. Therefore it receives low priority.

### 3. Labor Constraints

Labor constraints represent a third major obstacle to the use of private sector strategies by transit agencies. The monopoly organization of transit has resulted in the establishment of a quasi-monopolistic labor supply with institutionalized rights and privileges. Both Section 13(c) of the Urban Mass Transportation Act of 1964 and provisions in local labor contracts can represent formidable barriers to certain private sector strategies, particularly service contracting.

Section 13(c), which applies to all transit agencies which receive federal transit subsidies, in effect prohibits management from using such subsidies so that unionized transit workers are adversely affected. For example, a transit agency which accepts federal subsidies in all probability could not contract for part of its peak period bus services and then lay off agency drivers who were no longer needed unless it was willing to pay compensation to the affected employees. The practical implication of this labor protection provision is to prevent the contracting out of any significant amount of <u>existing</u> commuter service, as to do so would almost certainly require the displacement of transit agency bus drivers. An agency could still contract out <u>additional</u> bus services or develop new commuter services which do not use transit agency workers (such as vanpooling) without running afoul of 13(c) itself. Transit unions may attempt, however, to use the leverage 13(c) gives them to even attempt to forestall such actions. For

example, Golden Gate Transit's union delayed the implementation of that agency's vanpool program for a year by not signing a 13(c) agreement needed to purchase the vans. The union relented only when the agency agreed not to reduce the size of the bargaining unit as the result of the vanpool program. Similarly, Tidewater Transit had to agree not to start vanpools that would compete with its commuter bus services in order to obtain a 13(c) agreement.

When agencies actually do contract out services, unions may subsequently claim that the result has been to worsen employee working conditions, and seek relief by invoking 13(c) protections. Thus Tidewater Transit has been sued by its union as the result of contracting out a number of services, with the union alleging that drivers have been adversely affected.

Local labor contracts can be even more restrictive than Section 13(c) in their impacts. Some labor contracts prohibit or severely restrict subcontracting of services, and unless the transit union can be compelled to eliminate these provisions an important option is unavailable. For example, the SCRTD is at present flatly prohibited from contracting for any regular bus service. The Houston MTA contract services are limited to a percent of total transit operations. Some labor contracts also specify a minimum size of the bargaining unit, which could prevent the gradual transition to contract commuter services; management could not use employee reductions due to attrition as an opportunity for utilizing private sector strategies if the result was to fall below the minimum bargaining unit size. Both Connecticut Transit and Golden Gate Transit have such provisions in their labor contracts.

Although the labor constraints transit agencies must contend with are quite real, it is also apparent that transit management has rarely made serious attempts to confront the labor issues head-on. Tidewater Transit is one of the few transit agencies that has actually been willing to test the waters in this area by developing contracting programs despite union opposition, and so far contracting has survived. The mere spectre of labor opposition, however, is usually sufficient to cause transit managers to declare service contracting to be infeasible. Moreover, transit management has often voluntarily agreed to restrictive labor contracts which tie its hands on such issues as service contracting.

For example, state legislation in California prohibits transit agencies from receiving certain transit subsidies if they have labor contracts which prohibit contracting or the use of part-time drivers. Organized transit labor was surprisingly ineffectual in opposing this bill in the state legislature, but in local labor negotiations

the unions have managed to subvert much of its intent. Management has typically agreed to contract only for non-service related tasks (such as certain maintenance work) and has agreed to strict limits on the number of part-time drivers which can be hired (e.g., 10 percent of the driver force). The SCRTD's labor contract explicitly permits the agency to contract for DRT service, but not for regular bus service. The agency has never operated DRT, however, and has no plans to do so!

In contrast to the low priority it places on service contracting, the management of the SCRTD has enthusiastically embraced the cause of part-time drivers, to the point of enduring a strike. The difference, of course, is that part-time labor keeps the entire service provision responsibility within the transit agency, whereas contracting diversifies the supply system, a threat to management as well as labor. To be fair, part-time drivers may represent a more cost-effective approach to its peaking problems than does service contracting, but the SCRTD has not actually examined this issue.

### B. Private Bus Services

### 1. Regulation

Unsubsidized commuter bus service in most U.S. metropolitan areas is subject to economic regulation. Most commonly, a state regulatory commission has jurisdiction over common carrier private bus operations, and a bus company must obtain a certificate in order to initiate a new service. If there are no existing services in the proposed market and no other bus operator holds a license in the market (sometimes an operator will possess a certificate which is not being used), the issuance of an operating certificate is usually a pro-forma process. When competing services exist or another operator alleges competition, however, the new entrant must demonstrate that existing services are inadequate to serve the market, or that a new service will in some way improve the overall quality of service in the market.

Transit agencies are sometimes particularly zealous in protecting their service rights, even when new services do not constitute direct competition. For example, the SCRTD in Los Angeles routinely opposes applications by private commuter bus operators for new routes in the region, even though they almost never coincide with the agency's routes. In addition, other private carriers with dormant route authority may oppose new entry into a market in order to protect future interests. This has also been a problem in Los Angeles. Most state regulatory commissions are conservative in that they tend to favor the status quo, and opposition to new entry may be successful even when the actual competitive impacts are minor. An even greater obstacle to private commuter bus operators exists due to the fact that the transit agency itself is often the regulatory body within its service district. Under these circumstances, private bus companies have little chance to develop new markets if the transit agency views their services as threatening rather than complementary. In Boston, private carriers must apply to the MBTA to operate routes within its service district, and basically are not allowed to directly compete with transit services. In contrast, transit agencies in Norfolk and Newport News have no desire to exercise their regulatory powers. In their view, private commuter bus service provides a substitute for additional peak period transit.

Another serious problem is that of regulatory lag. A commuter bus operator will usually file an application for a new route only when enough ridership for profitable operations has been secured. If the operator must wait several months from the time of filing to the time of receiving a permit, however, the prospective ridership may evaporate. Even expedited regulatory procedures, instituted in response to complaints of slow decision, require at least 30 days from filing to permit issuance.

Regulatory lag can pose an equally serious problem for fare changes. Boston area bus operators complain that the state regulators are extremely tardy in granting fare increases, and that their profitability is being jeopardized by this practice. A recent study for EOTC largely confirmed these claims (Tramco, 1980). Given the relatively low profit margins of most unsubsidized bus services, timely fare adjustments are a necessity if services are to remain economically viable.

### 2. Market Preemption by Transit Agencies

A major obstacle to the expansion of private unsubsidized commuter bus service is that in almost all metropolitan areas the best markets for additional private operations have been preempted by transit agency services (both express bus and commuter rail). As these transit agency services are highly subsidized, private bus companies are essentially shut out of the market. Despite their lower cost of service compared to the transit agency, the differential usually is not sufficient for them to offer fares competitive with those of subsidized transit service. Subscription bus service in Chicago has proven competitive with commuter rail service, but only due to 100 percent fare increases on the latter mode and no-frills service for the former (Schwieterman, 1983). Without comparable fares, successful competition is virtually impossible.

It is difficult to ascertain how important market preemption is, as only a few studies have been done of the relative costs of public and private commuter bus

services (Morlok and Viton, 1979; SCAG, 1982). Without such studies, it is not possible to determine if a privately provided service would be viable at current demand levels even if no transit agency competition existed. Nonetheless, Hartford area bus operators are convinced that subsidized Connecticut Transit express services contributed to the demise of their commuter services, as they could not compete with the lower fares. The SCAG commuter bus study indicated that 13 of 17 peak period only express routes operated by the SCRTD could be profitably operated by private bus companies at current or slightly higher fares. An internal cost study conducted by the MBTA, however, concluded that only a few MBTA express bus routes could be operated profitably by private companies.

### 3. Lack of Access to Operating Subsidies

An issue closely related to market preemption is whether new commuter bus services without subsidy can be developed. Private operators in Houston, San Francisco, and Hartford all believe that subsidies are essential for additional commuter service. If this is true, it poses a major barrier to the development of such services, for with few exceptions transit subsidies are allocated to public agencies and usually pass directly to the transit agency. Private bus companies can obtain subsidies only through these public agencies. The difficulties in persuading transit agencies to initiate contract services with private operators have previously been discussed. Lacking access to subsidies except on a contract basis, private bus operators are at a substantial disadvantage in developing new services in view of transit agency preemption of the best commuter bus markets.

### 4. Availability and Capability of Private Bus Operators

If commuter bus services are to be provided by the private sector, a private bus industry must exist to operate such services. The current industry infrastructure, however, is not well positioned to assume a larger role in commuter transportation. As is well known, regular route operations within the intercity bus industry in the U.S. have been in decline for the past three decades. Since 1950 the only growth in the bus industry has occurred in charter and tour operations which are estimated to now generate 50 percent of the industry's revenues (Taube, 1979). Only in Boston and the New York/New Jersey region does there apparently still exist a significant amount of unsubsidized regular route bus service into the regional core. Most charter companies, moreover, are relatively small operations (less than 15 vehicles) which have never provided commuter services.

The implications of this situation are that few companies experienced in commuter bus service still exist, and that finding companies capable of participating in contract operations may be difficult. Companies participating in the Golden Gate and Houston contract operations have not always performed to the transit agency's satisfaction, with the smaller companies being the prime offenders (often due to equipment problems). Whether relatively small, primarily charter carriers could be relied upon to give high quality commuter service remains an open question.

### 5. Equipment Availability for Service Expansion

Equipment availability and cost may be a serious constraint to both service contracting and service turnovers. Any major use of private operators for commuter bus services would require the operators to acquire additional equipment. For example, about 100 buses would be required to operate the peak period-only express bus services in Los Angeles. This represents nearly as many vehicles as the combined fleet of the existing commuter service operators. New buses suitable for commuter service cost up to \$150,000. Used buses are much less expensive but are increasingly scarce. When transit agencies require the contractor to provide all of the equipment used in the service, as do both Golden Gate Transit and the Houston MTA, several operators must be involved. None of the participating bus companies own enough equipment to provide all the service, nor could any one of them afford to acquire a large number of additional buses whose only purpose is to provide commuter service.

Private bus companies may be willing to risk making large equipment purchases to participate in contract operations, but only if they are handsomely compensated and they have opportunities for service integration. Equipment acquisition has not been a problem for the Houston MTA contractors because of the high fees they receive for their services, which reflect rapid depreciation of the new, expensive vehicles they purchased for the service. The result is a high cost service for the transit agency.

One answer to these problems is for the needed equipment to be purchased by the transit agency with capital subsidies and then operated by the contractor, a common arrangement for privately provided dial-a-ride services sponsored by cities and counties. If federal funds are used to purchase the vehicles, however, serious 13(c) problems might well arise. As an alternative, public agencies could obtain the vehicles and then lease them to the private operators, thereby enabling the latter to avoid the risk and up-front costs associated with equipment purchases solely for contracting. In fact, bus leasing is done by Tidewater Transit and Pentran, although not (to date) for

commuter contract services. In Massachusetts, the EOTC also plans to lease buses to private carriers. Nonetheless, if the vehicles are expensive the private operator must still pay high lease costs which either push contract prices upward or increase service costs of unsubsidized operations above current levels (this is discussed in Chapter 4). The full economic benefits of service contracting are only available when private contractors can obtain the necessary vehicles in the same way public agencies do, namely through capital subsidies.

### C. Private Sector Strategies Promoted by Other Government Transportation Agencies

Their lack of authoritative control over public transportation funds is the primary obstacle to the implementation of private sector strategies promoted by transportation agencies other than the regional public transit agency. When such public agencies directly control the funds for public transit service in their area of jurisdiction, as is the case with Los Angeles and Ventura Counties in Southern California, they have encountered no significant obstacles to contracting for commuter transportation services. In fact, municipalities and counties throughout California which receive and control transit subsidies have made extensive use of private providers to supply all forms of local public transit.

When transportation agencies do not control public transportation funds, however, their ability to affect decisions about the transit service delivery system is quite limited. Typically, this lack of control over transit service planning deters such agencies from even attempting to influence the transit agency's policies.

Regional transportation policy making agencies such as the MTC in the Bay Area, the LACTC in Los Angeles, and the Regional Transportation Authority in Chicago are more likely to become involved in public transportation service delivery issues, as they have an interest in insuring that limited transit subsidies are used as cost-effectively as possible. They too, however, face constraints on their ability to promote private sector strategies. The major obstacle is political in nature. Although in most cases such agencies nominally have some control over the allocation of transit subsidies, they are not usually eager to use such powers in an authoritative fashion except on truly major issues. Often such agencies have devised formula subsidy allocations in order to avoid having to make politically difficult funding choices, thereby relinquishing much of their purse-string power.

Policy making agencies also find that their legitimacy is not easily accepted by transit operating agencies, and that changes in the latter's policies and services are

achieved only with considerable struggle. Transit agencies are not without powerful weapons in such a struggle, moreover, as they provide tangible services to the public and employ many unionized workers, two attributes which guarantee them a political constituency. Their board of directors is often more responsive to internal agency interests than larger public concerns, particularly when local subsidy funds are dedicated to transit. Consequently, it is usually quite difficult for policy agencies to alter the transit service delivery system unless local subsidy funds are discretionary or unless a major transit fiscal crisis creates an opportunity to intervene into agency decision making processes.

Even then, it may not be possible. The elected or appointed public officials who make the policy agency's decisions usually do not wish to expend the substantial political effort needed to control another, semi-autonomous agency, given the relatively limited political returns. The short term pay-offs of such efforts are minimal in comparison to the political trouble created. It bears re-emphasizing that the politics of transit are primarily the politics of local service (and for large capital investments, the politics of public works) and <u>not</u> the politics of fiscal control. The latter form of politics comes into play only when local subsidy funds are discretionary.

### D. Employer Transportation Programs

The only significant obstacle to the development of commuter transportation programs by individual employers is lack of motivation. Successful transportation programs require company resources, whether direct monetary outlays or the use of company personnel. Employers which do not perceive the need for commuter ridesharing services for their employees will be unwilling to devote resources to this activity. Now that the regulatory status of vanpools has been clarified in almost every state (i.e. they are not subject to regulation), and workers compensation considerations have been similarly clarified, there are essentially no legal impediments to a company vanpool program in most urban areas. Vanpool organizers in Boston suspected that the lack of formal legal deregulation of vanpools in Massachusetts (de facto deregulation has been achieved, however) may deter some companies from initiating their own program, but these companies would be only slightly motivated in any case. Companies with a clear motivation to develop an employee ridesharing program have not perceived the hazy legal status of vanpools to be an impediment.

Multi-employer commuter transportation programs, such as those in Hartford, San Jose, Los Angeles (El Segundo), and Houston, face some additional obstacles. One

major obstacle is in agreeing upon how to organize and finance the collective activities of the companies. Some programs decentralize all pool formation and van acquisition activities to the individual employer level, whereas other programs centralize at least some of these responsibilities. Program financing is usually accomplished through a fee per employee scheme, although sometimes voluntary contributions are the source. These are largely procedural matters, but they can create difficulties in initially organizing a program.

Programs which rely on centralized pool formation may also face difficulties in getting vanpools on the road. Information exchange between prospective vanpoolers is more difficult and there may be problems with different working hours at different companies. In addition, some companies may not look favorably upon their employees commuting with workers from another company which is a supplier, a customer, or a competitor.

While the organizational difficulties of establishing a multi-employer transportation association and subsequently initiating a commuter transportation program should not be minimized, it is important to emphasize that the primary obstacles to such ventures are motivational. Where companies in a similar geographic area have recognized that commuter transportation is a problem, joint activities have been developed without undue difficulty. The effectiveness of these programs is another issue, but the non-motivational impediments to at least establishing them are not forbidding.

### CHAPTER FOUR

### THE ECONOMICS OF PRIVATE SECTOR STRATEGIES

Public sector interest in the private sector as a provider or sponsor of commuter services has been generated primarily by economic considerations. As described in Chapter One, the public sector can no longer afford to expand public transit services, and in many areas around the U.S. subsidy shortfalls have resulted in service reductions. Indeed, in all but the Houston MTA case, the motivation among transit agencies for turning to the private sector was clearly financial. By reducing service costs, private sector service provision is seen as a means to either minimize subsidies or eliminate them altogether. The question is, then, what is the potential of private sector strategies for increasing the cost-effectiveness of commuter transportation services and reducing the need for public subsidies for such services?

One way to explore this question is to compare the costs and performance of the various forms of public and privately provided commuter services in operation in the eight case study areas. This comparative analysis takes place in four parts. First, regular route service provided by transit agencies and private bus companies (both subsidized and unsubsidized) is examined. This section includes a review of two previous studies, as well as a brief discussion of transit service costing methodologies. Second, public and privately provided subscription bus service is analyzed. Third, the most prevalent forms of unsubsidized private services, buspools and vanpools, are examined. Finally, in order to assess the financial feasibility of these services, an overall comparison is made. The sources of cost and performance differences within and between service types are identified, and the economic feasibility of various service options is assessed.

### I. REGULAR ROUTE SERVICE

Route service is the traditional form of public transportation. Service is provided along a designated route at scheduled headways. No prearrangement is necessary for using the service, as single trip fares are collected on board. Prior to the decline in demand for urban bus transportation and the subsequent acquisition of private firms by public sponsors, route service was the prevalent form of both private and publicly provided bus service. Today, unsubsidized route commuter service apparently survives only in the New York area and Boston. However, among subsidized commuter bus services (including both publicly provided and sponsored as well as privately provided and publicly sponsored), route service continues to be predominant.

Peak period route transit service poses formidable financial problems for its providers. As with all peak period services, labor and capital productivity are problematic. Peak services operate only a few hours per day, and unless other work is available during off-peak hours, the unit cost of peak service tends to be very high. Transit agencies also face work rule provisions which add to peak service labor costs. On the demand side, route service has no revenue guarantee (since passengers need not pay on a weekly or monthly basis), and, due to the apparent decline in demand for these services, revenues rarely even come close to covering service costs.

The key economic issue with respect to route service is whether there is a significant difference between the costs of publicly and privately provided service. If private costs are lower, then transit agencies (and other sponsors of these services) could reduce deficits by contracting out to private providers. In some cases, where demand is sufficient, transit agencies could eliminate service subsidies altogether by turning over selected routes to the private sector. As discussed in the previous chapter, however, there are significant institutional obstacles to transit agency service turnovers and contracting arrangements. The potential for financial savings is therefore a critical consideration, as only the promise of substantial savings can provide motivation for attempting to overcome these obstacles.

### A. Previous Research

There has been little empirical research on the issue of public and private service costs in recent years. Viton (1980) used data from the San Francisco Bay area in a simulation study on the potential for profitable commuter bus services. Given a number of assumptions regarding market conditions, the study concludes that it is possible to provide some commuter service at a profit. This study was concerned with the issue of profitability rather than private vs. public service costs, and all services were assumed to be provided by a transit agency. Since the study was not based on actual conditions, however, it provides little evidence that transit agency services have much realistic potential for profitability.

More relevant to this research are two recent studies of public and privately provided commuter bus services. SCAG (1982) conducted a study on the potential of turning over SCRTD and OCTD express service to private providers, and Herzenberg (1982) examined the possibility of turning over selected MBTA routes to the private sector. These studies will be described in some detail. Before doing so, however, some background on transit agency cost estimation procedures is required.

### B. Estimating Transit Agency Costs

Peak period commuter service is one of many services provided by a transit agency with the same set of equipment and personnel. The problem in attempting to estimate the cost of a single service (e.g., a particular express route) is how to identify the costs which are specifically attributable to that given service. Use of an average cost measure such as cost per mile is not appropriate, since peak service is not representative of an "average" transit service, as will be further explained below. Recognizing the difficulties involved in estimating the cost of a single service, transit researchers have developed a number of costing procedures.<sup>1</sup> However, no single method has been adopted within the industry, and all methods suffer from one disadvantage or another.

Transit analysts are in general agreement that peak period service is more costly than base service for two reasons. First, driver costs tend to be higher (on a per unit of revenue service basis) because of pay guarantees, spread limitations, and overtime and premium pay requirements. It is not uncommon for peak drivers to receive eight hours of pay for five or six hours of peak work. In addition, if pairs of A.M. and P.M. runs cannot be paired within eight hours, the drivers receive overtime pay as well. In extreme cases, single pieces of work cannot be paired, in which case they would be operated by extraboard drivers who might receive their eight hour guarantee for a little as three hours of work.

A second source of high peak service cost is low vehicle productivity. The additional vehicles used in the peak must be garaged and maintained like all others, yet they are idle most of the time. Again, on a per unit of revenue service basis, peak vehicle costs are consequently higher than base vehicle costs.

While there is general agreement that peak service is more expensive, there is no agreement on how much more expensive. Some analysts argue that the quantity of peak service determines the size of the agency, and therefore all agency overhead costs (administration and maintenance of the capital plant) should be attributed to the peak (Cherwony and Mundle, 1978; Oram, 1979). This is a questionable point, since eliminating all peak service would not necessarily result in a proportional reduction in overhead costs.

The state of the art in transit service cost estimation is the cost allocation model. Cost allocation models are agency-specific, as they are based on agency accounting

<sup>&</sup>lt;sup>1</sup>For a summary of costing procedures, see Cherwony, Gleichman and Porter, 1981.

data. The basic process in developing a cost allocation model involves four steps. First, a set of cost categories is chosen. These most frequently include vehicle hours, vehicle miles, and peak vehicles, and occasionally include pullouts and time of day. The idea is to choose category units which are closely related to specific accounting cost items. The second step includes taking the systemwide accounts and allocating each line item to a cost category. For example, driver wages would be assigned to vehicle hours, while fuel and vehicle maintenance costs would be assigned to vehicle miles. In the third step, expenses allocated to each cost category are summed. (The sum over the categories equals total system operating cost.) Finally, the sum of each category is divided by the number of units of that category, giving the category unit cost. An example of the resulting cost allocation model is,

OC = 20.55(VH) + .95(VM) + 25,901(PV)

where OC = operating cost (annual) VH = vehicle hours (annual) VM = vehicle miles (annual) PV = peak vehicles (daily)

The model is then used to estimate the cost of a given service (e.g., a new route or bus run).

It should be noted that both the choice of cost categories and the allocation of costs to categories is a subjective process. The procedure has no theoretical basis, and the cost allocation process in particular depends upon the perceptions of those doing the allocating. It is easy to see that when using a three variable model (VH, VM, and PV), as in the example above, different allocations will lead to different cost estimates. Specifically, the more costs assigned to PV, the more vehicle utilization drives the model. Thus the difference in estimated unit cost between peak and base service depends on the relative proportion of total costs assigned to PV. The greater this proportion, the higher the cost of peak service, because such service uses a vehicle which is idle the remainder of the day.

While cost allocation models are now widely used within the transit industry, no single model has gained acceptance, and methods of cost allocation vary significantly among operators. Furthermore, there are a number of conceptual and methodological problems yet to be resolved with these models. (Cherwony et al. 1981; Herzenberg,
1982). Consequently, there is no conceptually correct way to compare costs of a specific service (such as express commuter service) among different transit providers. Since such comparisons must be made, however, it is important to be aware of the limitations of current estimation methods.

#### C. The SCAG Study

Impetus for the SCAG study (1982) was the increasingly pessimistic financial picture for Southern California bus operators. Operating costs had risen faster than state and federal subsidies, local sales tax legislation was uncertain, and large fare increases were either being considered or imposed by all of the major operators in the region. The purpose of the study was to determine whether express routes currently operated by SCRTD and OCTD could be operated more economically by private bus operators, and whether these services could be turned over the private sector and operated without subsidies. The first task in the study was therefore to estimate the transit agency's cost of operating these routes.

SCAG elected to use similar 3-variable cost allocation models for both SCRTD and OCTD in order to generate comparable estimates. While the OCTD model was developed by OCTD and is used in-house for service planning, the SCRTD model was developed outside SCRTD and is not used within the agency. Using these cost allocation models, the SCAG study estimated the operating cost for each of SCRTD's 8 subscription routes and 9 express routes, as well as OCTD's 5 express routes. (The SCRTD planning model, a two variable model, yielded a cost estimate for the nine express routes under study that was \$1.6 million or <u>20% less</u> than the 3 variable model estimate.)

The second task in the analysis was to estimate the cost of private operation of these routes under identical service conditions. Because of a lack of response on the part of local private operators, route cost estimates were based on the average of private operator estimates where available, and \$2.79 per revenue vehicle mile (RVM) otherwise. No explanation is given as to which costs are included in this figure. It most likely includes depreciation but excludes fixed capital costs.

The results of these cost estimates are given in Table 4–1. The difference between public and private costs is substantial. On the basis of these results the study concludes that over \$5 million could be saved by using private carriers. In the case of SCRTD, this savings represents about one percent of the operating budget.

### Comparison of Public and Private Costs for Subscription and Express Bus Service

	Estimated Transit Agency Cost	Estimated Private Cost	Transit Agency Cost/RVM	Private Cost/RVM
SCRTD Subscription	\$ 1,004,024	\$ 466,428	\$6.00	\$2.79
OCTD Express	925,489	4,180,955 574,697	5.82 4.22	2.82
TOTAL	\$10,547,309	\$5,222,058		

Source: SCAG Study, pp. 18, B-2. Costs are estimates for FY 1981-82.

It should be noted, however, that implicit in the cost allocation method is the assumption that if these routes are eliminated <u>all</u> of the operating costs associated with these routes are eliminated. In reality, it is quite unlikely that all of the drivers, supervisors, maintenance crews, administration, etc. associated with the service would be eliminated. Indeed, if the transit agency were the contractor, it would presumably be a violation of its 13(c) agreement to lay off union employees as a direct result of the service contract. (Attrition could be used to reduce the number of drivers, however.) It is also possible that a transit agency would use these resources to provide other transit services. Thus the SCAG estimates must be considered an extreme upper bound of potential cost savings.

The SCAG study also addressed the questions of whether some routes could be operated at a profit by private carriers, and by how much subsidies could be reduced by contracting. These questions depend on demand (e.g., the revenue generating potential of the service) as well as service costs. Unfortunately, however, fares were increased substantially during 1981–82. RTD subscription fare increases ranged from 14 to 35 percent, RTD express fares increased from 38 to 42 percent, and the OCTD express fare increase was 29 percent. Fare revenues used in the study were generated by deflating these fare increases by 12 percent to account for inflation and then applying a

price elasticity factor of -0.12 to 1980 ridership data. Since the actual ridership losses resulting from the fare increase were much greater, the study's revenue estimates are unrealistically high.

Given these estimates, the results indicated that all of the subscription service could be operated at a profit by private providers. RTD express service would just about break even, and the revenue/cost ratio would increase from .18 to .29 (for the OCTD service see Table 4-2). The net cost (subsidy) of these services is consequently reduced by \$5.3 million by shifting to private provision. However, the extremely optimistic estimate of potential cost savings, together with the unrealistically high revenue projections makes the net cost savings estimate excessive. Nonetheless, the SCAG study indicates that there is a substantial difference between public and private service costs, and that private contracting could potentially reduce transit costs and subsidy requirements significantly.

	Table 4-2
Net	Cost Comparison of SCAG
	Study Bus Services

	Public Provision		Private Provision	
	Profit	Revenue/	Profit	Revenue/
	(Subsidy)	Cost	(Subsidy)	Cost
RTD Subscription	(\$ 335,624)	.67	201,972	1.43
RTD Express	(\$4,409,783)	.49	27,080	1.10
OCTD Express	(\$ 759,379)	.18	(408,587)	.29
TOTAL	(\$,5,504,786)	.48	(179,535)	.97

Costs are in 1981-82 dollars.

Source: SCAG, Commuter Bus Service in the SCAG Region, p. 28.

#### D. The Herzenberg Study

During 1980 and 1981 the MBTA experienced a severe revenue shortfall. The Boston area cities and counties which subsidize the MBTA were opposed to further increasing their contribution, and strong political pressure was brought to bear on MBTA management to contain costs and improve efficiency. (See Boston case study.) One alternative that MBTA management considered during this period was turning over 12 MBTA express bus routes to the private sector. The Herzenberg study estimates the operating costs of these routes for the MBTA and for private providers in order to determine whether private providers could operate the routes without subsidies, and whether the MBTA would save any money by turning over these routes.

Herzenberg makes two key assumptions in estimating MBTA service costs. First, she points out that labor costs are the MBTA's largest single expense, and since the routes are peak routes, labor costs may be highly variable. Therefore, labor costs for the specific routes must be estimated as precisely as possible. Second, since the 12 routes make up such a small portion of MBTA total service, it is assumed that overhead expenses such as administrative salaries, plant maintenance, etc. would not change as a result of eliminating these routes. Thus only the variable or marginal cost of the service should be included (Herzenberg, p. 56).

In view of these assumptions the cost allocation model method of estimating service costs is ruled out, because such models cannot accurately estimate the labor cost of a peak route, and because such models assume service changes lead to proportionate changes in overhead costs. Herzenberg points out that the only accurate way to figure out the change in labor cost resulting from a service change is to recut the schedule, as it is the number and temporal distribution of platform hours that determines the labor cost. Because the scheduling approach was not feasible, Herzenberg devised several costing methods based on the wages paid to the actual drivers on the 12 routes (Herzenberg, Chapter 3). Labor costs include benefits and the additional costs of absenteeism (the extraboard). Maintenance and fuel costs for the routes are estimated on a per vehicle mile basis from systemwide statistics.

Herzenberg estimated private operator costs in a completely different way. She argues that because these routes would be a new service for the private operator, the full operating cost must be considered, including vehicle acquisition costs, insurance and taxes, as well as labor, maintenance and fuel costs. Private provider administrative costs are assumed not to be affected by the additional service. Using data from a "low cost" and a "high cost" private provider, a cost range is developed for each of the 12 routes.

Summary results of Herzenberg's analysis are presented in Table 4-3. These results indicate that the "marginal" MBTA cost and the private "full" cost of these routes is quite comparable. That is, these routes would cost as much to be provided by

private operators as they would save the MBTA if they were eliminated. This is because the MBTA will only save the direct variable costs--driver, fuel, and maintenance--while the private operator will incur full costs--insurance, taxes, and capital or lease charges, as well as driver, fuel, and maintenance cost.

On the revenue side, these routes are currently covering somewhere between 75 and 80 percent of marginal cost. Herzenberg estimates an annual subsidy cost of \$13 million (less than 2 percent of the MBTA annual deficit) (p. 126), which is what the MBTA would save (e.g., the amount by which the deficit would be reduced) by turning over the routes. However, at the existing fares, these routes would not be

#### Table 4-3

Herzenberg Study Cost Comparison for 12 MBTA Express Bus Routes

Daily Revenue Mileage (RVM)	9356
Daily MBTA Cost (driver, fuel, maint.)	\$19,952-22,288 <sup>a</sup>
Daily Private Marginal Cost (driver, fuel, maint.)	7,720- 9,230 <sup>b</sup>
Daily Private Full Cost (above+vehicle+insurance)	19,700-24,020 <sup>D</sup>
Daily Passenger Revenue (est.)	15,980
Daily MBTA Cost/RVM	\$2.13-\$2.38
Daily Private Marginal Cost/RVM	.8599
Daily Private Full Cost RVM	2.10-2.57

a Range reflects different estimates of fuel and maintenance costs

b Range reflects low and high cost private providers

Source: Herzenberg, pp. 95, 125 Costs in 1981 \$

profitable for private providers: either fares would have to be raised or the private operators would have to be subsidized. One MBTA route was in fact turned over to a private operator, and that operator is currently suffering a loss on the route.

On the other hand, the daily private "marginal" cost is only about 40 percent of the MBTA marginal cost. This difference is due to a lower base wage, the absence of overtime and other pay premiums, and lower benefits for private bus drivers.

Herzenberg thus concludes that the MBTA could save up to \$3-3.5 million annually by providing the vehicles and subcontracting the drivers and maintenance out to private providers. According to Herzenberg's research, the real potential for savings lies with the private operators' lower labor costs. In contrast, vehicle costs are much higher for the private operator, because vehicles must be purchased or leased at the market rate. Thus a subcontracting arrangement brings together the private lower costs with lower public vehicle and insurance costs.

The SCAG and Herzenberg studies present an interesting contrast in their approach and conclusions. Comparing Tables 4–1 and 4–3, it can be seen that the private cost estimates are roughly comparable: \$2.62–\$2.82/RVM for SCAG and \$2.10–\$2.57/RVM for Herzenberg. Some of this difference may be attributed to the absence of administrative and supervisory costs in the Herzenberg estimate. Administrative cost for one large Boston area private carrier constitutes 11 percent of total cost. Adding this amount gives \$2.33–\$2.85 for the Herzenberg estimate. Other differences may be due to the amount of deadhead mileage in the two services.

Transit agency cost estimates in contrast are very different: \$2.13-\$2.38/RVM for the MBTA and \$4.22-\$5.82/RVM for OCTD and SCRTD. This is due primarily to the inclusion of administrative and other overhead costs in the cost allocation method used by SCAG. Taking the OCTD data for example, the cost allocation formula is,

OC = 20.55(VH) + .95(VM) + 25,901(PV).

For the express routes, VH = 13,160, VM = 389,621, and PV = 11. Thus,

OC = 20.55(13,160) + .95(389,621) + 25,901(11) = 270,438 + 370,140 + 284,911 = \$925,489.

If the peak vehicle cost is eliminated, OC = \$640,578, reducing cost per RVM from \$4.22 to \$2.92. (Note that VM in the model is total vehicle miles, not RVM.) Since data on the specific accounting items assigned to each cost category were not available, this is only a very rough approximation of why the two study estimates differ.

The key economic issue when considering service turnovers or contracting, therefore, is how private and public costs should be compared. It is clear that taking away service will not have just the opposite effect of adding a service. When adding a

service, the marginal cost, which measures all of the incremental increases in the various service inputs necessary to provide that service, is the appropriate cost to consider. When removing a service, there are some costs which are removed immediately, and other costs which will be reduced only after a period of time.

Thus the cost savings estimated by the fully allocated cost model is unrealistic in the short run. Even if the transit agency chose not to reallocate resources to other services, it would take some time to eliminate drivers and other direct labor inputs by attrition. On the other hand, there should be some savings in supervisory and other administrative costs in the longer run, particularly if the amount of service involved is significant (e.g., more than one or two percent of the agency's total). Thus the Herzenberg study probably underestimates potential cost savings.

#### E. Fixed Route Service Costs: Evidence from Case Study Areas

All of the transit agencies operating in the case study areas provide some form of express commuter service. However, only five of these agencies had a method for estimating the cost of a specific service during the period of this research. The others either used average cost estimates or ad hoc methods on a case by case basis. Houston and Santa Clara County do not have cost allocation models. Management feels that peak service is not significantly more costly than base service, and therefore average cost estimates are used in service planning. Pentran is in the process of developing cost allocation methods. No information was available on MBTA's costing methods; thus Herzenberg's estimates are used for comparative purposes. Data for SCRTD and OCTD were obtained through the SCAG Commuter Bus Study (1982). Data for Golden Gate, Tidewater and ConnDOT were provided by the agencies.

Table 4-4 presents the cost models used in estimating peak service costs for each agency. In all cases these are calibrated for FY 1981-82. The models were developed by the method described in Section I.B. above. Each is specific to the agency, and each was developed from system cost data. The SCRTD, OCTD, and TRT models are similar three variable models. Golden Gate uses different two variable models for commuter and non-commuter services. The ConnDOT model is quite different, as it simply applies a factor to the variable costs in order to account for overhead. The model was developed to calculate costs by bus run, and thus overhead is assigned equally among all bus runs. This method has the effect of minimizing the difference in cost between peak only and bus service, because only the direct labor cost will differ between the two services.

Case Study Transit Agency Cost Allocation Models

Agency	Model
SCRID	OC = 27.9(TVH) + 1.22(TVM) + 27,268(PV)
OCTD	OC = 20.55(TVH) + .95(TVM) + 25,901(PV)
GGBHTD <sup>a</sup>	OC = 51,223(TVH) + .977(TVM)
TRT	OC = 15.54(RVH) + .92(RVM) + 11,098(PV)
ConnDOT <sup>b</sup>	OC = [11.16(PH) + .7894(RVM)] x 1.28

- OC = Operating Cost (annual)
- TVH = Total Vehicle Hours
- TVM = Total Vehicle Miles
- PV = Peak Vehicles
- RVH = Revenue Vehicle Hours
- RVM = Revenue Vehicle Miles
- PH = Pay Hours
- a. A peak service only model
- b. A daily cost model

Table 4-5 presents unit cost estimates for the five agencies. In each case, the service is peak-only express. The most striking feature of the table is the range of cost estimates. Some of the difference is due to the method used in generating costs, while some is due to differences in wage rates and other cost items. In view of these figures, it is clear that conclusions cannot be made regarding the cost of transit agency peak period service. For the purpose of this research cost comparisons between public and private operators within the same metropolitan areas would have been appropriate, but unfortunately a comprehensive data set was not available for this purpose.

Data on the cost of privately provided express commuter service was available from several different sources. The SCAG study generated estimates of cost for the SCRTD and OCTD express routes under study. Actual cost data was available for the contract services in Houston, Ventura County (CA), and Los Angeles County, as well as from one of the Boston area unsubsidized carriers. A final cost estimate was calculated from data provided by one of the Houston contractors. Table 4-6 presents the private provider unit service costs. A distinction is made between contract cost and private

Peak Only Express Service					
Agency	\$/TVM	<u>\$/RVM</u>	\$/TVH	<u>\$/RVH</u>	
SCRTD	\$3.01	\$5.82	\$84.91	\$ N/A	
OCTD	2.33	4.22	70.33	N/A	
GGBHTD	3.24	3.90	73.31	86.25	
TRT	N/A	2.46	N/A	48.95	
ConnDOT	N/A	2.31	N/A	43.41	
MBTA	N/A	2.13-2.38	N/A	N/A	

Unit Cost Estimates for Case Study Transit Agency

#### Table 4-6

Unit Costs for Private Provider

#### Peak Only Express Service

Source	Operator or <u>Contract Cost</u>	<u>\$/TVM</u>	<u>\$/RVM</u>	<u>\$/TVH</u>	<u>\$/RVH</u>
SCAG estimate of SCRTD routes	operator	\$1.46	\$2.82	\$41.19	N/A
SCAG estimate of OCTD routes	operator	1.48	2.62	43.67	N/A
Ventura County	contract cost	N/A	1.67	N/A	\$50.60
Los Angeles Co.	contract cost	N/A	2.43	N/A	81.45
Houston MTA	contract cost	N/A	2.45	N/A	77.35
Houston private operator (estimated)	operator	N/A	1.85	N/A	63.52
Boston area private operator	operator	1.44	1.59	35.26	N/A

operator cost. Contract cost is the price the sponsor pays for the service. (It does not include costs the sponsor incurs in administering the contract.) Operator cost is the actual cost of providing the service based on accounting records or financial reports

submitted to regulatory agencies. It may further be noted that all of the services are subsidized except that of the Boston provider.

As with transit agency provided service, these figures show a wide range of unit costs. The Boston area unsubsidized private operator shows the lowest cost, as might be expected. The SCAG estimates are comparable to Boston for cost per TVM; the difference in cost per RVM is due to the difference in deadhead mileage: 52–56 percent for the SCAG routes in contrast to 9 percent for the Boston routes. Contract costs are higher, ranging from \$50.60/RVH in Ventura County to \$81.45/RVH in Los Angeles.

Interviews with the private providers revealed several reasons for the difference in service costs. First, the amount of deadhead mileage is important. The Los Angeles County contract service, for example, is one route which provides express service from north Los Angeles County to downtown, a distance of about 35 miles. The contract provider is located about 30 miles from the route's origin, and each bus makes only one round trip in revenue service per day. There is consequently a great deal of deadhead mileage involved in the service. The Ventura County service, in contrast, is operated by a provider located in the local area.

Second, the age and type of vehicle can affect service costs. The Houston MTA contractors are required to use late model over-the-road coaches with special air conditioning systems. These vehicles are valued at \$90,000 to \$150,000. The Los Angeles County service utilizes used suburban buses (approximate value \$20,000-\$40,000), while the Ventura County service uses old school buses valued at \$5,000 to \$10,000. (A more detailed discussion of private provider vehicle costs is presented in Section IV below.)

A third factor which affects private operator service costs is labor cost. The total driver wage (wages plus benefits) for the Boston operator is \$8.76 per hour. Drivers are paid only for hours worked in Ventura; and there are no pay guarantees. In contrast, the Houston provider pays a \$44 half-day minimum to its full-time drivers, and the total driver wage is about \$12.50 per hour.

A final factor affecting service costs is the extent to which commuter services are integrated with other services provided by the operator. Since peak commuter service operates so few hours per day, it is inherently an expensive service on a unit cost basis. Vehicles and drivers must be utilized to provide other services during the off-peak in order to keep costs down, particularly when driver pay guarantees exist. All of the contract service providers interviewed were charter operators, and their practice was to integrate commuter and charter services to the extent possible. Some private

operators stated that they were unable to provide contract service at competitive prices unless service integration opportunities were available.

#### F. Comparison of Public and Private Fixed Route Express Service Costs

Because of the number of factors which affect the cost of providing express service, comparisons between public and private providers can be made only on a case by case basis. The SCAG and Herzenberg studies had the best data available, and, as discussed earlier, came to quite different conclusions regarding the cost savings potential of private providers. In summary, two points on cost comparisons can be made. First, the private provider service cost depends to a large extent on service characteristics (type of vehicle, number of bus runs, etc.) and opportunities for service integration. Second, the method used to estimate transit agency costs is important. When considering the potential cost savings of turning over or contracting out <u>existing</u> transit service, the cost allocation model approach is not appropriate, because it is unlikely that the transit agency would be able to eliminate the vehicles, drivers, and overhead associated with the service. On the other hand, when evaluating <u>additional</u> service, the cost allocation model approach would be appropriate, because these additional inputs would either have to be acquired (e.g., hire drivers and purchase vehicles) or taken away from some other existing service.

#### II. SUBSCRIPTION SERVICE

The subscription service provided by SCRTD and Golden Gate's Club Bus program is organized very much like buspool service, but from a cost standpoint subscription service has more in common with regular fixed route service. Like buspools, demand is preorganized. Subscription passengers purchase a seat on a monthly basis, and a target number of seats must be sold in order for the service to operate. Each bus makes one round trip per day, and passengers purchase seats on a specific bus. Unlike buspools, however, the two subscription services are operated by professional drivers, the SCRTD service by regular SCRTD drivers, and the Golden Gate service by drivers employed by the private contractors. In both cases subscription service is a "luxury" service for long distance commuters. All riders are guaranteed a seat, and the vehicles are over-the-road charter-type coaches with reclining seats, air conditioning, and other amenities. Data on the subscription service; one is calculated from their in-house two-variable planning model, the other is from the three variable model used in the SCAG study.

		Table 4-	7		
	Unit Cost of Subscription Service				
	#RTES	\$/TVM	\$/RVM	\$/TVH	\$/RVH
SCRTD (2 variable model)	8	2.41	4.52	65.45	N/A
SCRTD (3 variable model)	8	3.21	6.00	87.00	N/A
GGBHTD Contract cost	25	N/A	2.44	N/A	78.26

Golden Gate service, which utilizes private contractors, is notably less costly on a revenue vehicle mile basis. An estimate of Golden Gate's cost savings compared to providing the service itself can be made from available data. In this case, the cost allocation model approach is appropriate because if Golden Gate were to provide the service, additional drivers and vehicles would have to be acquired with concomitant increases in overhead. The Golden Gate Commuter service cost allocation model is,

OC = .977(TVM) + 51.2293(TVH).

Revenue hours and miles for the service are provided by Golden Gate records. Golden Gate headquarters are located in southern Marin County, and these routes serve commuters who live in northern Marin and Sonoma Counties and work in San Francisco. Trip length ranges from 15–55 miles one way. We thus assume that deadhead mileage would be at least 50 percent of revenue mileage. (Note that this is less than the actual deadhead mileage for SCRTD and OCTD express service.) Assuming further that deadhead travel speed is 35 mph, the values for TVM and TVH are obtained, and service cost is estimated by the cost allocation model.

Comparative costs are presented in Table 4-8. The current contract cost of the subscription service is 36 percent less than the estimated Golden Gate cost. The current <u>total</u> contract cost (which includes all the administrative expenses associated with the service) is 27% less than the estimated cost. This difference of \$582,853 is about 2.7% of the GGBHTD FY 81-82 operating budget. These estimates indicate that utilizing contractors to provide this service has been a significant cost saving measure for Golden Gate.

## Comparative Costs of GGBHTD

Subscri	iption	Service
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	lotal	\$/RVM	\$/RVH	\$/PASS-TRIF
GGBHTD Contract Cost	\$1,365,588	\$2.44	\$78.26	\$2.81
GGBHTD Total Cost <sup>a</sup>	1,539,705	2.75	88.25	3.79
GGBHTD Estimated Cost	2,122,558	3.80	121.65	5.22

<sup>a</sup> Includes club administrative cost, Golden Gate administrative cost, and the club bus program's share of Golden Gate overhead

#### III. BUSPOOLS

In contrast to subscription bus service, buspools have developed as a low cost, "no frills" commuter service. Buspools in both Southern California and the Tidewater area utilize used equipment, and every effort is made to maintain low costs. As discussed earlier (Chapter Two), buspools utilize worker-drivers; thus labor costs are minimized.

The buspool industry has developed quite differently in the two case study areas, and these differences are reflected in the buspool service costs in the two areas. Most of the buspool services in Southern California are provided by two bus companies. One company provides both buspool and charter service with a fleet of 59 vehicles. Gross 1980 revenue was approximately \$1.2 million, of which 76 percent was generated by the buspool business. The other company provides buspool, charter and route contract service. Gross revenue in 1981 was about \$2.9 million, of which 48 percent was due to the buspool business. Both companies are common carriers, and the buspool operations are subject to California PUC regulation. Buspools in the Tidewater area are provided primarily by individual entrepreneurs. In some cases an individual may operate a large fleet of buspools, but most entrepreneurs operate only a few. These individuals are also employees at the worksite (that is, the buspool is not the primary source of income) and their base of operation is usually their own home.

#### A. Buspool Costs in Southern California

Since the California buspool operators are regulated, information on service costs was available through the California PUC. A recent rate change request from one of the operators provides illustrative data. Table 4-9 provides buspool cost for calendar

year 1981. The allocation of expenses to the buspool operation was based on mileage, and the operator points out that this method is not exact.

Table 4-9	
Buspool Costs for a Southern Calif	ornia Operator
total operating expenses <sup>a</sup>	\$986,600
total vehicle miles	789,287
total passengers (two-way)	290,430
passenger revenue	994,501

cost/TVM \$1.25 cost/pass 3.40

<sup>a</sup>Based on annual expenses for calendar 1981.

Unit cost for the buspool service is quite low. Compared to privately provided route service (presented in Table 4–6), the buspool cost per revenue mile is 13 percent lower. The lower cost of buspool service is due primarily to two factors, the first being driver compensation. Driver costs amounted to only 14 percent of the 1981 buspool service costs. As stated earlier, buspools use drivers whose primary employment is at the destination site. There are no guarantees and practically no fringe benefits. This operator, for example, pays drivers 10 percent of the gross fares plus \$3.00 per day. Since fare revenue was \$1.26/mile in 1981, this amounts to about \$13.00 per day or \$273.00 per month for a 40 mile one-way route. If the driver works 2 1/2 or 3 hours per day, his wage is approximately \$4.50 or \$5.00 per hour. This is much less than the regular route or charter wage rate.

A second factor contributing to low cost is the absence of deadhead mileage. Although vehicles are owned by the bus company, they are housed near the worker-driver and parked at the worksite during the day. Drivers are responsible for bringing the buses into the garage for regular maintenance and repairs, and this generates the only extra mileage involved in the service. Again, the use of worker-drivers makes this arrangement possible.

The use of older vehicles is another reason frequently given for low buspool costs. However, the higher cost of maintaining older vehicles somewhat offsets their lower depreciation expenses. The maintenance and depreciation costs for two California

private bus operators are illustrative of this point. One operator uses old, refurbished buses for which the depreciation charge is \$.06 per RVM and maintenance is \$.37 per RVM for a total of \$.43 per RVM. The other operator uses newer buses, for which the depreciation is \$.17 and maintenance is \$.23 per RVM, totalling \$.40 per RVM. At the extremes, however, vehicle age clearly makes a difference. A new charter-type vehicle valued at \$150,000 is a very costly item, while used school buses purchased for \$5,000 and junked when the engine breaks down are much cheaper.

#### B. Buspools in the Tidewater Area

Whereas the buspools in Los Angeles attract a primarily white collar ridership, the buspools in Norfolk and Newport News are low cost services aimed explicitly at blue collar workers. Virtually all buspools serve three huge naval bases and shipbuilding facilities which employ thousands of such workers. Most buspool vehicles are used school buses, and no amenities are offered in terms of seating quality or leg space. Fares are quite low, ranging from \$6 to \$12 per week, or approximately half the Los Angeles level. Riders are obviously attracted by the low fares and the attempt to provide pick-ups as near their residence as possible. Travel times are longer than by automobile because of the numerous pick-up points and because there is little peak period congestion on the highway system.

Because they are operating a no-frills, low cost service, the Norfolk-Newport News buspool operators have found that viable routes can be as short as 10 miles in length, although most routes range between 15 and 30 miles. Breakeven load factors are reported to be as low as 50 percent. Precise operating costs of the buspools are difficult to obtain, but a reasonable lower level estimate is 60-70¢ per mile, exclusive of operator profit. These exceptionally low costs have two sources: the minimal acquisition costs of the vehicles (\$2000 was quoted as a representative price for a used school bus), and the labor contribution of individual owners who maintain the vehicles and keep financial records but are compensated only out of profits. Including profit, the operating cost is approximately \$.90-1.00 per mile.

#### C. Estimating Buspool Costs

As with any other peak service, an average unit cost is not appropriate for estimating the cost of a specific buspool service. Some expenses depend on the length of the route, while others are relatively fixed. For example, each buspool requires administrative expenses, some share of the capital facilities, advertising budget, and

insurance expenses, no matter how short or long the route. However, the driver's wage, fuel, and vehicle maintenance requirements depend on the nature of the route. A bus firm's average unit cost obscures these differences between routes. Thus a route cost estimation method must include these two aspects of cost. The method should reflect the following relationships: 1) "variable" cost items are proportional to mileage, and 2) as mileage increases, the proportion of "variable" costs to "fixed" costs increases. This means that as mileage increases, unit cost will decline for a given route.

The simplest model which can operate in this manner is a two variable model based on vehicles and mileage. The California buspool operator data provided in PUC documents can be used for this purpose. Table 4-10 gives a cost breakdown for the entire company. Cost items are identified as mileage related or vehicle related. Mileage related costs include driver, maintenance, fuel and oil, and other related

#### Table 4-10

Buspool Operator Cost Breakdown

Mileage Related:

Maintenance	384,964
Driver wages	208,765
Fuel & Oil	202,643
Other transportation	60,689
SUBTOTAL	857,061

Vehicle Related:

Advertising	5,875
Insurance	145,869
Administration	163,369
Depreciation (vehicles)	54,970
Depreciation (cap. facilities)	7,358
Taxes & Licenses	62,837
Operating Rents	15,883
SUBTOTAL	456,161

Total Vehicle Miles = 1,049,653 Buspool Miles = 789,287, or 75% of total # Buspool Vehicles = 35 expenses. Vehicle related costs include all of the relatively "fixed" expenses as discussed above. Allocating costs to the buspool service on the basis of mileage, we estimate fixed cost to be \$342,121, or \$9775 per vehicle per year. Buspool mileage cost is \$642,796, or \$.814 per total vehicle mile, yielding the following cost model:

#### T.C. = \$9775 + .814(TVM).

#### IV. THE EFFECT OF VEHICLE COSTS ON PRIVATE COMMUTER BUS COSTS

One of the most surprising findings of this research was that, contrary to expectations, the cost of privately provided commuter bus service was quite high, in the range of \$60 to \$80 per revenue vehicle hour for peak period only express operations (regular route or subscription service). Although less than comparable public transit agency service, these costs are sufficiently great that no dramatic cost savings result from substituting private for public operations. Given that private operators pay driver wages which are \$2.00 to \$5.00 per hour less than transit agencies, have less generous employee benefits (the MBTA's fringe benefit rate is 49 percent of driver wages), use labor more flexibly, and have considerably lower administrative expenses, it is not readily apparent why their costs for peak only service should be so great. An important part of the answer is the vehicle costs which private operators must incur if they are to provide new commuter services.

Private bus operators which provide commuter service under contract to public agencies typically must acquire additional vehicles to do so. While some of their existing fleet may be currently idle throughout the working week, bus companies simply cannot afford to own non-productive equipment which could be used for a new service. Thus, in both Houston and San Francisco, when bus companies have been awarded major new contracts for transit agency commuter service, they have been forced to purchase additional buses. Although these additional buses have not been dedicated solely to the commuter service, other uses are typically limited to weekends and nights. Midday utilization is difficult to achieve. Consequently, most of the cost of the additional buses must be charged to the commuter service, i.e., reflected in contract rates.

In her analysis of private bus service in Boston, Herzenberg concluded that vehicle related costs were fully 60 percent of the non-administrative costs of service provision. In her analysis, vehicle costs consisted of both vehicle acquisition (leasing or capital recovery) and insurance costs. The estimated vehicle acquisition costs were in excess of \$1.00 per revenue vehicle mile, or about 45 percent of total operating costs (including an allowance for administrative cost).

Herzenberg's study suffers from the problem that it is hypothetical; private operators never took over the MBTA routes she was costing out. In Houston, on the other hand, the MTA contract operations provide a source of empirical data from which to estimate vehicle costs. The average contract cost of a bus in Houston is \$317 per day, or \$3.30 per revenue vehicle mile. The average bus travels 96 miles per day in revenue service over a 19 mile average route; deadhead contributes another 20 percent of daily mileage. The question is, what portion of this \$317 per day represents vehicle costs?

The buses used in the Houston contract service are either new or recent vintage over-the-road coaches. Many were acquired specifically for the contract service. The buses have been acquired during a period of high interest rates and the contracts are short term, so the buses must be depreciated rapidly. Table 4-11 shows the capital recovery charges for new and recent buses, using interest rates of 15 and 20 percent and service lives of three and five years for depreciation purposes. (The actual service life is obviously much longer.) The buses are assumed to operate 310 days a year--one day per weekend of charter service plus the weekday contract service.

Purchase Price	Service Life	Value at end of Serv. Life	Interest Rate	Service Day Capital Recovery Charge
\$150,000	5	\$80,000	15%	\$106
	3	90,000	15%	128
	5	80,000	20%	127
	3	90,000	20%	150
80,000	5	40,000	15%	58
	3	50,000	15%	67
	5	40,000	20%	69
	3	50,000	20%	78

## Table 4-11

Capital Recovery Charges for New and Used Buses

Inasmuch as the fleet of each of the contractors is composed of a mix of new and recent vehicles (as well as a few older models in some cases) the true capital cost is somewhere between the values for the new and recent buses. Using the average of the

two values, representative daily driver wages, administrative, insurance, and other fixed (or independent of vehicle mileage) costs, and adding in mileage related costs (maintenance, fuel and oil) and an allowance for profit (10 to 15 percent, as is the actual case), we obtained daily costs quite close to \$317 per day. One example is shown in Table 4-12.

#### Table 4-12

Example of Daily Private Operator Cost

Capital recovery	\$82 - 98
Driver wages and benefits	75 - 84
Administration, insurance, and other fixed costs	40 - 50
Mileage related costs	52 - 58
Subtotal	\$249 – 290
Allowance for profit (10 - 15%)	25 - 43
Total service cost	\$274 - 333

Capital recovery as % of total - 30%

Given the similarity of these estimated total costs to the actual contract costs, the capital recovery charges are probably reasonably good estimates. Thus in Houston vehicle costs contribute about 30 percent of total operating costs, or approximately \$1 per revenue vehicle mile--only slightly lower than Herzenberg's estimate.

These cost allocation exercises demonstrate that vehicle costs are a major reason for the expensive contract rates which private operators charge public agencies. While the Houston capital costs are probably in the upper portion of the range, they do not appear to be uniquely high. If the Houston MTA were to provide the vehicles for its contract operations, it would reduce its annual contract costs by over \$3 million. The cost per revenue vehicle hour would decline to \$55 (this assumes that insurance charges would be the same and would still be charged against the contract operations) which is a much more reasonable figure for privately provided service. The savings are not mere bookkeeping, but real monetary savings to the public agency as only 20 percent of the cost of the vehicles must be paid from local subsidies, no interest charges are

accumulated, and the steep opportunity costs associated with private purchase do not have to be paid. Even counting the additional capital cost to the local transit agency, it would reduce its total cost for the contract service (transit agency capital and insurance plus private operating expense) by 25 percent compared to requiring the operator to purchase the vehicles and then include the charges in its contract price. (This assumes brand new \$150,000 buses with a 10-year service life.) It is thus apparent that requiring the contractor to furnish the buses results in a substantial economic penalty for privately operated commuter bus service.

#### V. VANPOOLS

Vanpools have become one of the most popular forms of collective commuter transportation in recent years. Vanpool programs sponsored either by employers or public agencies operate in all of the case study areas. Tidewater, Pentran, Golden Gate, and the Houston MTA all provide matching services and operate vanpool programs. The State Departments of Transportation in Connecticut and Massachusetts, and employer organizations in Hartford, Santa Clara County, Houston, and Los Angeles also sponsor vanpools. In addition, numerous large companies throughout the country have developed vanpool programs. As a result of their prevalence (and in contrast to the other forms of commuter transportation discussed in this chapter), there is no lack of data on the cost of vanpools. This section presents costs based on data from several case study area sources.

The components of vanpool costs are vehicle costs or depreciation, program administrative expenses, insurance, maintenance, and fuel. Maintenance and fuel expenses depend upon the type and age of the vehicle. Insurance depends upon the size of the program and, in the case of employers, the size of the company. Administrative expenses also depend on the size of the program, while vehicle costs depend not only on the age and type of vehicle, but also on the depreciation and tax rates applicable. Each of these factors is discussed below.

#### A. Vehicle Costs

Vehicle costs vary greatly depending upon ownership of the vehicle. One of the principal differences between the types of ownership is the presence or absence of tax shelters. In general, most for-profit owners have the advantage of using the vanpool program as a tax shelter. This advantage is enhanced for employers (and other for profit operators to a lesser extent) by two sources of tax incentives, the Energy Tax Act of 1978 and the Economic Recovery Act of 1981.

The Energy Tax Act of 1978 states that beginning in 1979 employers who provide a van or bus to transport their employers to and from work will be entitled to the full 10 percent investment credit. The van or bus must have been purchased after the date of enactment and used before January 1986. The van must have a three year useful life and seat at least eight adults, not including the driver. In addition, at least 80 percent of its mileage must be for vanpooling. Buses or vans must be at least half filled with commuting employees, not including the driver. An additional advantage is that the law excludes the vanpooling arrangement from taxation provided that the service is provided in addition to regular employee compensation.

The Energy Tax Act of 1978 provides advantages only to employers. However, the Economic Recovery Act of 1981 provides tax advantages for vanpool programs which operate as a business. This act allows depreciation of a certain class of assets, in which vans used for vanpooling are included, over a three year period of time.

For-profit employers who sponsor vanpools are entitled to both sources of tax benefits. Assuming the cost of a new vehicle is \$14,000, for example, the accelerated depreciation rate and the investment tax credit yield a total (three year) tax benefit of \$8,010 for employers in the 48 percent income tax bracket. If the van is sold at the end of this period for 35 percent of its original value, and if the salvage van price is also subject to tax at 48 percent, the net after tax recovery amount of that van is \$3,442. The pre-tax recovery amount is \$6,619, or \$184 per month (McIntyre and Maxwell, 1980). Because of these benefits, vehicle costs in large for-profit employer programs are quite low.

Nonprofit organizations cannot use depreciation to offset tax liabilities because they have no tax liabilities. This is true of most public entities. Among public sponsors in the case study areas, the typical nonprofit vehicle cost per month was \$287. Vanpool Services, Inc. (VPSI), a third party provider which provides a variety of vanpool related services, charges a fixed rate plus a mileage charge for vanpools. The fixed rate is \$465 per month for a 12 passenger van or \$480 per month for a 15 passenger van. The fixed monthly charge includes \$35 for insurance and \$25 for administration. Thus monthly vehicle cost (including back-up van cost and fare collection) is \$405-420.

Variation in vehicle cost due to the type of vehicle is minor. Vanpool programs use U.S.-manufactured 12 or 15 passenger vans which range in price from \$12,000 to \$15,000 (1981-82 prices). They are depreciated either over 3 or 4 years. (Some of the older programs are refurbishing and rehailitating their vans rather than replacing them after 3 or 4 years in order to hold down vanpool costs).

#### B. Administrative Cost

While there is some cost involved in administering any vanpool program, this cost is not always included as a fixed program cost. Employer-based programs generally absorb these costs, while public agencies generally include them. Of the 5 Houston employer-sponsored programs interviewed, for example, none of them passed administrative costs on to users, and only two programs had made estimates of these costs. The estimates were respectively \$6.70 and \$5.67 per rider per month. As discussed earlier, VPSI charges \$25 per vehicle per month (plus some fraction of the vehicle cost figure).

#### C. Insurance

Vanpool insurance cost also varies by vehicle ownership. Among for-profit employers, the size of the company (and the size of its vehicle fleet) is important. Most companies have umbrella policies which cover the vans. In many cases, the amount which the vanpool program contributes to the insurance cost is so small that it is disregarded. This is especially true for large companies like Fluor Corp. and Gulf Oil. For large companies, then, insurance costs range from 0 to \$25 per month per vehicle. VPSI charges a flat \$35/month/vehicle for its third party vans. Insurance expense for small employers and public agencies is notably higher. NAVPO offers insurance for about \$900/year, or \$75 per month per vehicle, while coverage obtained from regular insurance carriers would be more.

#### D. Maintenance and Fuel

Vanpool program managers were unanimous in their conviction that vehicle dependability is one of the most important factors in a successful vanpool program. Thus all of the programs had a stringent maintenance schedule. Maintenance cost figures were around \$.07/mile. VPSI reports a cost of \$.05 per mile, but this is probably because it is a subsidiary of Chrysler and obtains parts at lower rates.

Fuel cost depends on the vehicle mileage rate and the cost of gasoline. The mid-1970's model vans operated at about 7 mpg, while new models obtain between 10 and 12 mpg. For the purpose of this analysis, we assume 10 mpg. Gasoline cost is more problematic. During the period of this research gas prices ranged from \$1.00 to \$1.50 per gallon. In order to generate vanpool costs for FY 81-82, a cost of \$1.25 per gallon is assumed. Thus fuel cost is \$.125 per mile.

#### E. Total Vanpool Costs

Table 4-13 provides vanpool cost breakdown by ownership type. The fixed cost element ranges from \$184 to \$465 per month per vehicle, and the variable cost element ranges from \$.175 per mile for VPSI to \$.195 per mile for all others. Table 4-14 gives estimates of monthly vanpool costs for the three ownership types. These ownership types may be considered low, medium and high cost vanpool options. Cost estimates are given for one-way commute lengths of 15, 25 and 40 miles. Again, a 12 passenger van is assumed. Thus assuming a load factor of 10 passengers per van, monthly commute costs would range from \$31 to \$75 per passenger, or from \$.75 to \$1.81 per passenger trip. Large employer vanpools are substantially less costly than the other

#### Table 4-13

Owner	vehicle <sup>a</sup> cost/ Month	admin cost/ Month	insurance cost/ Month	e Total fixed Cost	Maint Cost	Fuel Cost	Total Variable Cost
Large for profit Employer	\$184	0	0-25	\$184-209	\$.07/mi	\$.125/mi	\$.195/mi
Public Agency	285	25	75	385	.07/mi	.125/mi	.195/mi
Third Party (VPSI)	405	25	35	465	.05/mi	.125/mi	.175/mi

Vanpool Costs per Vehicle by Ownership Type

<sup>a</sup>Assumes 12 passenger van depreciated over 3 years.

#### Table 4-14

### Monthly Vanpool

#### Cost Estimates

	Commute Length (one way)				
Туре	15 mi	25 mi	40 mi		
low cost (large employer)	\$306.85	\$388.75	\$511 <b>.6</b> 0		
medium cost (public agency)	507.85	589.75	712.60		
high cost (third party)	575.25	648.75	759.00		

Assumptions: 12 passenger van depreciated over 3 years; FY 1981-82 costs; 21 working days per month.

vanpool options, with costs from 34 to 47 percent less than third party vanpools, depending on commute length. Given these costs, it is easy to understand why large employer vanpools have become more numerous and widespread than any other type of vanpool program.

#### VI. COMPARATIVE ANALYSIS

The purpose of this section is to make some assessment of how the various commuter transportation options compare with one another in terms of service cost and subsidy requirements. In order to do so, however, some common means of comparison must be established. This is no small task, as there is a great deal of difference between the various service options. In addition, the types of commute trips served vary in terms of trip length, travel speed, and comfort. Moreover, such a comparison requires comparable data. Sufficient data across all the options was not available for any single case study area. As a "second best" choice, data from California (San Francisco and Los Angeles regions) was utilized for all options except privately provided fixed route service.

The comparative analysis includes the four types of commuter service: route, subscription, buspool, and vanpool. Route and subscription are further divided into publicly provided and privately provided services. The comparison is based on three "typical" commute trips of 15, 25, and 40 miles one-way. These trip lengths are representative of the work trips served by the commuter transportation options. Fifteen miles is a lower bound; some route express and a limited number of vanpools provide service for 15 mile trips within the case study areas. A trip in the range of 25 to 30 miles was typical for most of the colden Gate subscription service operates several 50 plus mile routes, and vanpools serve many long distance commutes.

#### A. Data and Assumptions

Costs for each of the commute trips were generated across each of the service options. Cost estimates are based on actual data as described below.

#### 1. Route Service

While all of the other service options are oriented toward a single worksite destination, route service typically serves several destinations. In order to make route service as comparable as possible, we use a single route which operates in an express mode over most of its length. Since not all passengers would ride from the beginning to

the end of the line, the route-miles are assumed to be 18, 28, and 44 miles respectively. Other assumptions are:

- 1) Each bus is used for peak service only.
- 2) Deadhead is 20 percent of revenue mileage.
- Travel speed in revenue service is 22 mph, 25 mph, and 29 mph respectively; deadhead travel speed is 35 mph.
- 4) Bus capacity is 45 passengers.
- 5) Load factor is 85 percent in peak direction and 10 percent in backhaul direction.
- 6) The service operates 21 days per month.

There are two variants of the 15 mile trip for route. In the first, each bus makes two peak direction trips per peak period. In the second, each bus makes only one peak direction trip per peak (e.g., one round trip per day). While it is conceivable that a bus could make two peak trips on an 18 mile route in some areas, it is not possible on longer routes. Thus, for the 25 and 40 mile trips, each bus makes one round trip per day. Given the first assumption, this implies that the vehicles are not in service during the remainder of the day. These service assumptions approximate actual conditions in Los Angeles and San Francisco. More importantly, however, they serve to establish similar operating conditions for all of the service options.

Service costs are estimated with cost allocation models. For public route, the Golden Gate and OCTD cost allocation models are used. As discussed earlier, the Golden Gate model is a peak-only two variable model. The purpose of using both models is to demonstrate how different cost models give different cost estimates. Thus these cost figures are only approximations.

For private route, a simple two variable model is used. It is based on data provided by one Boston area private operator. As with the buspool cost model, cost items were allocated either to vehicles or miles and each category was summed and then divided by the appropriate units. Private cost data is from calendar 1981; public cost data is from FY 1981-82. All costs are estimated on a per vehicle basis, and only one vehicle operates per route.

Fare revenues for route service are based on 1981 comparable SCRTD fares, which range from \$55 to \$75 per month depending on trip length. Note that the same fare structure is assumed for both public and privately provided route service.

#### 2. Subscription Service

Subscription service is modeled after the Golden Gate Club Bus service. Each bus makes a single round trip per day. Revenue mileage is 30, 50, and 80 miles per day. Deadhead and travel speed assumptions are the same as for route. Load factor is 85 percent, and since vehicles make only one round trip per day, there is no backhaul ridership. As with route service, bus capacity is assumed to be 45 passengers.

Costs for privately provided subscription service are based on Golden Gate contract costs. An average cost/RVM was computed from Golden Gate data for the three different trip lengths. Using contract cost implies that profit is included in the cost figures, whereas in all other options profit is not considered. Thus private subscription cost is slightly overestimated by this method.

Costs for publicly provided subscription service are calculated with the Golden Gate cost allocation model. (It may be noted that the cost figures in this section are different from those presented in Table 4–8 because service characteristics are different.)

Fare revenues are based on the FY 81-82 Golden Gate Club bus fares. Again, these are averages for the three different trip lengths, and they range from \$53.75 to \$87.50 per month. No attempt has been made to relate service price and demand in any realistic way. Thus there is no intention here to imply that an actual service would have the ridership we assumed at these given fares. However, the Golden Gate Club buses all had a load factor of at least 85 percent with these fares.

#### 3. Buspool Service

The buspool service is assumed to operate in the same way as the subscription service. Buspools use 45 passenger buses and operate 21 days per month with an 85 percent load factor. Since buspools use worker-drivers who store the vehicle close to home, deadhead mileage is assumed to be only 5 percent of revenue mileage. All buspools are private sector operations, and no subsidies are involved. Costs are estimated via the simple two variable cost model presented in Section III. In this case, total cost is estimated, since a buspool operator must be able to recover all costs in order to stay in business. The resulting cost estimates seem to be reasonable, because at the current (calendar 1981) fares the service would make a small profit, and indeed this company was making a profit in 1981.

#### 4. Vanpool Service

Again, vanpool service characteristics are similar to the various bus options. It is assumed that a 12 passenger van is used, and that the van is depreciated over three years. Load factor is 9 fare-paying passengers per van. A deadhead factor of 20 percent of revenue mileage is assumed in order to take into account the pick-up of each passenger. Costs are estimated for two types of vanpools: The employersponsored "low cost" vanpool and the third party "high cost" option. Like the buspools, total service cost is estimated, and cost data is taken from Section V. It is assumed that no subsidies are involved, with the exception of administrative costs in the employer-sponsored vanpool. Thus for both buspools and vanpools, the cost per passenger is also the breakeven fare.

#### B. Results and Analysis

Tables 4–15 through 4–18 present comparative costs of the four commuter service options. Table 4–15 gives cost per revenue vehicle mile. It may be noted that the Golden Gate cost model yields similar estimates for each of the trip lengths, while the OCTD and private cost models give more varied estimates, particularly for the two 15-mile service configurations. This happens because the Golden Gate model uses hours and miles, which tend to vary proportionately given these service assumptions. Both the OCTD and private cost models have a vehicle variable, and the relative proportion of vehicle and mileage costs changes drastically depending upon the number of trips the vehicle makes per day. Simply stated, it is very expensive for both the private and the public bus operator to provide a service which operates only a few hours per day. As expected, however, private bus costs are lower than public costs in every case.

In contrast to the route results, public and private subscription costs are quite similar, probably because private costs are slightly overestimated as explained earlier. Public costs may be underestimated as well; the OCTD cost model would have generated significantly higher estimates. Buspool unit costs are much lower than the other bus options. For the 15 mile trip, the buspool cost is comparable to private route (configuration "a"). For the 25 and 40 mile trips, however, buspool cost is slightly more than half the cost of private fixed route. Vanpool unit costs are even lower, but because of the difference in vehicle size, cost/RVM is not an appropriate comparative measure.

The most appropriate measure of comparison across the commuter service options is cost per passenger-mile. If trip length is held constant, cost per passenger is also

### Estimated Cost per Revenue Vehicle Mile for Commuter Transportation Options

	One	-way Trip	Length (m	ile)
Option	15 <sup>a</sup>	15 <sup>b</sup>	25	40
Route				
Public-GG	\$3.79	\$3.75	\$3.52	\$3.25
Public-OCTD	3.14	5.03	3.92	3.14
Private	2.17	4.18	3.11	2.40
Subscription				
Public-GG	3.7	9	3.51	3.23
Private-GG	3.77		3.56	2.59
Buspool				
Private	2.1	5	1.63	1.34
Vanpool				
Private-high	.9	1	.62	.45
Private-low	.4	9	.37	.31

15a. Assumes each vehicle makes 2 peak direction trips per peak period.

15b. Assumes each vehicle makes 1 round trip per day.

### Estimated Cost per Passenger-Mile for Commuter Transportation Options

	One-way Trip Length (miles)			
Option	15 <sup>a</sup>	15 <sup>b</sup>	25	40
Route				
Public GG model	\$.169	\$.118	\$.104	\$.094
Public-OCTD model	.140	.175	.128	.091
Private	.097	.132	.092	.070
Subscription				
Public-GG model	.099		.092	.085
Private-GG contract	.099		.094	.068
Buspool				
Private	.0	57	.043	.035
Vanpool				
Private-high cost	.10	01	.069	.050
Private-low cost	.0	54	.041	.034

### Estimated Cost per Passenger Trip for Commuter Transportation Options

	On	One-way Trip Length (miles)			
Option	15 <sup>a</sup>	15 <sup>b</sup>	25	40	
Route					
Public-GG model	\$2.53	\$1.78	\$2.60	\$3.77	
Public-OCTD model	2.10	2.63	3.19	3.64	
Private	1.45	1.98	2.29	2.78	
Subscription					
Public-GG model	1.50		2.31	3.40	
Private-GG model	1.49		2.34	2.73	
Buspool					
Private	•	85	1.07	1.41	
Vanpool					
Private-high cost	1.	52	1.72	2.01	
Private-low cost	٠	81	1.03	1.35	

### Table 4-18 Estimated Annual Cost per Vehicle for Commuter Transportation Options

	One-v	ength (mile	ngth (miles)	
Option	15 <sup>a</sup>	15 <sup>b</sup>	25	40
Route				
Public-GG	\$103,224	\$33,996	\$49,740	\$72,108
Public-OCTD	85,536	45,612	55,296	69,672
Private	59,184	37 <b>,9</b> 68	43,860	53,292
Subscription				
Public-GG	28,680		44,280	65,148
Private-GG	28,500		44,856	52,212
Buspool				
Private	16	,248	20,556	27,012
Vanpool				
Private-high	6	<b>,90</b> 3	7,785	9,108
Private-low	3	682	4,665	6,139

appropriate. These measures show how effectively a given service is utilized, and how much revenue per passenger would be necessary to support the service. In this way, the cost of supplying the service is compared against the use of the service. Table 4-16 gives cost per passenger-mile and Table 4-17 gives cost per passenger trip. Given the set of assumptions used in developing these estimates, buspools and low cost (employer-based) vanpools are the most cost-effective commuter options. Publicly provided regular route services are the least cost-effective. Private route, subscription bus and high cost vanpools are in the middle, with the vanpool more cost-effective for 25 and 40 mile trips. Although private route service cost-effective than public route.

Several observations can be drawn from the data in these tables. First, buspools and vanpools provide the least expensive form of collective transportation. Not only are these options significantly cheaper than the others, they are also cheaper than the perceived or out-of-pocket cost of single passenger auto commuting. Assuming 15 mpg for a mid-size auto and gasoline at \$1.25 per gallon, the cost of gasoline alone would be \$3.33 for a 40 mile trip. For a compact car operating at 25 mpg, gasoline would be \$2.00--still higher than buspool and low cost vanpool <u>full</u> cost. Research performed at Texas A&M indicates that in order to be competitive with the auto, collective transportation must cost less than the perceived cost of auto commuting (McIntyre and Maxwell, 1980). It is easy to understand why employer-based vanpools and buspools have been able to expand in recent years while route service has not in most areas.

Second, it appears that buspools and vanpools are indeed competitors in the same market. Both provide low cost service to long distance commuters. Vanpools may have an advantage in vehicle comfort, but buspools usually spend less time picking up and dropping off passengers. Thus the relative market share of these modes would depend on the specific conditions and characteristics of each market area. It bears noting that buspool operators in Los Angeles and Norfolk report diversion of passengers to vanpools, and 10 percent of new vanpool users in Newport News reported they previously commuted by buspool.

Third, the data indicate that subscription service is not a low cost commute option. Thus either fares must be high, or the service must be subsidized. However, subscription service has some advantages over regular route service: a reserved seat, a coach-type vehicle, and service directly to the destination. It remains to be seen, however, whether subscription services will appear in other metropolitan areas. In the one instance where they have appeared, namely Chicago, they have resembled buspools

in terms of vehicle quality and price, and thus are quite dissimilar from the Golden Gate service.

Finally, these cost figures make it clear that publicly provided route service is not an economically competitive commuter option. In spite of its higher cost, route service is inferior in many ways to the other options. The bus must be accessed at a bus stop; a seat may or may not be available; and transit vehicles are generally less comfortable. While the other commute options are designed to serve at most a few origins and usually only a single destination, route serves many origins and destinations. Thus for any single traveler, a substantial amount of delay time is incurred. In sum, regular route provides an inferior but costly service compared to the other options.

It should be noted that these conclusions come from estimating regular route as a peak only service with passengers traveling relatively long distances. If the peak service were integrated with other services, then the unit cost of the commuter service would decline. However, for the transit agencies in the case study areas, express commuter service is a peak only service and therefore these cost estimates are representative.

A final issue of the comparative analysis is that of subsidy requirements. Tables 4–19 and 4–20 give subsidy per passenger trip and annual subsidy per vehicle for the four service options. These estimates are based on the ridership and fare assumptions presented in the previous section. No subsidies are required for buspools and vanpools, as fares are assumed to be set to cover all costs. This is the common practice--if demand is insufficient at the fare required to cover costs, the service is not provided. Buspools and vanpools have so far not been publicly subsidized, although some employers subsidize a portion (usually 25 percent) of vanpool fares and absorb administrative expenses. In addition, employer tax benefits may be considered a form of subsidy for employer sponsored vanpools.

In contrast, regular route and subscription services are routinely subsidized. As pointed out earlier, unsubsidized regular route service survives only in the Boston region among the case study areas. Tables 4–18 and 4–19 indicate that subsidy requirements are much lower for privately provided regular route than for publicly provided regular route. However, private regular route does not come close to breaking even except for the 15 mile (configuration a) route. These figures tend to support the conclusion that a high level of demand is necessary in order to support the cost of private regular route service. Such demand occurs only in very rare circumstances.

The subsidy requirements of subscription service are roughly comparable to private regular route. While the cost of private regular route service is slightly lower than

# Estimated Subsidy per Passenger Trip

## for Commuter Transportation Options

	One	-way Trip	Dength (r	niles)
Option	15 <sup>a</sup> 15		25	40
Route				
Public-GG	\$1.22	\$.47	\$1.03	\$1.98
Public-OCTD	.79	1.32	1.62	1.85
Private	.14	.67	.72	.99
Subscription				
Public-GG	.2	2	.62	1.32
Private-GG	.21		.64	.64
Buspool				
Private	ø		Ø	Ø
Vanpool				
Private-high	ø		ø	ø
Private-low	ø		Ø	ø

### Table 4–20 Estimated Annual Subsidy per Vehicle for Commuter Options

	One-way Trip Length (miles)			
Option	15 <sup>a</sup>	15 <sup>b</sup>	25	40
Fixed Route				
Public-GG	\$49,764	\$8,916	\$19,644	\$37,908
Public-OCTD	32,076	20,532	25,200	35,472
Private	5,724	12,888	13,764	19,092
Subscription				
Public-GG	4,]	64	11,784	25,248
Private-GG	3,9	984	12,360	12,312

private subscription service (most likely because of differences in equipment costs and the use of contract cost for the subscription service), the subscription service generates more revenue. Subscription bus fares are slightly higher than regular route fares for the longer trips. Had we assumed the same fares for both services, the subsidy cost of subscription service would have been slightly higher. Also, had we assumed a higher load factor for regular route (which is certainly conceivable), regular route subsidy requirements would be correspondingly reduced. Thus we cannot generalize about the relative cost-effectiveness of regular route and subscription service. Rather, indications are that neither form can operate without subsidies in most U.S. metropolitan areas. Within each category, however, privately provided service is the more cost-effective choice.
# CHAPTER FIVE EVALUATION OF PRIVATE SECTOR STRATEGIES

# I. INSTITUTIONAL FEASIBILITY OF PRIVATE SECTOR STRATEGIES

The institutional feasibility of private sector strategies is a function of two overriding factors. First, those organizations with responsibility for commuter transportation must be motivated to adopt these strategies. Second, these organizations must control the means needed to implement the strategies--money, authority, and technical expertise.

### A. Public Sector Feasibility

Within the public sector the regional transit agency is typically the key to the institutional feasibility of private sector options. Occasionally, other government agencies have control over transit subsidies and can thereby shape the public transportation service delivery system, but the usual situation is for the transit agency to be the sole recipient of subsidies and the primary transit decision maker.

As described in Chapter Three, several factors influence whether transit agencies will be motivated to utilize private sector strategies: service and/or fiscal pressures, local subsidy and decision making arrangements, and management attitudes. Situations in which local subsidies are dedicated to transit, decision making arrangements give local officials no ability to make service-cost decisions, and service and fiscal pressures are non-existent or at most moderate provide no motivation for transit agency staff to pursue private sector strategies. Moreover, local officials who establish policy for the agency lack the influence and incentive to intervene into internal agency decision processes in such situations. Without pressures from policy makers to maximize cost-effectiveness irrespective of the consequences for the traditional service delivery system, transit management is unlikely to alter its traditional orientation towards service delivery. In such situations, therefore, private sector strategies are largely infeasible from an institutional perspective. It bears emphasizing that these conditions are more likely to be present rather than absent.

Whereas lack of motivation is the primary obstacle to transit agency utilization of private actors strategies, resource control is the problem when other transportation agencies or sectors advocate the implementation of such strategies. Planning or policy making agencies typically lack the authority to compel a change in the public transportation service delivery system. Even if in theory they possess such authority, in

practice they rely on persuasion, not coercion, in their dealings with the transit agency(s). The policy making agencies included in this study (MTC, LACTC, EOTC) have been very reluctant to intervene in transit agency internal decision making. This means, however, that the transit agency holds the initiative in service delivery decisions. For the reasons noted previously, this creates serious institutional feasibility problems.

Even when a transit agency has decided to implement a private sector strategy, its ability to do so may be impaired by labor factors. This is also an authority problem. Due to local labor contracts and Section 13(c) protections for transit workers, management does not usually possess the authority to unilaterally alter the service delivery system if the end result is directly adverse to its unionized workforce. The ambiguity of how far management's authority extends, and the common desire of management not to directly confront its workers and create labor problems, tends to result in a formidable deterrent to "radical" actions such as service contracting or even vanpooling. On the other hand, highly motivated transit agencies have been able to accomplish service contracting and vanpooling despite these labor constraints.

#### B. Private Sector Feasibility

For strategies initiated by the private sector, motivation is the key to institutional feasibility. With respect to employer based commuter transportation programs (including multi-employer activities), specific local conditions usually determine whether the necessary motivation is present or not. Employers have been attracted to vanpooling and similar activities when economic incentives exist for becoming involved in commuter transportation, e.g., insuring employee access to the work site, retaining and recruiting workers, reducing parking costs. Implementation has been a straightforward process as the employer controls the needed resources or can easily acquire them. In contrast, many other employers located in areas where employee commuting is not an issue (due to easy commuting or the existence of excellent mass transit service), who do not have worker retention problems, and which can provide employee parking inexpensively have shown little interest in commuter transportation.

The major issues associated with the initiation of new commuter bus services by private operators are economic, not institutional. If operators perceive a market opportunity they will be economically motivated to initate service. The one potential institutional obstacle to such responses is regulation. Regulation is frequently cited as a major barrier to new services. While state regulation does pose a significant nuisance

factor in some settings (e.g., Los Angeles), and transit agency regulation can preclude new private service completely, the evidence from this study suggests that there are few markets where unsubsidized bus service is viable, particularly when it faces direct competition from subsidized transit. For example, complete economic deregulation of common carriage transportation on Arizona has not resulted in any new private commuter bus service in that state (Teal et al., 1984). Regulation might be an important institutional problem <u>if</u> there were numerous markets for unsubsidized commuter bus service. At present, however, regulation is largely a red herring issue.

#### II. MARKETS FOR PRIVATE SECTOR STRATEGIES

#### A. Private Carrier Initiated Unsubsidized Commuter Bus Service

The economic success of unsubsidized private commuter bus operations in the New York City, Los Angeles, and Boston regions, and the recent establishment of private subscription bus services in Chicago, has suggested to some transportation analysts that a significant market for unsubsidized commuter bus services may exist in a number of urban areas around the U.S. A closer examination of this issue reveals, however, that the market for profitable privately initiated commuter bus services is strictly circumscribed.

Two of the most striking characteristics of existing private commuter bus services is that most have been in operation for many years and that they predominantly serve specialized markets: strong CBD's with heavily congested highway access and very high parking costs (e.g., Boston and New York City), workers commuting long distances to large employment sites (e.g., Los Angeles), price conscious workers willing to accept equipment with fewer amenities in return for cost savings (e.g. Norfolk and Chicago), or some combination of these markets. While these markets are not insignificant neither are they widespread. For example, even in the largest metropolitan areas, only 8-10 percent of all workers live 25 or more miles from their place of employment (Soslau, 1980). Moreover, the fact that most of these services are not of recent vintage (the subscription services in Chicago and some of the buspool routes in Los Angeles are notable exceptions) indicates that the most promising markets have already been tapped. None of the private operators interviewed for this research believed that new unsubsidized regular route commuter bus services would be profitable in their urban area, and none were planning to initiate them. In fact, some operators of regular route service in Boston and Hartford are apparently losing money. In Connecticut, ConnDOT now subsidizes private express routes which previously were profitable.

Compounding the problem of a relatively small natural ridership for private commuter bus service is competition from public transit services and vanpools. Competition from heavily subsidized public transit has the effect of pre-empting the best natural markets for private bus operators. Whether it is a commuter rail line or an express bus service, the existence of subsidized transit in long haul markets deters private carriers from initiating new services. In spite of their substantially lower costs, private providers cannot compete with transit agency fares which routinely reflect subsidies of 50 percent or more. Only when transit fares become very high, as recently occurred with commuter rail service in Chicago, does a market opportunity exist for a private bus service (Schwieterman, 1983).

The rapid proliferation of vanpooling is also eroding the opportunities for new private commuter bus services. Vanpool fares tend to be lower than those of regular route bus operations and are competitive with buspools. In addition, a vanpool is usually more spatially flexible than bus services due to the smaller number of passengers. Vanpools have adversely affected regular route operators in Boston and Hartford and buspool providers in Los Angeles and Norfolk.

The implications of vanpool competition are quite serious for private commuter bus service. The diversion of only a few bus riders can financially undermine a route which may have required a major financial investment by the bus operator. Moreover, the bus operator is continuously vulnerable to vanpool competition due to the similarity in price and level of service of the two modes.

These considerations suggest that the market for additional unsubsidized private commuter bus services is quite small, and that it will be uncommon for private operators to initiate such services. Major transit fare increases and/or service reductions (as in Chicago) or the development of large employment sites not well-served by transit (as in Los Angeles) expand the natural market for these services, but vanpools are strong competitors in such markets.

# B. Service Turnovers

The market for service turnovers is established by two factors. The first is the extent and severity of fiscal constraints faced by transit agencies. Only transit agencies whose fiscal problems are sufficiently serious that they must consider eliminating peak period express service are likely to be attracted to the idea of turning such service over to the private sector to operate without subsidy. Even among transit agencies which are in a service reduction mode, only those which recognize the

unusually high cost of commuter express service are likely to single out these services for special treatment when considering how to reduce the overall level of service.

Second, service turnovers are economically feasible only for transit agency routes with high ridership. As the analysis in Chapter 4 demonstrates, when the private operator must supply the vehicles the unit cost of privately provided regular route commuter bus service is only about 16-30 percent less than public agency service. Consequently, only the most productive express routes will generate sufficient passenger revenue to cover the costs of privately provided bus service. In Los Angeles, only 4 of 9 peak period only express routes could be operated at a profit with existing fares by private carriers. In Boston, only 5 of 12 express routes would be profitable. Because private provision does not result in dramatic cost savings, the only routes which could be turned over to private operators on a profit making basis are those which are the least unprofitable for the transit agency.

Although the turnover of any subsidized bus route would reduce the transit agency's total deficit, the loss of its "best" express routes may well result in an overall worsening of its operating ratio. Consequently, transit agencies have little incentive to turn high ridership commuter services over to private bus operators. Turnovers of less productive services may result in unprofitable operation by the private carrier. In the one instance in Boston of a service turnover, the private operator has been unable to make the route profitable despite a fare increase.

The potential economic feasibility of service turnovers increases substantially when private operators are not required to furnish the vehicles for the service, but are instead allowed to use buses purchased by public agencies. The resulting cost savings make service turnovers viable at much lower ridership levels and therefore increase the market for this strategy by making it more attractive to transit agencies. Rather than relinquishing their best commuter services, they could turn over medium to low productivity routes and the private operator could still make a profit. The use of transit agency buses (or buses purchased with transit agency funds), however, raises labor issues which could adversely affect the institutional feasibility of service turnovers.

Private providers can be expected to be more attracted to service turnovers than to initiating commuter bus services on their own. In the former case the market is already developed and the provider does not have to shoulder the risk of establishing a totally new service. Private operators in both Los Angeles and Boston have demonstrated active interest in taking over specific transit agency routes, even though in both areas the operator would have to supply the vehicles.

#### C. Service Contracting

The potential market for service turnovers is sharply constrained by considerations of transit demand; only those commuter services that achieve a level of productivity where revenues are sufficient to exceed private operator costs of service provision are feasible candidates. The potential market for service contracting is much larger. From a cost-effectiveness perspective, any commuter bus service which loses money when provided by a public agency and which would be supplied at lower cost (and therefore lower subsidy) by a private operator is an attractive candidate for contracting. In practice, most commuter bus service falls into this category.

The fact that service contracting would save money for public agencies does not in and of itself create a market for this strategy. The motivational obstacles described previously will deter most transit agencies from contracting. The market for this strategy will thus be found primarily among transit agencies facing demands for expensive additional services, with a non-dedicated local subsidy source, and with local decision making arrangements which give policy makers an incentive to stress cost-effective service delivery. In addition, public agencies responsible for funding transit service, but not for direct service provision, will be attracted to contracting because of its cost-effectiveness.

Even among motivated transit agencies, the market for service contracting is further limited by labor constraints. Some labor contracts prohibit or severely restrict subcontracting of service, and Section 13(c) apparently prevents laying off transit agency workers as the result of contracting unless compensation is paid. It seems likely that in the short run only a small amount of the total existing peak period service could be contracted out without running afoul of insurmountable labor problems. In the longer run, attrition could be used to reduce the size of the transit agency driver force, except that some union contracts place a floor under the size of the bargaining unit. Only the strategy of contracting out <u>new</u> commuter services avoids these labor problems entirely, as it does not involve any existing transit agency employees. Most large transit agencies, however, are not currently in a fiscal position to afford additional commuter bus service.

# D. Employer Vanpooling and Commuter Bus Services

Vanpooling and commuter bus services sponsored by employers are the fastest growing of the private sector strategies examined in this study. But even though large private sector employers have become increasingly involved during the past decade in the organization and in some cases the provision of commuter services for their workers, the potential magnitude of such activities is smaller than often assumed. Several specific conditions influence the size of the employer market for private sector options.

First, employer transportation programs are typically initiated by large employers, often with thousands of employees at the work site. They may also be started by associations of many employers, although this is less common. In either case, the universe of such organizations is relatively small in any metropolitan area, although the number of workers affected is much larger. Even in the adjacent Norfolk and Newport News regions, whose economic bases are unusually dependent upon a few very large employers, only about 30 percent of all workers in the two regions work at employers sites of more than 1,000 persons. In these regions, as elsewhere, smaller employers have demonstrated little interest in employee transportation.

Second, employers are typically motivated to become involved in commuter transportation by economic factors--problematic employee access which creates difficulties in recruiting and retaining workers and high parking costs--<u>and</u> by the lack of good public transit to bring employees to the work site. Even when highway access is congested and commuter trips are therefore time consuming, the presence of extensive peak period transit service tends to reduce the incentives for private employers to develop their own commuter transportation program.

These observations should not be construed as indicating that employers necessarily take a narrow view of commuter transportation problems. The transportation activities of the employer associations in Hartford, Santa Clara County, and El Segundo demonstate that companies are capable of adopting a broad view of the impact of commuter transportation conditions on their business well-being. The Hughes Aircraft commuter bus service is further evidence that <u>some</u> employers will actively seek out and implement even relatively costly strategies for improving commuting conditions for their workers. Nonetheless, "enlightened self-interest" was a major causative factor in every instance of major employer involvement examined in this research.

III. The Economics of Private Sector Strategies

# A. Potential Public Sector Savings

The primary attraction of private sector options to public agencies is their potential cost-effectiveness in serving commuter transportation needs. Moreover, their

appeal is likely to vary directly with the potential cost savings. This is particularly the case with service contracting options.

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As was discussed in Chapter 4, the estimate savings from contracting vary considerably. SCAG estimated that the SCRTD could save over \$4 million (85 percent) in annual subsidy by contracting for subscription and commuter express service on certain routes. This estimate is probably too high by a factor of at least two, however, due to the use of a fully allocated cost model to determine SCRTD costs. Herzenberg's study of MBTA express service concludes that the MBTA could save \$3-3.5 million by contracting on 12 routes <u>if</u> the transit agency supplied the vehicles for the service. This is about 25 percent of current subsidy costs for these services. Similarly, our cost estimates indicate that Golden Gate Transit saves nearly \$600,000 in direct costs, and over \$250,000 (27 percent) in annual subsidy, by contracting for subscription service rather than providing it with its own vehicles and drivers. But while these savings are substantial in absolute terms, they amount to only 1 to 3 percent of all transit service provided.

The subsidy savings from transit agency vanpooling programs have been similarly limited. Golden Gate Transit has explicitly sought to use vanpooling to prevent the need for additional commuter bus service, and has compiled detailed information on the cost of its vanpool program, the number of vanpools formed, the former mode of the riders, and the subsidy per passenger for comparable commuter bus trips. For trips into downtown San Francisco, vanpooling saves the agency approximately 90¢ per passenger. One third of the vanpoolers previously used transit, but despite this diversion commuter bus load factors have been maintained. Assuming that in the absence of vanpooling these passengers would have had to be accomodated with additional bus service, the transit agency has saved itself a minimum of \$150,000 annually. If one assumes that 50 percent of the other vanpool riders would also have demanded commuter bus service, the savings increase to \$300,000 annually. This is less than 3 percent of Golden Gate's total subsidy.

The analysis in Chapter 4 also indicates that under most circumstances service turnovers are not an economically viable strategy. Only when passengers are willing to pay very high fares can existing public transit services by operated profitably by private operators. For example, a commuter who makes a 25 mile one-way trip would have to pay a monthly fare of nearly \$110 for a private regular route service to be profitable. Actual transit agency fares for express service with this trip length are only about 60

percent of the needed value. Consequently, our analysis indicates that private operations would require subsidy at these fares. In Boston and New York City private bus commuters <u>have</u> demonstrated a willingness to pay high fares, but the automobile suffers from low travel speeds and high parking costs in these areas. Where auto commuting is less onerous, rider resistance to fares of the needed magnitude is likely to be considerable.

# B. Causes of Limited Cost Savings for Service Contracting

Given the substantial disparity between wages and work rules for public transit agencies and private bus companies, it is somewhat surprising that contracting for commuter bus service apparently yields such small cost savings. Privately provided peak only service suffers from the same problems as public agency peak service, however, namely low utilization of capital and labor. Unless these conditions can be remedied, cost savings will not be dramatic.

Driver utilization and compensation is no less a problem for private operators than public agencies. The private bus companies which operate subscription and regular route express service under contract to public agencies pay their drivers \$5.50 to \$8.50 per hour, with most paying \$7-8 per hour. In addition, drivers are guaranteed 4 hours pay per run by almost all operators.<sup>1</sup> Consequently, the daily cost of employing a driver (including benefits) typically averages \$75-\$95. Drivers may do maintenance work between driving shifts, but most of the cost of the driver is directly attributable to driving the commuter bus. If the bus makes only one productive trip per peak period, the driver cost will probably represent \$1 per revenue vehicle mile or more, a significant fraction of the total operating cost. If the minimum hours guarantee were eliminated these costs could be significantly reduced, but bus company management maintains that the guarantee is essential for attracting qualified drivers. They claim that good drivers will not work for as little as 2 to 3 hours pay per day.

Private operators also suffer from a problem which public agencies do not experience, namely the expense of vehicle amortization. As explained in Chapter 4, vehicle capital recovery charges can represent as much as 30 percent of total operating costs, or about \$1 per revenue vehicle mile. Not only must the private operator bear

An interesting exception is a Commuter Bus Lines service in the Sacramento area. CBL has the unique advantage of using a commuter as the bus driver for its contract service from Yolo County into Sacramento. It therefore can pay a lower wage and offer a smaller hourly guarantee as the driver has another source of income.

the entire cost of capital recovery, but when vehicles are used primarily for a contract service of uncertain duration the tendency is to depreciate them rapidly for accounting purposes. Moreover, alternative uses of the vehicle tend to be primarily on weekends, so most of the capital cost is allocated to the commuter service. Obviously, substantial operating subsidy savings would result to the public agency if it supplied the vehicles to be used in the service.

The enormous difference in unit costs between the Southern California buspool operators and the Houston and San Francisco contract services--40 to 50 percent lower for the former--illustrates the theoretical savings which could result from more favorable driver and vehicle factor cost and utilization conditions. However, many practical obstacles stand in the way of reducing contract costs to buspool levels and it is most unlikely that these cost levels can even be approached. Nonetheless, bus ownership is one area where public agencies could reduce contract costs.

## C. Inter-Modal Competition

The cost comparisons in Chapter 4 clearly indicate that vanpools and buspools are competitors for the same commuter market. Although some bus operators have complained that hidden public subsidies enable vanpools to be economically competitive with private bus service, even high cost third party vanpools are only 25 percent more expensive per passenger mile than a buspool for a 40 mile trip. Low cost public agency and employer based vanpools have a cost advantage over buspools at all distances, and even if their fares are increased 10 percent to account for likely administrative subsidy, the passenger mile costs are still below those of buspools. Given the superior spatial flexibility of vanpools, and the trend towards luxury type seating arrangements, the level of service of vanpools also compares favorably to buspools.

The similar unit costs of vanpools and buspools is somewhat surprising, as conventional wisdom would suggest that the larger the vehicle, the lower the operating cost per unit of capacity. This does not hold in the case of the van and bus comparison for several reasons. First, bus capital costs per unit of capacity are much greater than vans. A used \$80,000 bus costs nearly \$1800 per available seat, whereas a new \$15,000 luxury van costs only \$1250 per available seat. Second, fuel and maintenance costs for buses are 2 to 4 times those of vans, not significantly different from the disparity in capacity. Third, overhead costs tend to be greater for buspools than vanpools, at least when these costs are attributed to the service.

Not only are vanpools similar in cost to buspools, they have a marked cost superiority to regular route and subscription commuter bus servce. This has caused

public transit agencies in Connecticut, Virginia, and California to look favorably upon the concept of replacing relatively expensive (subsidized) transit agency commuter bus service with inexpensive vanpool service. Making this strategy even more appealing is the greater ease of achieving high load factors on vanpools compared to buses--only 10 persons need to be assembled rather than 30 or more. For public agencies concerned with cost-effectiveness, therefore, the cost and flexibility advantages of vanpools have prompted a reevaluation of the desirability of continuing to supply commuter service only in buses.

D. The Impact of Economics and Service Characteristics on the Roles of Commuter Bus and Van Services

The evidence from the case studies and the economic analysis presented in Chapter 4 indicates that the prospects for unsubsidized regular route and subscription bus service are unpromising. Even in an environment with favorable demand characteristics such as Boston, private regular route service is experiencing financial difficulties and must contend with competition from public transit and vanpools. Similarly, unsubsidized subscription service only exists where automobile commuting is costly and time consuming and transit is either unavailable or expensive, e.g., Chicago and Washington, D.C. (Columbia, MD and in the recent past, Reston, VA). Even in the San Francisco area subscription service must be subsidized in order to survive (note Napa). The economic analysis indicates that regular route and subscription fares must be  $7-15\phi$ per passenger mile for unsubsidized service, depending on trip length. However, a single occupant automobile commuter who pays a \$2 per day parking charge and drives a vehicle which achieves 25 miles per gallon will incur an out-of-pocket commuting cost of only 7.5-12¢ per passenger mile for similar trips. A two person carpool is much less expensive than the bus services. This explains why the primary markets for private bus service exist in areas where automobile commuting is simply unattractive due to extreme congestion and very expensive parking. Only in such environments does the bus have a significant economic advantage.

These considerations imply that regular route and subscription service will typically be viable only as subsidized contract operations. As discussed previously, contract services suffer from significant institutional problems which will probably deter most public agencies from even considering this strategy. Moreover, savings compared to public agency operation will be relatively small, albeit of a greater magnitude if the contractor is not required to provide the vehicle.

Despite these institutional and economic limitations, however, contract bus services, and regular route operations in particular, remain an important private sector strategy from a service perspective. Even though buspools and vanpools are less expensive, only regular route service has temporal flexibility for commuters. Pool and subscription arrangements are usually restricted to a single departure, whereas regular route service can have several departures per peak period. This higher level of service to commuters is an important advantage of contract regular route bus service, one that argues against exclusive reliance on pool type services to improve cost-effectiveness of peak period public transportation.

Buspool services have proven to be extremely cost-effective, but suffer from market problems which sharply limit their potential. First, buspools appear to work well only at large employment sites--buspool operators have had little success in developing services which serve multiple employers. Unfortunately, the number of large employers in any metropolitan area is relatively small. Second, employers have demonstrated a preference for vanpool programs rather than buspools. The former are easier to create and operate, and also benefit from certain tax advantages. Third, vanpools are strong competitors in the buspool market.

Although the markets for buspools are not abundant, their cost advantage compared to other types of commuter bus services suggests a possible developmental scenario. Subscription service could be converted to buspool operation in many cases, at significant economic savings. In theory, any peak only service where the bus is used for only one revenue trip per peak period is a potential candidate for such conversion. The main requirements are the willingness of commuters to become drivers and the availability of relatively inexpensive buses (as they will not be otherwise utilized during the week). Such a conversion has in fact occurred in the Sacramento area, indicating that it can be accomplished.

Finally, vanpool services have demonstrated wide market appeal and attractive economic characteristics. Employers, employer associations, public transit agencies, and other government transportation agencies have each found in vanpooling a strategy which positively impacts their peak period problem. The size of the vehicle makes vanpooling more flexible and marketable than commuter bus service, while the economics are comparable or superior. Thus, while contract services and buspools can be expected to find small market niches, vanpooling is a private sector strategy which is likely to be applicable to a much larger market, in terms of both those organizations which organize the service as well as the commuters who use it.

# CHAPTER SIX POLICY IMPLICATIONS

Increasing the role of the private sector in urban transportation has emerged as an important policy theme during the past few years. The strategies which are the focus of this study represent several of the most promising means of achieving the objective of increased private sector participation in commuter transportation. As this study has revealed, these privately provided or organized commuter transportation strategies <u>do</u> save money compared to the alternative of traditional public agency provision of service, they <u>do</u> expand the range of available commuter services in a cost-effective fashion, and they <u>are</u> institutionally feasible under certain conditions. The central policy question, then, is what prevents the more widespread utilization of these strategies, and how they can be made to become more prevalent.

## I. THE PRIVATE SECTOR AND PRIVATE SECTOR STRATEGIES

Two of the private sector strategies for commuter transportation-- employer based vanpooling (and commuter bus service) and private operator initiated commuter bus service--require essentially no public sector assistance. In both cases, the decision making calculus is confined almost entirely to the private sector. Public policies (such as federal tax policy towards depreciation of employer vanpool vehicles) and regulations (for private bus service) form part of the decision making environment, but within these broad parameters the decisions are made by private organizations in response to their private interests. The public sector may be able to thwart private sector desires through regulatory proceedings and similar restrictive devices; the power to initiate, however, is in the hands of the private sector.

The evidence from the developments in this particular market for private sector strategies is that <u>relatively few opportunities exist for private sector</u> providers/organizers of commuter transportation services to generate net economic benefits from the process of transportation provision itself. In other words, profitable operation of a commuter transportation service is possible only in relatively uncommon circumstances.

This is not the same as asserting, however, that such commuter transportation services will not be provided by the private sector. In the same way that the streetcar lines built in the late 19th and early 20th centuries were often not profitable in their own right, but nonetheless created substantial net economic benefits for the companies

which constructed them due to the real estate development they made possible, so companies may implement employee transportation programs because they promise to provide net economic benefits even when the transportation service itself is not profitable. Employee transportation programs, even those which do not subsidize vanpool or bus fares, invariably cost the employer something. The net gain from the program results not, for example, from vanpool fares exceeding total vanpool costs (including administration and overhead), but from benefits <u>associated</u> with the provision of transportation service--improved employee recruitment and retention, more satisfied and productive workers, reduced requirements for employee parking.

The existence of such benefits, however, depends on the company's employee transportation situation. Only when the circumstances are appropriate--a large labor force, lengthy trips, major congestion problems, poor transit access, a need to retain and recruit skilled labor, constrained and/or expensive parking--will the company have an incentive to develop such services in anticipation that they will leave the company better off than otherwise.

Increasing numbers of companies <u>have</u> deemed the circumstances to be appropriate for an employee transportation program, and one major result has been the rapid growth of commuter van services in many metropolitan areas. Particularly when employers subsidize a portion of vanpool fares (thus making vanpools more competitive with driving alone and carpooling at shorter trip lengths) they have caused the market for vanpools to grow, as in Texas and Southern California. But despite the recent success of this private sector strategy in the urban transportation marketplace, it is difficult to determine whether the employer based vanpool market is nearing saturation or is likely to experience significant expansion. The factors that promote employer involvement in commuter transportation are largely beyond the reach of government policy, and thus developments in this area will continue to be responsive primarily to private employer perceptions of what actions are in their private interests.

As for private operator initiated commuter bus service, there is little prospect of a major increase in such services given the preemption of most of the best markets by subsidized public transit agencies and the emergence of vanpools as strong unsubsidized competitors. Stated simply, the economic viability of unsubsidized bus service is doubtful in most situations, the main exception being specialized buspool/subscription bus services targeted at very large employment sites. As long as private bus services are unsubsidized, there is little that government policy can do to improve their prospects. Even the complete cessation of economic regulation of commuter bus

service will do little to improve the economic viability of such services. Regulation appears to be an important factor only where markets already exist (NYC, Boston, Los Angeles); there is scant evidence that it prevents new services from being established in other environments. Subsidized transit, vanpools, and the inherent attractiveness of automobile commuting are much more effective deterrents.

# II. THE PUBLIC SECTOR AND PRIVATE SECTOR STRATEGIES

The other four types of private sector strategies--contract commuter bus service, service turnovers, public agency facilitation of unsubsidized private bus services, and transit agency vanpool programs--require the public sector to initiate implementation. As has been emphasized repeatedly, the obstacles to these strategies are primarily institutional in nature. Moreover, the service turnover strategy must confront an additional, economic dilemma. Those peak period transit services which could be operated profitably by private bus companies are precisely those which a transit agency is least likely to turn over, as they have the best performance, whereas the poorly performing routes which many transit agencies would probably be willing to relinquish are unlikely to be profitable for a private operator.

It is impossible to escape the conclusion that the typical institutional arrangements for public transportation management, funding, and service decisions represent forbidding barriers to the increased utilization of private sector strategies. In most metropolitan areas neither transit managers nor transit policy makers have financial or professional motives to adopt private sector strategies, particularly service The transit monopoly itself is a major cause of this situation, but contracting. dedicated local/state subsidies are equally responsible. When non-federal subsidy funds are earmarked for transit and cannot be used for other purposes, managers and policy makers lack incentives to adopt non-traditional strategies such as service contracting or vanpooling, except in unusual circumstances. Cost-effectiveness concerns take a back seat to organizational and political imperatives which favor the continuation of the traditional service delivery system -- monopoly service provision using unionized agency workers. Only when transit governing entities have flexible uses of subsidy funds do policy makers have an incentive to insist that transit management adopt the most cost-effective service delivery system.

Unfortunately for the cause of private sector strategies, such arrangements are relatively uncommon. Tidewater Transit demonstrates what is possible when such a system of political, fiscal, and managerial incentives exists, but dedicated local/state subsidy is much more prevalent in large metropolitan areas. In fact, the transit industry's objective is to obtain dedicated subsidy. Local subsidy and decision making arrangements for public transit thus constitute important structural reasons for taking a pessimistic view of the prospects for private sector strategies.

One might argue that such pessimism is unwarranted in view of the fiscal problems now affecting many transit agencies. But while fiscal/service pressures typically are a prerequisite to the active consideration of private sector strategies, transit management has several other alternatives available for dealing with these fiscal problems, at least in the short run. Fare increases, service cutbacks, and the use of part-time drivers are all strategies which can reduce subsidy requirements, often by much greater amounts than contracting out or turning over to the private sector a few peak period bus routes. When private sector strategies are applied only at the margin, as will usually be the case initially, the subsidy savings are relatively small. The more traditional strategies can be easily applied to a much greater portion of the transit agency's operation, however, thereby creating a larger fiscal impact. Given management's typical predisposition to maintain the transit monopoly, subsidy saving strategies which are compatible with this aim will almost always be preferred to those which require fundamental alterations in the service delivery system.

If private sector strategies promised substantial subsidy savings (e.g., 10 to 20 percent of current systemwide subsidy) they would probably be impossible for transit agencies to ignore, given their unfavorable financial situation. The evidence suggests, however, that the economics of private bus service are not so attractive as to make a compelling case for service contracting <u>unless</u> the transit agency supplies the vehicles <u>and</u> a significant portion of all peak period only service is contracted out. Service turnovers are viable only for the transit agency's best commuter routes, which means that subsidy savings will be relatively small. As for vanpooling, only a very large program which actually results in the elimination of some <u>current</u> transit agency service will reduce subsidy requirements significantly. In other words, major financial impacts will result only from radical changes in the service delivery system. Not only is a new managerial philosophy towards transit service delivery required if private sector strategies are to be widely adopted, but if they are to significantly improve cost-effectiveness they must be implemented at more than the margin.

This implies a depth of institutional change which poses the most challenging management and labor issues. Even assuming that management's current resistance could be overcome by altered subsidy and decision-making arrangements which would

create organizational imperatives for cost-effectiveness, serious labor obstacles would remain. Major service contracting and vanpool programs, particularly where the transit agency provides all the vehicles, represent a fundamental challenge to organized transit labor's long-standing claim to a monopoly on service provision. Contrary to some interpretations, Section 13(c) labor protections do not provide a legal basis for this claim. However, Section 13(c) gives transit labor a powerful bargaining chip in local labor negotiations, where such claims can become legally sanctioned in labor contracts. In addition, if vehicles are to be purchased with federal funds, the transit union must sign off on the capital grant application, and thus has potential veto power.

Moreover, most elected officials are reluctant to openly pick a quarrel with labor unions. The mere prospect of determined opposition by labor to service delivery changes can deter policy makers from pursuing "radical" strategies such as service contracting. Transit management itself is usually reluctant to espouse strategies it knows will be vociferously opposed by transit workers, and the legal framework surrounding the collective bargaining process makes it difficult to unilaterally impose changes which affect the labor force. In Boston, a new state law was required to extricate the MBTA from its impossibly restrictive labor situation.

Institutional change of the magnitude necessary for widespread adoption of private sector strategies by public agencies is thus a dubious proposition. The two Federal policies most likely to help stimulate such institutional change are reductions in Federal operating subsidies for transit and a loosening of Section 13(c) constraints. A curtailment of Federal operating subsidies will not only increase the fiscal pressures on most transit agencies, it will also cause local and state subsidies to become much more important. These twin effects may motivate local transit policy makers to become actively interested in changes in the service delivery system which promise significant subsidy savings. On the other hand, if local/state subsidies are dedicated exclusively to transit, a fiscal squeeze creates much less inducement for policy makers to advocate service delivery changes in the name of cost-effectiveness. The larger policy system is not affected and the politics of local service continues to prevail. As long as transit agencies get subsidies with no strings attached, local governments are unlikely to demand (or be able to enforce) major improvements in cost-effectiveness.

Federal labor policies could also create a more favorable environment for private sector strategies by clarifying the intent of Section 13(c). Any administrative or legislative changes which clearly indicate that 13(c) does not give transit workers veto power over service changes which do not lead to the <u>direct</u> elimination or worsening of

conditions of <u>current</u> workers jobs would remove a major barrier to innovation in the service delivery system. Some transit managers would probably become bold enough to experiment with service contracting under such circumstances. Of course, the motivational obstacles associated with the transit monopoly would remain, and local labor contracts might still prevent such strategies as service contracting.

On balance, the institutional factors militating against utilization of private sector strategies seem to be more strongly rooted than those fiscal and policy forces currently at work which imply a change in the status quo. The five transit agencies in this study which have utilized private sector strategies are a significant percentage of all major transit agencies in the U.S. which have done so. With few exceptions, transit agencies are unwilling to share the responsibility for service provision with private providers and to otherwise decentralize the supply of commuter transportation, even when fiscal incentives exist. Unless significant changes in local subsidy and decision-making arrangements occur, the prospect of a major increase in the use of such strategies seems remote.

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APPENDIX

# I. Boston

The Boston metropolitan area remains one of the few strongholds of public transportation in the U.S. While nationally only 6 percent of all work commuting trips were made by transit in 1980, 14 percent of all workers in the Boston region commuted by mass transit. Transit usage is especially prevalent in trips to the Boston core, for which it is estimated that about 50 percent of all workers arrive by transit. An exceptionally strong downtown (by typical U.S. standards), high parking costs, congested highways, and a high level of transit service combine to make public transportation an attractive means of commuting to the core. In fact, transit is sufficiently attractive that a significant amount of <u>unsubsidized</u> private commuter bus service continues to be provided from outlying suburbs to downtown Boston. The presence of these private commuter bus operations raise interesting issues with respect to the economic viability of unsubsidized commuter buses, the effect of the regulatory environment on this private sector option, and its interaction with another private sector option, the vanpooling program in the Boston region.

#### A. Institutional System

Private sector options within the Boston region take place within a relatively complex institutional system. The major actors are the Massachusetts Bay Transportation Authority (MBTA), the region's transit agency; the MBTA Advisory Board; the MBTA's unions; the State of Massachusetts, which funds much of the MBTA's budget; the Executive Office of Transportation and Construction (EOTC) of the state government, responsible for overall transportation policy and leadership; the Department of Public Utilities, which regulates fares and safety standards for private bus service; CARAVAN, which operates the region's vanpooling program and is a private non-profit corporation; and approximately 15 private bus companies which provide commuter services into Boston.

Of these actors, the MBTA has the greatest direct authority over public transportation in the region. The MBTA is a large multi-modal system which has over 2,000 vehicles, 1137 of which are buses. The bus system is strongly commuter oriented with a 2.4 peak to base ratio. Express routes are only 8 percent of all bus routes, however, as longer commute trips are served by rail. Not only does the MBTA control most transit service planning for the region and directly operate virtually all publicly subsidized service, it also has regulatory authority within its service district.

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The MBTA is overseen by an Advisory Board which represents the cities and towns in the district. As these local governments contribute about 30 percent of the MBTA budget, the Advisory Board has the power to review and veto the level of the MBTA budget. The Advisory Board has no influence, however, over management decisions or service planning. The Advisory Board also sets local bus fares, but not express bus fares, rapid transit fares or commuter rail fares.

The State is the other major funding agency for the MBTA. It picks up a share equal to the Advisory Board's, as well as providing some capital funding and special aid to commuter rail. Its total share equals about 40 percent of the total MBTA budget. As with the Advisory Board, the State does not have direct review power over the MBTA budget nor over service provision. But it can influence the MBTA through political means. The legislature in 1980 passed a Management Rights bill for the MBTA which stipulated that the only issues negotiable with the unions are wages, working conditions and working hours. The MBTA management was given explicit power to contract out for services, to hire part-time labor and to control all decisions about service provision. The State has also passed a labor arbitration bill.

The MBTA Carmen's Union, Local 589 of the Amalgamated Transit Union, has been a powerful force in MBTA affairs. Previous contracts have given drivers some of the highest wages and benefits among transit workers in the United States. The union contracts have also limited management's ability to contract out for service and employ part-time labor. Local opinion holds the union responsible for the MBTA's growing deficit and deteriorating service. The Management Rights Bill was a response to this belief.

The only agency with general power over transportation policy in the Boston area is the Executive Office of Transportation and Construction (EOTC). This is a branch of the governor's office, equivalent to a state department of transportation. EOTC in theory sets policy for the Department of Public Works and the MBTA, although some funding goes directly to those agencies, which gives them a measure of policy autonomy. The EOTC also sets policy for CARAVAN and Masspool, the statewide vanpool and carpool organizations.

The Department of Public Utilities (DPU) regulates the private bus carriers whose routes begin outside the MBTA district. The DPU sets fares and approves routes for buses. The agency has a reputation for strictly adhering to the regulations, thus giving a narrow interpretation to its duties and responsibilities. Because of the conservative approach of the DPU, the EOTC is negotiating to have the Bus and Rail Division of the

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DPU switched to their auspices in the Department of Public Works. State legislation is required to effect the transfer of authority.

About 15 private bus companies are still providing commuter services into Boston without subsidies. Most are small operations with less than 15 buses but a few have more than 50 vehicles. They tend to combine their commuter work with charter work, local fixed route service, school bus service and long haul intercity routes. The companies have no joint organization although they share common problems and are aware of that fact.

CARAVAN is the region's vanpooling program. Although it is an independent non-profit corporation, it receives federal and state funds. The main services offered by CARAVAN are match listing, van brokering and a corporate marketing program. Originally governed by public interest types of organizations, the Board of Directors is now composed primarily of corporate representatives. There are plans to solicit more private sector contributions thus reducing the amount of public funds.

# B. Private Sector Options

## 1. Unsubsidized Private Commuter Bus Services

The private bus carriers have been involved in commuter transportation for many years in Boston. About 200 buses a day from approximately 15 companies travel from suburbs outside the MBTA district into Boston. Some large companies such as Trombley Motor Coach (46 buses) and Plymouth and Brockton Street Railway Company (70 buses) are primarily commuter companies, but for most private carriers, commuter service is an adjunct to school, charter, and other services. Some of the carriers operate all day schedules, while others provide service only during commuting hours. Even the former have heavily peaked ridership.

Intrastate bus service in Massachusetts is tightly regulated by the DPU. In general, the DPU has pursued a policy of granting route authority to a single carrier. In exchange for these monopoly service rights, however, the DPU has sought to keep bus fares low. The low fares have made it difficult for all but the largest companies to generate sufficient profits to buy new buses, and many carriers now own fleets which are considered excessively old by bus industry standards. In addition to their regulatory problems with the DPU, private carriers must obtain approval for all new routes into Boston from the MBTA and each city the route passes through. The Carmen's Union actively opposes entry of private buses into new commuter markets.

Private commuter buses serve most of the major radial corridors into downtown Boston, although they are particularly concentrated in areas which do not have commuter rail service. Patronage is comparable to the region's commuter rail system; it is estimated that approximately 12,000-15,000 commuters in the region (about 1 percent) use the private buses. In some corridors the private commuter buses have a larger modal share than commuter rail. The private buses carry nearly 5 percent of all commuters in the most heavily congested corridor. The industry thus remains a significant factor in the Boston commuter transportation system.

The commuter bus operators service a predominantly long haul clientele, with most routes being 25 miles or more in length. With few exceptions, the routes originate outside the service district of the MBTA, the region's transit agency. There is a simple reason for this. The MBTA has exclusive service rights (except for a few grandfathered private operators) within its district, and consequently many of the best commuter express bus routes are pre-empted by the transit agency. The good routes which remain tend to be too lengthy to be served by MBTA buses, but are often paralleled by commuter rail lines. The private commuter bus option in Boston remains viable in spite of these regulatory and competitive obstacles because 20 percent of the region's employment is concentrated in downtown Boston, where the demand for collective transportation remains strong.

The experiences of two companies, one large commuter operator and one smaller carrier, illustrate the current status of the commuter bus industry. The Plymouth and Brockton Street Railway Company (P & B) has provided bus service for 50 years. It initially became involved in commuter operations into Boston in 1959 when the commuter rail line to the South Shore was discontinued. The company owns 70 buses for its regular route operations; its charter work and seasonal service are handled by affiliated companies.

P & B operates in the most heavily travelled corridor in the region, and transports about 7,000 passengers on an average weekday. Most, but not all of these passengers are commuters (P & B operates all day service). During 1980 and 1981, it grossed approximately \$5 million annually from regular route services. In 1981 it lost money, in part due to a strike, while in 1980 it made a profit of approximately 6 percent of total revenues. The company's routes vary in length from 28 to 72 miles, with the average passenger trip length on these routes ranging from 25 to 60 miles. Given these long trip lengths and the heavily one-way demand, it is difficult to generate adequate fare revenue. Only because the company is able to generate approximately \$2.80 per passenger trip is it able to be profitable. However, recent fare increase have resulted in ridership losses. In 1982 an increase of approximately 8 percent resulted in a 9.5 percent loss of riders, implying that demand has become price elastic. At current fares, which amount to an average \$28 per week for a commuter, the bus service is more expensive than vanpooling, and the number of vanpools in the company's service area have been increasing. P & B has filed local complaints against CARAVAN, alleging unfair competition. P & B is also concerned that the extension of the MBTA rail transit line further down the South Shore will cause ridership loss.

Despite these problems, P & B will probably remain a viable operator. A strong commuter bus market is likely to be maintained in its service area by virtue of the Boston orientation of commuters, the limited highway capacity, and the fact that the MBTA rail transit line is not easily accessed by many commuters.

Suburban Lines is a much newer bus company that is aggressively seeking new markets, including the commuter market. It now runs two commuter routes into Boston from the western suburbs with five buses. One of these is a route taken over from the MBTA. The commuter business currently loses money and its losses are covered by charter work. The commuter routes were originally sought because they gave the company more public exposure and they complemented other uses for the buses. The owner of Suburban attributes the problems of the commuter routes to low fares set by the DPU and to "atrocious encroachments" by vanpools. Competition from the limited commuter rail service in the area is also a problem.

Suburban submitted proposals for other MBTA routes. It would also like to do contract work. In fact, Suburban recently bought out the company that does contracted local service in Winthrop, a Boston suburb.

Although the commuter bus industry is alive in Boston and some companies like Suburban Bus Lines are expanding, overall the commuter bus market is static. New companies take over routes already established by failing companies. Occasionally a new route is started, but all reportedly have failed. The bus companies themselves report little marketing activity and even less market research aimed at finding new markets. Fare increases are urgently needed to enable companies to renew their equipment, but such increases will only make vanpooling more attractive. A few carriers have already gone bankrupt during the past several years. Basic problems with industry economics, unenlightened regulation, and competition from other modes are thus threatening the well-being of the Boston commuter bus industry.

#### 2. MBTA Initiatives Affecting Private Bus Service

The MBTA is afflicted by chronic fiscal crises due to its huge deficits. On these occasions, proposals are often advanced to make better use of the private sector to

reduce costs and subsidy requirements. The MBTA, however, is a traditional transit agency. Peak period ridership is seen as a major constituency, and a high peak to base ratio, with its attendant costs, is not considered a problem. When attempting to solve its ever growing fiscal problems, the MBTA has resorted to traditional strategies—fare increases, service cutbacks (often primarily in off-peak periods), and recently the use of part-time labor. The unions have been blamed for increasing costs and the Management Rights Bill represents an initiative to curb their power. Suggestions for more involvement of the private sector are met by staff assertions that a monopolistic, comprehensive transit system is the only guarantee of good regional service.

Although the Management Rights Bill gives the MBTA the legal right to engage in service contracting, it has shown no interest in doing so. In 1981, however, its fiscal problems led to a proposal to turn over certain express bus routes to the private carriers to be run without subsidy. As an experiment, one route was turned over to Suburban Lines. As discussed above, the route has not been profitable.

Proposals from private operators were received for l4 other routes and at least 6 of these were approved by the Service Planning Department. But Service Planning also noted that the approved routes already had a better revenue return than the MBTA as a whole, and the overall performance of the MBTA would decrease if these routes were lost (Castaline, 1981). Moreover, the savings in labor for the six approved routes (21 operators) was miniscule in proportion to the MBTA's total supply of drivers (approximately 1,500). Consequently, when the transit agency was bailed out of its fiscal crisis by a supplemental appropriation from the state and the local governments, the service turnover proposal was dropped. No other routes have been turned over to private carriers. The MBTA's preferred strategy for reducing the labor inefficiencies of peak bus service is part-time drivers, as this retains all service provision responsibility within the agency.

# 3. EOTC Initiatives to Facilitate Private Sector Options

The EOTC has been a major source of impetus for private sector involvement in commuter transportation. In response to complaints by the private commuter bus operators that regulation and capital deficiencies were undermining their viability, EOTC sponsored a study to identify the industry's major problems (the TRAMCO study). The TRAMCO study basically concurred with the industry's own analysis, and recommended that EOTC devise a means of insuring that the private operators could achieve a satisfactory profit on commuter service and that they could have access to

new equipment. Out of this grew the Capital Assistance Program. New buses will be bought with state money and leased to private carriers. After 7 years the buses will be sold to the private sector. The EOTC has also proposed legislation which would remove commuter bus regulatory authority from the DPU and give it to the Department of Public Works (which is under their jurisdiction), but this has not been approved.

EOTC was the prime mover in the establishment of CARAVAN, and continues to have a policy interest in vanpooling. The agency also acts as a broker for buspools, advising private employers on how to form them and referring employers to interested private carriers. EOTC does not actively market this service, however.

There are limits on EOTC's promotion of the private sector. For instance, it has not taken a stance on the issue of MBTA turnover of routes to private carriers, and it lacks the control over funding necessary to promote policies such as service contracting. In addition, while the EOTC generally views private sector involvement as a good thing, it is concerned about too much private sector activity, and has attempted to discourage competition between vanpools, public transit, and private buses, as explained below.

#### 4. CARAVAN, Vanpooling and the Issue of Inter-Modal Competition

CARAVAN, the region's vanpooling program, was initiated by the state in 1978. CARAVAN is responsible for vanpooling statewide, but over 80 percent of its vanpools are in the Boston metropolitan area. CARAVAN was established because private employers failed to show much interest in vanpooling; in the entire Boston region only three employers have a major in-house vanpooling program (over 10 vans). CARAVAN is an independent non-profit corporation whose board of directors is composed primarily of representatives from private corporations. It acts as a vanpool broker, organizing vanpools, arranging for vehicles and insurance, guaranteeing leases, and the like. It currently has 81 vanpools in service.

From its inception, CARAVAN faced the issue of vanpooling into downtown Boston. In its original contract with EOTC (the source of its public sector funds), CARAVAN was directed to examine the potential of vanpools to downtown Boston only for public employees, and to focus its attention on service to suburban work sites. In addition, the contract stated that rules would be established to guard against transit ridership losses. Nonetheless, by 1981 approximately one-third of the more than 60 Boston area CARAVAN vanpools were destined for downtown Boston. Inasmuch as downtown Boston contains 20 percent of all the employment in the region, it is hardly

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surprising that it has become a vanpooling market despite minimal CARAVAN promotion.

Although EOTC was initially concerned that CARAVAN vanpools would compete with MBTA services, and sought to establish fences around CARAVAN activities for that reason, the MBTA never made vanpool competition an issue after CARAVAN became operational. With nearly 200,000 persons per day commuting on the MBTA, the loss of riders to 20 or 30 vanpools was viewed as inconsequential. Moreover, the Boston bound vanpools generally serve trips that begin outside the area of extensive MBTA service, so competition was even less of an issue. The region's private bus operators, however, viewed potential vanpool competition much more seriously, and by 1981 were beginning to complain to EOTC that CARAVAN was stealing their riders.

The private bus operators basically wished to prohibit all vanpooling into Boston that originated in communities served by them. They believed that any such competition was inherently unfair because the private carriers were a regulated but unsubsidized industry, whereas the CARAVAN vanpools were subsidized and unregulated. In fact, while CARAVAN vanpoolers do enjoy some subsidy due to the use of public funds for administration and marketing, it is quite modest--EOTC estimated that it amounted to about \$ll per vanpool passenger per month, or approximately \$.20 per one-way trip. EOTC also estimated that the vanpool enjoyed an overall \$.85 cost advantage for a 30 mile one-way trip even at the inadequate bus fares then being charged, so the administrative and marketing subsidy alone was not likely to affect mode choice.

Nonetheless, EOTC was sympathetic to the plight of the private carriers, as many were in such a precarious financial situation that the loss of only a handful of riders to vanpools could make the difference between a marginally profitable route and an unprofitable one. Accordingly, EOTC attempted to devise a means of preventing competition between vanpools and private buses. Eventually it developed a procedure for public agency review of new vanpool placements. It was proposed that new vanpools should not operate between two municipalities which have common carrier commuter service, or even between municipalities adjacent to the origin and destination points if this was part of the same travel market. EOTC also agreed that special considerations would be made for bus overcrowding situations. The inter-agency process of attempting to avoid route conflicts never proved workable, however, because of a lack of resources to administer it and because of the complexity of the agency relationships. It was eventually replaced by a much simpler approach, albeit one which goes directly to the heart of the unfair competition question.

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All CARAVAN vanpools must now cover administrative as well as operating and capital costs unless they receive a waiver because there is no bus route conflict. This removes essentially all the subsidy from these vanpool operations. This is the current approach to the problem of bus-vanpool competition in the Boston region. As noted previously, it leaves the vanpools with a significant cost advantage over the private buses.

## 5. Private Employers and Commuter Transportation

The private employers in the Boston area have not been particularly interested in employee transportation. MBTA and city officials report that employers usually approach local public agencies when a transportation problem arises. Because of the huge local subsidies to the MBTA, local officials normally turn to public transit as the solution if the employer has not directly approached the MBTA. The MBTA does not provide special service or routes for individual employers but major employment sites often figure in route planning.

Given this predisposition to first seek out publicly supported transit service it is not surprising that only four employers have vanpool programs of any size. Digital is the largest with 80 vans. The work site of Digital in suburban Maynard has limited MBTA service. As the average round trip commute is 68 miles, many employees live outside the transit district. The gas crisis was the original impetus for the program which began in 1977. The program is also attributed with keeping employee turnover down, a potential problem since employees are transferred frequently. All operating costs, excluding administrative costs, are passed on to the vanpoolers.

Polaroid runs the second largest program, with 25 vanpools, but is phasing the program out. They began the program in 1975 in response to EPA requirements which stipulate that employers with more than 1,000 employees must offer a vanpool program. Although all fixed and variable costs, except administration, are covered by fares, Polaroid does not feel like bothering with the program any more. Decreasing numbers of employees have made it difficult to maintain vanpools.

Other major companies just do not seem interested in vanpooling. Despite active marketing efforts by CARAVAN, no new employer programs have begun. The director of CARAVAN feels that one important reason that employers are reluctant to initiate vanpool programs is that vanpools are not specifically exempted from state regulation, although they are de facto unregulated. Given the region's continuing investment in public transit, however, many employers may also believe that employee transportation is a personal or public, but not a corporate, responsibility. In addition to the employer vanpool programs, 10 employers support approximately 25 buspools or subscription buses in the Boston region. Many of these began when companies relocated to suburban locations not well-served by transit. Most others are reverse commutes, also in suburban areas.

#### II. Hartford

Since World War II, Hartford has experienced changes similar to many other northeastern metropolitan areas. The central city's population decreased while the suburbs grew. Employment in the central city area declined 25 percent between 1965 and 1975 as a number of businesses relocated to suburban sites. Hartford is the insurance capital of America, and most jobs in the area are office work related to insurance, banking or state government. The last ten years, however, have seen a rejuvenation of the central business district. A new Civic Center and a rapidly increasing number of office buildings have made the CBD a major trip destination once again.

The changes in the location of urban activities were also accompanied by major modal shifts. During the 1960s, bus ridership in Hartford was halved and the automobile became the dominant form of commuting. In the early 1960's private bus companies throughout the state began to fail, and in 1972 the Connecticut Department of Transportation (ConnDOT) began to provide commuter express service. In May, 1976, the privately operated Hartford bus system went out of business and was bought by the state. As other private carriers providing service into Hartford started to fail, the state took over their routes. Newly available federal monies further encouraged expansion of the state's role in transit. Connecticut Transit, ConnDOT's transit agency, now owns the fixed route bus systems in Hartford, Stamford and New Haven, and supplies or contracts for most of the commuter routes in the state.

Although transit is now a public responsibility in Hartford, the shift from private to public sector has not made transit substantially more important in the region. Only in service to downtown Hartford does transit play a major role, carrying approximately 30 percent of all work trips to the CBD. Elsewhere it is far less successful. The major reason for attracting commuter travel to the CBD appears to be parking costs, for while the highways into Hartford are somewhat congested, peak period traffic is not a major problem. Parking has become expensive for both commuters and companies because of new office construction.

#### A. Institutional System

The Connecticut DOT is the major public sector transportation institution in the Hartford area. Although Hartford has a transit agency, it only handles the demand-responsive elderly and handicapped program and projects relevant to the railroad stations. ConnDOT provides local bus service and some express service and contracts for other express service. It also has two vanpool programs. In addition, ConnDOT is the regulatory agency for mass transit, a function it took over from the Public Utilities Commission. All private carriers must obtain a certificate from the DOT. Fares, routes and schedules are all regulated.

ConnDOT's Hartford operation is commuter oriented at present, with a peak to base ratio of 2.4. There are 234 buses active daily. Connecticut Transit runs 18 commuter routes into the Hartford area with trips between 5 and 36 miles each way. Express riders comprise 13 percent of the annual patronage. Six other commuter routes, run by private operators, are subsidized by ConnDOT. There is no local contribution of money to the Hartford transit system. All non-federal subsidies come from the State government. The City also has no direct input to transit planning. Thus the City of Hartford's only influence over transportation results from its reactions to changes in ConnDOT policies.

The Greater Hartford Ridesharing Corporation, Inc. (GHRC), is the region's ridesharing agency. The GHRC was initiated at the end of 1979 by Connecticut General, a private employer, with a \$75,000 grant that was matched by state funds. The first vanpools and carpools were on the road in fiscal year 1980–81. The GHRC offers a number of services including ridesharing promotion, matchlisting, a brokerage for leased vans, administration of the state van lease program, and technical assistance to planning organizations and other ridesharing agencies. During the second year of GHRC's existence, 40 companies made contributions to its budget, and this private sector involvement is expected to grow.

The Chamber of Commerce has also taken an increasingly active role in Hartford's transportation planning. In part the Chamber of Commerce's interest has been stimulated by persons who have moved into the private sector after working for state and federal transportation agencies. At present the Chamber is involved in several studies which are seeking solutions to problems of CBD transportation. The Chamber has helped raise the money for the studies through private sector donations and through UMTA grants. A larger role is anticipated for the GHRC, a Chamber-backed organization, as new transportation systems management projects are developed for downtown Hartford.

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## B. Private Sector Options

The Hartford metropolitan area has been the site of several major private sector activities in commuter transportation. Three activities are particularly noteworthy. First, ConnDOT utilizes the private sector to provide commuter transportation in the form of contract bus service and vanpooling. Second, the business community has been unusually involved in urban transportation matters, and has organized a major employer-based ridesharing program, among other transportation activities. Third, a few private bus companies continue to provide commuter service, although in recent years the number of routes has dwindled and some operators must receive subsidies in order to maintain service.

### 1. ConnDOT's Activities in Commuter Transportation

ConnDOT has been willing to share the responsibility for public transportation in Hartford with the private sector for several years. It contracts with private carriers, sponsors vanpools, works for policies favorable to employer vanpooling, and generally has good working relations with the Chamber of Commerce.

Within the Planning Division of ConnDOT there has been a recognition of the peak period transit problem for some time. But there was still a lingering belief that express routes paid for their expenses. A route-by-route cost allocation study revealed that in fact the express routes contributed an overly large share to the deficit, although by some measures they were as efficient as local service. The peak period in general was also known to be costly. As a result of these studies, ConnDOT is now attempting to find the most cost-effective methods of providing express service and reducing the peak-to-base ratio.

A number of strategies are being discussed. The Operations Division would like to convert all routes over 15 miles to vanpools, thereby eliminating the need for 50 buses. Both employers and the private bus companies could also be encouraged to get involved. The Planning Division is reluctant to relinquish service provision responsibility for long routes. Their proposals include more contracting with private carriers, revision of fares and continuation of some ConnDOT routes, as well as vanpools.

ConnDOT has made a substantial commitment to vanpooling as part of its service development responsibility. There have been a number of programs, including a State Employee Ridesharing Program, Vanpool Assistance Program, the Van Lease program, and successful efforts to obtain legislation favorable to vanpooling, such as tax breaks and exemption from government regulation. In the Hartford area, GHRC handles vanpooling, but ConnDOT will assist their efforts through its Van Lease program. Vans are bought by the State and leased to employers or individuals for 4 years. The vans will then be sold to persons who can give a 25 percent down payment. These vans complement the brokerage program of the GHRC.

ConnDOT provides most of the commuter bus service in the Hartford region, but it also contracts with private bus operators to run 6 express routes. These were routes that had been operated by the private carriers for some time but the carriers became unable to cover expenses through fares in the past few years. Each year the private carriers submit statements of their expenses. From this an hourly rate for service is set, including a small profit margin. ConnDOT also leases buses to the private carriers, builds Park and Ride lots for their routes, and does passenger surveys.

Elsewhere, plans to substitute vanpools for public transit service or to contract for commuter bus service have created problems with transit unions, but the union is not a major consideration in ConnDOT's interest in cutting back its own express services. The union contract contains a provision which guarantees the size of the bargaining unit, but the number of drivers has grown 30 percent since the size of the bargaining unit was set. There is no contractual basis, therefore, for opposing service cutbacks or new service contracting arrangements.

## 2. Private Employer Involvement in Commuter Transportation

Private employers have been unusually involved in commuter transportation in Hartford. The activity has intensified in recent years, but even before many companies initiated vanpool programs in the latter part of the 1970's, organized carpooling and buspooling were common at several large companies. The first energy crisis and environmental concerns provided impetus to companies to become involved in employee transportation, as did the suburban locations of many large employers, which made transit access difficult or impossible.

After the second gasoline shortage in 1979, employee transportation concerns began to transcend the individual company level. The Governor's Ridesharing Task Force provided an impetus to organization of the private sector behind ridesharing, and subsequently Connecticut General and the state provided the seed money for the creation of GHRC. It bears noting that the state was extremely supportive of this private sector initiative, donating policy encouragement as well as funds. Once GHRC was established, it sought to enlist the private sector as a major contributor to its budget. It has been moderately successful in this respect--about 30 percent of its budget comes from private corporations.

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GHRC's activities involve both ridesharing development and transportation planning. With regard to the former, it has directed its major promotional efforts towards upper management in private companies in order to obtain support for organizing employer based ridesharing programs. Recently there has been more of an effort to reach the public at large. The GHRC can directly arrange van leases through two programs, the State Van Lease Program and a commercial leasing company. The GHRC also helps with the purchase of vans through two banks and an insurance company. During the first year (FY 80-81) only 3 vans were put on the road, but during the second year (FY 81-82) 40 vanpools were started. (This does not include programs operated in-house by employers.)

Although vanpooling development (and ridesharing generally) will continue to be one of GHRC's central functions, it seems likely to become much more actively involved in all phases of transportation planning for Hartford. It is already providing technical assistance in the planning for and management of Hartford's transportation needs, and this function will probably increase in importance. GHRC has close links to the Planning Division of ConnDOT, the planning department of the City of Hartford and the leadership of the Chamber of Commerce.

The Chamber of Commerce has also become quite active in transportation planning. This has resulted from the initiatives of individuals who have crossed over from the public sector to the private sector. GHRC and the Chamber of Commerce have been able to stake out a leading position in Hartford transportation planning and decision making without major difficulties due in part to the absence of local transportation institutions with a vested interest in particular strategies. As noted previously, there is no local transit agency, the City is not pro-active in transportation, and ConnDOT is interested in non-traditional service delivery strategies. In addition, GHRC and the Chamber of Commerce have close ties to ConnDOT, so cooperation has not been a problem. Future activities will take such forms as the development of parking management and flex-time programs and other TSM actions, as well as continued promotion of ridesharing.

Even though the private sector in Hartford has now organized commuter transportation activities at a multi-company level, many companies continue to maintain major in-house ridesharing programs. Currently, twenty-one Hartford employers have ridesharing programs; fourteen of these are vanpool programs. Most of the programs are relatively small except for the ones at Aetna Life & Casualty (144 vans), Connecticut General Life Insurance (54), Hartford Fire Insurance Group (24) and

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Wells Fargo Equipment Leasing (36). Many of the vanpool programs serve companies that are located in the suburbs or have relocated out of the CBD. Current zoning laws require a certain number of parking spaces based upon the square feet of space in new buildings, but some companies are now negotiating to substitute a ridesharing program for some of the parking spaces.

There are still a few buspools/subscription buses serving major employers, such as New England Telephone Company which has 10 bus runs a day. But a number of companies have switched to vanpools because they are cheaper. According to ConnDOT, the rates charged by the private carriers were often quite high because they were based on charter rates. Vans now have many economic advantages including tax exemptions.

#### 3. Private Commuter Bus Operations

Private bus operators in the Hartford area have been withdrawing from commuter service over the past decade, but a few companies still provide such service. Several of the routes are now subsidized by ConnDOT, however, as they are no longer self-sustaining despite fare increases. The advent of subsidized ConnDOT express service accelerated exit from commuter service, and the private operators believe that contract operations will eventually be the only type of service which is financially viable. The experiences of two carriers illustrate the current situation of the private bus industry.

Dattco, Inc. runs one subsidized express route into Hartford. The company's main income generators, however, are school buses (75 buses), charter work (18 buses) and local service subsidized by ConnDOT in two suburban towns. Dattco began commuter work in 1962 but has mostly withdrawn because of the economics and the advent of subsidized connDOT service. According to Dattco's owner, they had one route which ConnDOT duplicated when it entered the express bus business. The latter's lower, subsidized fares drove Dattco out of that corridor. For a time, Dattco operated some of ConnDOT's commuter routes but withdrew because no profit was calculated into expenses. Dattco maintains its one subsidized express route because it is a steady income and profits are now guaranteed, but will not enter the commuter business again without a guaranteed income, i.e., a contract.

Collins Bus Company started as a school bus service in 1912. More of their business now relates to charter work. They run one express route which receives no operating subsidy from ConnDOT and is apparently profitable. However, they are

subject to the same regulations and reporting requirements as the subsidized companies. Their express route got started at the request of the mayor of a suburban town after ConnDOT refused to do it. Collins would like to take over some ConnDOT routes or do more contract work, as long as a market or profit is guaranteed. Collins also operated subscription service for a private employer in Hartford, but was recently displaced by a vanpool program. At present Collins cannot expand because of equipment shortages. ConnDOT regulations restrict how much charter and transit work can be integrated, so the existing equipment cannot be used efficiently. In the past, ConnDOT has required lift equipped vehicles and opportunities for new routes have been lost because of this restriction.

Competition between vanpools and private buses has not become a major issue in the Hartford area. The private carriers acknowledge that vanpools have taken some riders from their routes, but claim not to be overly concerned.

#### III. Norfolk, Virginia (Tidewater Region)

The Tidewater region of Virginia consists of five cities--Norfolk, Virginia Beach, Portsmouth, Chesapeake, and Suffolk--with a collective population of 800,000 people. The region is characterized by very low density, less than 1500 persons per square mile for the entire SMSA. Norfolk has traditionally been the region's hub and was settled at higher densities. Recent growth has occurred mostly in the other cities, however, primarily Virginia Beach, whose population now exceeds 250,000. This growth has been at low densities even by typical suburban standards. Consequently, the automobile-highway system has long been dominant in the region and mass transit has been a minor presence. The major markets for transit are downtown Norfolk and Portsmouth and the several naval bases and shipyards which are the region's basic industries.

The region's public transportation agency, Tidewater Regional Transit (TRT), is among the most innovative transit agencies in the U.S. TRT has consciously avoided the development of a high peak to base ratio, preferring to serve peak period demands only when the service is highly productive and no other option exists. TRT has its own vanpool program which it offers as a substitute for peak transit service, has promoted the use of private commuter buses, large numbers of which operate in the Tidewater region, and has even purchased buses and leased them to private operators for commuter service. In addition to its encouragement of private sector commuter transportation activities, TRT also contracts with the private sector for both demand

responsive and fixed route service in areas where conventional bus service would be unproductive. In general, TRT views itself as a broker of public transportation services, an agency which will directly provide only those services for which a more qualified or cost-effective provider is not available.

In addition to TRT's activities on behalf of private sector options, the Tidewater region contains one of the country's largest sources of private, unsubsidized commuter bus service. Approximately 90-100 commuter buses provide service to the naval bases and shipyards in Norfolk and Portsmouth. These services, which predominantly utilize school buses and are organized like buspools, date back to World War II. Carrying an almost exclusively blue collar work force in a no-frills type of service, they have managed to survive despite competition from automobiles, vanpools, and public transit. Although the commuter buses in the Norfolk area may be uniquely suited to the characteristics of their market, they do illustrate that such private service can still be viable under the appropriate circumstances.

#### A. Institutional System

The major actors in public transportation in the Tidewater region are the five cities who comprise the Tidewater Transportation District Commission (TTDC), the Commission itself, and the TRT staff. The private bus operators and TRT's union also have a minor role in institutional matters.

TTDC was established in 1975 and by 1977 all public transit in the region was under its jurisdiction. The private mass transit companies in the region did not fail until the early 1970's, and when the largest operator ceased operations, the City of Norfolk took over the operation. Two years later TTDC was formed. Thus <u>public</u> transit has a relatively short history in the Tidewater region, a fact of some significance.

When the cities in the region agreed to create TTDC, they did so only to maintain transit and not because they believed that it was the solution to the area's transportation problems. Those problems, in fact, are quite minor in comparison to most large metropolitan areas, consisting primarily of short duration congestion on the approaches to the tunnels and bridges which traverse the region's waterways. The region's political leaders never expected that transit would make a major dent in automobility; it was viewed primarily as a needed public service for those without automobiles. Like all public services, it should be provided in the most cost-effective manner possible. In particular the cities should not have to raise taxes to support transit. As the five cities are the main source of non-federal operating subsidies (the state of Virginia contributes less than 10 percent of total subsidies), this meant that from the outset public transit had to operate under definite budgetary constraints.

The five municipalities exert uncommon influence over the regional transit agency by virtue of the fact that all local subsidies for TRT are non-dedicated funds, and each city pays only for the service it receives. Thus the cities have a strong incentive to request only the service that they really need, and to require that TRT maximize the cost-effectiveness of that service. This funding situation has led the cities to adopt a performance oriented view of TRT service, and has also resulted in two of the cities--Suffolk and Virginia Beach--deciding to provide their own internal bus service. These two cities concluded that TRT service was simply too expensive. Therefore, they contracted for the use of TRT buses and hired their own bus drivers to operate them, at considerably lower wages than TRT drivers.

TRT's management is formally responsible to TTDC (and through the Commission, the cities), but it has developed some independent influence by virtue of its strong committment to a non-traditional approach to service delivery. The region's formal transit decision makers have been pleased by TRT's efforts to reduce the level of needed subsidy, and thus tend to give management consistent support for carrying out its innovations.

TRT's drivers and mechanics are represented by the Amalgamated Transit Union, Local 1177. The union has been ineffectual in attempting to prevent TRT management from implementing schemes involving the use of non-TRT personnel to provide services which in most transit agencies would be handled in-house. The union has been unable to sway the TTDC commissioners to support their view. Local observers attribute this to the fact that Virginia is a "Right to Work" state and that unions in general have limited clout, plus the fact that the transit union does not have much of a constituency. In contrast, the commissioners are under strong pressures from the local taxpayers to keep taxes down, which translates into incentives to keep TRT costs low. Thus the union finds itself at a substantial political disadvantage, and has been forced to resort to the courts in an attempt to prevent the diversion of transit services to non-TRT operators. Local 1177 has filed 13(c) complaints against all of TRT's contract operations, but the cases have not yet been decided. (TRT and the union recently agreed to establish a new "paratransit operator" position for drivers, at a very low wage. This gives the agency the option of providing paratransit service in-house, and has led the union to drop its legal suits.)

## B. Private Sector Options

1. TRT's Initiatives to Promote Private Service Delivery for Commuter Transportation

TRT has undertaken two major activities to increase the supply of privately provided commuter transportation in the Tidewater region. The first is the agency's own vanpool program. Second, it has attempted to facilitate the development of private commuter bus services, notably through its bus lease program and promotion of private bus service.

# TRT Vanpool Program

TRT began its vanpool program in 1977 as a UMTA sponsored Service and Methods Demonstration (SMD) project. TRT was one of the first transit agencies to sponsor a vanpool program. It did so because the agency's top management viewed vanpooling as a natural public transportation market, and believed that TRT had the capability of serving this market. As the region did not then (and does not now) have a separate ridesharing agency, TRT management recognized the agency would have to take the initiative to develop vanpooling. Management perceived vanpooling as a key element of TRT's commuter service program, and decided to use the SMD program as the vehicle for developing its program.

TRT never viewed vanpooling as creating a problem by competing with regular fixed route transit. Management adopted the stance that the market would sort things out and that if vanpools cut into other commuter services, such services could be reduced. Vanpools were thus seen as a means of improving the overall cost-effectiveness of TRT's commuter service.

One sticky problem in developing the vanpool program was the UMTA requirement that a 13(c) agreement be executed with the union prior to obtaining funds for the project. Local 1177 was concerned about job losses due to vanpooling, and insisted that strong protections be included in the agreement. TRT agreed not to form vanpools in origin-destination patterns served by existing TRT services, and also guaranteed the size of the bargaining unit for the duration of the project. As the project is now over, neither stipulation still applies. In any case, TRT never hesitated to form vanpools at sites served by transit, so long as they did not directly duplicate a transit route.

TRT handles all the marketing and accounting of the vanpool program, and also agreed to have all van maintenance done by TRT personnel. The latter stipulation was another 13(c) concession to the union in bringing the vanpool program in-house.

TRT initially targeted its vanpool program at the naval bases and shipyards in the area. After that market was developed, they expanded the program to the entire

region. At its height, TRT's vanpool program had 100 vans leased. Subsequently, they sold 34 vans to individual vanpool operators, and now lease 67 vans. In addition, TRT acts as the leasing agent for the vanpool program of the ridesharing agency in the neighboring Newport News region, although the latter handles all the marketing functions.

Vanpooling has been most effective at the naval facilities, which are the destination for over half of TRT's vanpools. The Navy has encouraged ridesharing, and parking is inconvenient at the Norfolk Naval Shipyard, the site of 12,000 employees. Few other employers in the region have demonstrated much interest in vanpooling, in large part because employee access is not problematic and parking is abundant and inexpensive. Only three large private companies in the Norfolk CBD have any vanpooling activity.

## Facilitation of Private Bus Service

After TRT's vanpooling program had been operational for two years, a private commuter bus operator approached TRT and inquired about the possibility of leasing buses from the transit agency. In response, TRT purchased 8 school bus type vehicles, installed reclining seats, and leased the vehicles to the operator. TRT management viewed the buspool lease program as a natural addition to vanpooling, another no-cost (or very low cost) way of serving the commuter market by using the private sector. Presently, TRT owns 10 buses which they lease to either companies or private entrepreneurs for commuter service (7 are currently leased). The buses cannot be used for other purposes, such as charters, because the purpose of the program is to expand or improve public transportation services.

In addition to leasing buses to private operators, TRT has also attempted to promote the private commuter bus services in the region, virtually all of which serve three major naval facilities or shipyards. TRT has had less success in this undertaking, in large measure due to the difficulty in keeping track of the routes of all the work bus services. This difficulty stems in part from hostility towards TRT on the part of some of the private bus operators, who believe that TRT has promoted vanpools at their expense. Consequently, they will not give TRT information on their routes out of fear that the transit agency will steal their riders. Despite this competition problem, which is explored in more detail below, the TRT ridesharing staff does maintain an information referral program for all the bus services of which it is aware.

Although TRT has made a strong committment to vanpooling and private buspooling, it has not created a formal ridesharing department within the transit agency. In top management's view, ridesharing is simply a means to an end--improved cost-effectiveness for TRT's commuter services--and not an end in itself. Thus, all of TRT's ridesharing activities are considered part of the service development function and can be altered if better strategies become available. Top management believes that this loose organizational approach is most compatible with the agency's overall goal of matching supply to demand in a cost-effective fashion.

# 2. Private Commuter Bus Service

## History and Organization

The Tidewater region has an unusual amount of private commuter bus service for an urban area of its size. The private "employee haulers", as they are known locally, primarily serve three large employment sites--the Norfolk Naval Base, with 40,000 workers; the Norfolk Naval Shipyard (located in Portsmouth), with 12,000 employees; and Newport News Shipbuilding and Dry Dock, across Hampton Roads in Newport News, with 25,000 employees. The commuter bus services began shortly after World War II, and have continued uninterrupted to the present time. Although the precise number of buses is not known, estimates are that approximately 65 to 70 work buses serve the Navy Base and the Norfolk Naval Shipyard, with most at the latter site. Another 25 to 30 buses serve the Newport News Shipbuilding facility, although some of those originate on the Newport News side of Hampton Roads.

In contrast to most private commuter bus services which offer a high quality of service at moderate to high fares, those in the Tidewater region are a low cost, no-frills service. Most operators use school buses as vehicles, although on some of the longest routes better equipment is utilized. The bus driver is one of the workers, and thus the service constitutes what is typically classified as a buspool. Fares are very low, typically \$6 to \$12 per week. The clientele is almost exclusively blue-collar workers. Routes are tailored to the locations of the riders, and while central gathering points are used as much as practicable, the bus is also routed as close to a rider's residence as possible. Because of the numerous pick-up points along the route, much of the bus run is not in an express mode. Consequently, travel speeds are relatively low compared to the automobile. For example, one route from northeast Norfolk to the Naval Shipyard requires 45 minutes to travel a distance of 17 miles.

The commuter bus industry in the region is composed of two different types of bus operators. One type of company is a full service bus operation which does charter work and contract service in addition to its commuter bus service. The other type of operator is an individual entrepreneur which solely provides commuter bus service. Some individuals operate only 2 or 3 buses, while the largest now operates 32 buses.

The full service bus companies operate work bus service as an adjunct to their other services. For example, Gallup Bus Lines, the largest full service bus company in the area, owns 25 buses, only 6 of which are used for commuter service. Both school buses and reconditioned used transit buses are utilized for commuter service. Other charter operators have even used inter-city coaches for very long commuter runs (some routes originate in North Carolina). The use of inexpensive vehicles is important, however, because the buspool nature of the service means that the commuter bus equipment is not available for other use (such as charter) during the midday, and thus the vehicle amortization charges must be paid out of commuter fare revenue. (Weekend charter service is also possible.) But with competition keeping fares low, this means that amortization must be kept to a minimum. Some charter companies have exited the commuter market because of the difficulties of melding the two types of services.

Work transportation services are exempt from economic regulation in Virginia (an operator needs only a license available on demand), so any company or individual can enter the commuter bus industry. The majority of commuter bus service in the Tidewater region is provided by individual entrepreneurs. Most of these employee haulers operate only a handful of buses. One employee hauler, however, Eddie Upton, was operating 32 buses in mid-1982. According to other operators, Upton had become the largest employee hauler in the history of the Norfolk commuter bus industry.

# Service Initiation, Competition, and Economics

Organization of the employee hauler services is not formalized but nonetheless follows definite patterns. The entrepreneurs typically got into the bus business by driving someone else's bus or by taking over a bus route which an existing operator was anxious to sell. Buses go with routes, and while there has been some totally new entry into the industry, most new operators buy another employee hauler's routes and equipment. When new routes are started, it is usually because an existing bus is overloaded or because a group of workers approaches an operator and requests a new route. The operator usually insists that the interested workers guarantee a minimum number of riders before service is initiated.

All the operators know each other, and a code of conduct has developed which strongly discourages competition. Competing on the basis of either price or service is not viewed favorably, and moving into another operator's territory will engender very

hard feelings. Even when one operator is providing substandard service (usually poor equipment) which causes riders to approach another operator and request service, the latter is typically reluctant to comply for fear of breaking the unwritten rules. Consequently, there tend to be route monopolies and informal collective price setting. A few years ago a new operator tried to compete aggressively, using new equipment leased from TRT and operating along routes served by other private haulers. The other operators bitterly complained and made threats, but ultimately his operation ceased because the fares were too high and the breakeven load factor too great.

There are three keys to success in the Norfolk commuter bus industry. The first is the capabilities of the owner of the operation, the second the existence of good drivers, and the third the ability to obtain inexpensive yet serviceable equipment. While ownership of a commuter bus operation can be reasonably lucrative, it is not a particularly easy way to make money. A good employee hauler can make as much as \$4000-5000 profit per bus per year, according to revenue and expense estimates from those in the industry. To do so, however, requires that the owner also be the chief bus mechanic (unless the operation is quite large), that he or his family do all the financial record keeping, and that he maintain constant communication with drivers concerning the condition of the bus and the ridership level. In other words, the entrepreneur must approach employee hauling as a full-time job, even if he already has another job. In addition, the owner must know how to purchase satisfactory equipment, as buses which are too expensive to fix-up or which prove mechanically unreliable can quickly place an operator in a difficult financial situation. Riders will desert an operator who uses unreliable equipment.

Employee haulers depend on the driver not only to drive the bus in a safe and mechanically sensible fashion, but also to serve as the chief recruiter for new riders. Because of the low cost nature of the service, the breakeven load factor can be as low as 50 percent, and is never more than 75 percent when school buses are used. The driver's task is to keep the load factor comfortably above breakeven. Some operators pay their drivers a percentage of the gross revenue as an incentive. Even those who pay a flat weekly rate try to set the amount at a level which gives the driver an incentive to maintain the viability of the service, and hence to protect his/her job.

Inexpensive equipment is the third ingredient of success in the commuter bus industry. The employee haulers purchase used school buses for minimal amounts, restore them to good working condition, and then hope they last for 3 or 4 years. Used school buses can cost as little as \$800 or as much as \$3000; one operator indicated his

buses cost about \$2000 each. Additional sums must be spent to bring the buses into good operating condition, but the total investment is still less than that of many used automobiles. Although TRT's bus lease program utilizes buses which cost only \$12,000-15,000 new, the lease rates are simply too expensive for most of the employee haulers. The one Norfolk operator which did lease several TRT buses found that he had to charge higher fares than his competitors to cover expenses, and this placed him at a severe competitive disadvantage.

## Vanpool Competition

Although the commuter bus industry in the Tidewater region has been viable for many years, some of the employee haulers now feel vulnerable to competition from vanpools, particularly TRT sponsored vanpools. The full service bus companies do not perceive vanpool competition as a problem, but they are not solely reliant on revenues from commuter services. The independent entrepreneurs, however, are concerned with any loss of riders to vanpooling, and bitterly resent TRT's vanpool program.

TRT recognizes that the employee haulers perceive its vanpools as unfair competition. Accordingly, the transit agency developed a policy that it would not lease vans to individuals who were riding on private buses. The screening process was less than perfect, however, and apparently several vanpools were formed directly off of commuter buses. The vans offer a higher level of service than the buses--more comfortable equipment, lower travel time--even though the fare is somewhat higher. TRT viewed the loss of ridership by the private bus operators as unfortunate, but also as a matter of commuters responding to choices in the market.

Whereas TRT sees impersonal market forces at work, the employee haulers are small businessmen who have a much more personal view of competition. As noted earlier, an unwritten rule within the work bus industry is that one does not compete for the same market as an existing operator except in unusual circumstances. Some operators claim that buses had to be terminated or operated at a loss as a result of TRT's vanpools. The revenues lost to vanpooling are part of their livelihood, and it seems to them grossly unfair that a government agency should be able to adversely affect their income. In their view, their present ridership is "their" ridership, and they do not easily accept the argument that commuters should have the right to choose among different alternatives when one of those alternatives is promoted by a public agency.

TRT is sensitive to the employee haulers' distress, but has no intention of giving these operators veto power over its vanpool program. Top management agrees that

that more careful vanpool screening and better communications of the purpose and rationale of the vanpool program might have improved relations with the employee haulers, but is not convinced that any amount of communication would have made all the operators understand that some forms of competition are appropriate.

#### IV. Newport News

The Newport News-Hampton SMSA is located on the lower Virginia Peninsula across Hampton Roads from Norfolk. The metropolitan area has a population of approximately 350,000 persons, of whom about three-quarters reside in the two central cities. The region is experiencing relatively slow growth, and most new development is taking place outside the downtown areas of Newport News and Hampton, although there are plans for major downtown development. Overall, the region is characterized by low density development (even the central cities have population densities of only 2000 to 2500 persons per square mile) and an automobile-dominated transportation system. Less than 5 percent of all work trips are made by transit.

The Peninsula region, as it is referred to locally, is heavily dependent upon a few large employers for its economic base. Five major employers--NASA, three military installations, and the Newport News Shipbuilding and Drydock Company--account for 50,000 jobs, nearly half of all employment in the region. The largest employer is Newport News Shipbuilding, with 20-25,000 employees. The largest private employer in the state, the Shipyard has long been a major factor in commuter transportation by virtue of its size and its location on the edge of downtown Newport News. With a lack of sufficient parking space to accommodate all of its employees' automobiles, the company subsidized publicly provided express bus service for its employees until 1982. Many private buses and vanpools also serve the Shipyard, as some of its employees commute 50 miles or more each way.

The Peninsula Transportation District Commission, whose bus operation is called Pentran, provides public transportation in the region. Like its counterpart in the Tidewater region, PTDC has adopted an innovative approach to the delivery of commuter transportation, developing a major ridesharing activity and its own vanpooling program (both of which are handled by the Easyride brokerage project within Pentran) and encouraging private bus operators to provide commuter service. Only recently, however, has Pentran management made a strong organizational commitment to matching supply to demand. The agency has a high peak to base ratio, approximately 3 to 1, as it provides both commuter express service to the Newport News Shipbuilding Company and peak period only service to other major employment locations. During the past few years, the PTDC commissioners (local elected and appointed officials) have been actively seeking strategies to change the service delivery system to promote improved cost-effectiveness.

# A. Institutional System

The institutional system for commuter transportation in the Peninsula region is quite simple. Responsibility for public transportation lies with the PTDC, created in 1975 by the Cities of Newport News and Hampton, which are its only municipal members. PTDC in turn has established two operating arms, Pentran and Easyride, to carry out its service delivery responsibilities. Pentran operates the fixed route bus system and Easyride is a transportation broker which is responsible for the ridesharing program and other paratransit activities. Pentran and Easyride answer to the PDTC Executive Director, who in turn is responsible to the Commissioners. The Commission consists of three members from each of the two cities and a representative of the Virginia Department of Highways and Transportation. PTDC does not have taxing authority, and hence is dependent upon the two cities to provide the local share of any required subsidies. Of its \$6 million budget, approximately one-third comes from municipal general funds.

From its inception, PTDC has adopted a fiscally conservative approach to public transportation. PTDC was formed only to prevent mass transit from disappearing due to the imminent cessation of service by the private transit operator which previously served the region. As in the neighboring Tidewater region, there was little conviction locally that transit was the answer to the region's transportation problems, in large part because the problems are minor and transit is such a small presence. But while <u>saving</u> transit was an easy policy to agree upon, few decision makers recognized at the time that major subsidies would soon be required to <u>sustain</u> public transit. By 1978 the local deficit had increased to \$1.6 million, however, and the City Councils were becoming resistant to using local property taxes in such large sums to support transit. As the two cities hold the purse strings for PTDC, this resistance to further subsidy increases represented a major political event. The result was a search for more cost-effective approaches to transit service delivery and the subsequent development of the Easyride ridesharing brokerage program.

## B. Private Sector Options

## 1. Pentran's Ridesharing Brokerage Activities

Beginning in 1977, the PTDC began to investigate alternative ways of delivering public transportation in the Peninsula region. The PTDC policy makers were alarmed by the escalating subsidy requirements for Pentran, yet at the same time wished to develop alternatives to single occupant automobile travel, at least for work trips. The Chairperson of PTDC had become acquainted with the transportation brokerage concept then being promoted by the University of Tennessee, and believed that this might be a productive approach for PTDC to pursue. The Commissioners came to recognize that Pentran's high peak to base ratio represented a major obstacle to developing more cost-effective transit service, and concluded that expansion of peak period transit was not a viable option. They also became aware that a substantial private sector supply of collective transportation already existed on the Peninsula. The Newport News Shipyard in particular was the destination for numerous vanpools and private work buses.

Accordingly, the Commission decided that the brokerage approach was worth a try. A proposal was prepared and funding was sought from the UMTA SMD program to conduct a two year planning study to define and evaluate alternative paratransit techiques for meeting various transportation needs of the Peninsula. Particular emphasis was placed on serving the five major Peninsula employers. In April, 1978 UMTA approved the planning grant.

Easyride, as the brokerage organization was named, began life in mid-1978. Although the agency had been established with a broad mandate to seek out paratransit strategies appropriate to addressing a wide range of problems, it soon decided to limit its scope. A number of factors were responsible for this decision. Easyride was to report to the Executive Director of PTDC, but this individual was also the General Manager of Pentran. Pentran's management is provided by a transit management company, and the General Manager who was hired from this company had a traditional transit background. This individual viewed the entire brokerage concept with disfavor, and was not supportive of Easyride's role within PTDC. Thus, in contrast to TRT, the support of top management for innovative activities was lacking.

In addition, the early efforts by Easyride to function as a full service brokerage organization proved problematic. Attempts to survey private bus operators to determine what commuter services were being offered on the Peninsula met with resistance. Only 4 of 15 companies contacted cooperated with the survey and Easyride established a working relationship with only one provider. Although vanpool

competition was not an issue at this time, competition from Pentran charter operations was a sore point with the private operators, and perhaps the major reason for lack of response. Similarly, a survey of park-and-ride facilities led to no action.

In its first six months, therefore, Easyride essentially redefined its function as that of a conventional commuter ridesharing organization. It would do employee surveys at major companies, develop matchlists for carpools and vanpools, and arrange for the leasing of vans. In order to perform these activities, however, Easyride had to become an operational agency as well as a planning agency. This required an amendment to the original UMTA grant. In order to secure this amendment, a 13(c) agreement with Pentran's labor union was necessary.

The 13(c) agreement proved unexpectedly easy to obtain, even though Pentran's union is the same as TRT's (ATU Local 1177) and labor negotiations between TRT and the union have been quite difficult. Pentran agreed to protect the size of the bargaining unit against effects by the Easyride project, and to place unspecified restrictions upon Easyride services to prevent them from competing with or replacing Pentran's fixed route operations. In mid-1979 UMTA agreed to the grant amendment, awarded Easyride additional funding, and the agency began to implement its ridesharing programs.

During the next two years Easyride developed employer based ridesharing programs, marketed vanpools, and also facilitated private bus services in two instances. Easyride handles the employee surveys and the creation of matchlists for the company ridesharing programs. The vanpool program uses vans leased by TRT. Rather than create a second source of vans in the area, UMTA had suggested that TTDC and PTDC develop an arrangement whereby the former would be responsible for van acquisition and leasing arrangements for both agencies. An agreement between TRT and Pentran to accomplish this plan was reached in 1980. Pentran does maintenance on the vans which Easyride places in service. Easyride was successful in brokering the formation of two new private bus services, and also helped a private carrier take over a Pentran commuter bus route which was terminated when a neighboring county was no longer willing to pay the subsidy. The agency also assisted individuals who started buspools in the wake of this service termination in finding passengers and leasing vehicles from TRT.

## 2. Attempts to Alter the Public Transit Service Delivery System

When the Reagan Administration announced in 1981 that it intended to phase out federal operating subsidies to transit, PTDC began to assess its options for the future.

Nearly one-half of all Pentran operating subsidies are provided by the federal government, and the cities of Hampton and Newport News are simply not financially able to double their assistance to transit. The Commission recognized that if federal operating subsidies were in fact eliminated, or even substantially reduced, Pentran's services would have to be scaled back. Given the high peak to base ratio of the bus system, the obvious candidates for service reductions were peak period operations.

This new situation renewed PTDC's interest in Easyride's potential to act as a transportation broker for commuter services. If Pentran's peak period services would have to be reduced, an obvious role existed for Easyride to assist in the development of privately provided bus and van services to pick up the slack. Thus, in 1981 Easyride outlined a Brokerage Plan to the Commission and began the studies needed to implement it. The components of the plan involved an inventory of existing private transportation services, a route and ridership analysis of the existing Pentran services, an analysis of the employer survey results, an analysis of the costs of the different types of Pentran services (particularly peak and off-peak services), and the development of service delivery options for addressing declining funding levees. By the end of 1982 the studies were completed and Easyride was engaged in developing service options. The most radical options involve the termination of many Pentran peak period services, such as the Shipyard Express runs and school bus service, and then the leasing of vehicles to private carriers, individual entrepreneurs, or the school district to provide such services on an unsubsidized basis.

While some of the Commissioners believe that brokerage is the appropriate approach to PTDC's possible financial dilemma, only recently has the top management of Pentran begun to accept this view. Pentran had a succession of traditional minded general managers during its first several years of existence; most did not even understand what paratransit or brokerage included. The current general manager, however, has proven receptive to new directions in service delivery. In July, 1983 Pentran developed a Department of Brokerage and Development to take on responsibility for both the Easyride program and innovate service delivery strategies. The idea was that this department would become the organizational focal point for strategies which match supply to demand in the most cost-effective fashion.

Progress towards actual implementation of such strategies is likely to be slow, however. Some of the fiscal pressure to initiate brokerage strategies has been reduced now that the threat of complete Federal withdrawal of operating funds has abated. In

addition, private sector strategies which reduce the number of Pentran bus drivers will be implemented only as attrition decreases the ranks of such employees.

There is thus considerable potential for PTDC to adopt an innovative approach to commuter services, but there is no guarantee that such an outcome will occur. If it does not, Easyride will remain a relatively conventional, albeit reasonably successful ridesharing organization within a transit agency. It has developed 47 vanpools and 7 buspools in the region, has helped 4 of the 5 major employers establish active ridesharing programs, and stimulated 23 companies to designate ridesharing coordinators. It is also working with economic development organizations (such as the Chamber of Commerce) to develop employer support ridesharing. In addition, it has served as the organizational repository of the concept of matching supply to demand. If service delivery changes do occur it will be because Easyride has continually supported the brokerage concept and given the Commissioners a vision of alternative service delivery scenarios.

#### V. San Francisco Bay Area

The San Francisco Bay Area encompasses nine counties, stretching from San Jose in the south to Santa Rosa in the north and from the City of San Francisco to Livermore in the east. The region contains four different SMSA's and is the home of over 5 million persons. It is characterized by a fascinating diversity of urban and suburban environments: the sophistication and many faceted street life of San Francisco, the industrial parks and sprawling residential sub-divisions of Santa Clara County (San Jose), the university community of Berkeley, the established middle class suburbs of the East Bay, the natural beauty and expensive homes of affluent Marin County, and the small (but growing) semi-rural communities on the outskirts of the region.

As befits a region of such diverse settlement patterns, transportation conditions and commuting patterns vary widely. The San Francisco-Oakland SMSA at the core of the region has the third highest usage of public transportation for commuting in the entire country, whereas the San Jose SMSA has the 7th lowest rate of transit usage among the 38 largest metropolitan areas. Many of the region's major freeways and highways are congested during peak periods, and severe congestion is present on all the routes leading into San Francisco. Not surprisingly, it is in these corridors that transit commuting is concentrated. It is estimated that over half of downtown San Francisco's workers commute by transit, and that about half of the remainder rideshare. Transit carries a high percentage of the commuters into San Francisco from the East Bay and across the Golden Gate, where limited capacity toll bridges are the only access routes into the city. In fact, the transit systems which serve these corridors (AC Transit and BART from the East Bay to San Francisco, Golden Gate Transit from points north of the Golden Gate Bridge to San Francisco) are often overloaded during peak hours, but face physical or fiscal limitations on service expansion.

In contrast, 97 percent of all vehicular work trips in the San Jose SMSA are made by automobile despite heavy peak period congestion on its roadway network and an expansionist transit agency which is attempting to capture more commuter travel. Unlike San Francisco, however, the San Jose area has no central concentrated focus for employment nor any major geographic constraints on movement. Consequently, transit is much less able to offer a level of service competitive with automobile commuting. Similar conditions prevail in the other more recently populated areas of the region.

Although transit usage in the Bay Area is heavily concentrated in the central counties of the region and on travel to the core, regional institutions have adopted transportation policies which are generally favorable to transit and are not in most cases designed to accommodate increases in automobile travel. This "Transit First" policy has focused on traditional public transportation solutions to transportation needs and problems, notably expansion of bus service and planning for additions to the rail transit system. Only in recent years have the region's transportation institutions adopted a somewhat broader perspective on what strategies public transportation should encompass. The private sector options which have emerged have thus arisen out of circumstances in which conventional transit could not address commuting problems, or in which some organization other than a transit agency assumed the leadership in problem solving.

Three major private sector options have been implemented in the Bay Area. North of San Francisco, the Golden Gate Bridge, Highway and Transportation District (GGBHTD) now sponsors a major ridesharing program which includes subsidized subscription bus service provided by private operators under contract, vanpooling services, and carpool matching and vehicle leasing. In the southern portion of the region, the Santa Clara (County) Manufacturing Group (SCMG) has taken the initiative in promoting the development of ridesharing programs by its 80 member companies, and provides technical assistance in helping companies establish programs. In addition, SCMG helped influence the Metropolitan Transportation Commission (MTC) to develop a program to train company ridesharing coordinators, a program which has to date primarily benefited Santa Clara County employers. The third major initiative is the

regionwide vanpool development and carpool matching activities of RIDES for Bay Area Commuters, Inc., the region's ridesharing agency. In a region where employers have been reluctant to establish their own ridesharing programs (except in Santa Clara County), RIDES has been the leading force for the development of vanpools and carpools to serve both major concentrations of workers as well as scattered employment sites.

## A. Institutional System

A multiplicity of transportation agencies are present in the Bay Area, but this complex institutional system is somewhat simplified for public transportation matters by virtue of the fact that each transit agency has a well-defined sphere of authority. There are six major transit agencies--BART, AC Transit, GGBHTD, Santa Clara County Transit District (SCCTD), San Francisco Muni, and San Mateo County Transit. With the exception of the BART rail system, the transit agencies do not overlap jurisdictionally, except in downtown San Francisco. Both AC Transit and GGBHTD provide service into San Francisco, but not within the city. Elsewhere, each county or group of counties is served by a single transit operator.

The Metropolitan Transportation Commission is responsible for short and long range regional transportation planning, for coordinating the policies and services of the several transit operators, and for making decisions about capital investments and subsidy allocation. Although the MTC is potentially authoritative with respect to the transit agencies, it has tended to defer to the operators ever since its inception. In part, this is due to the fact that the transit agencies each have their own local funding base and therefore have greater or lesser degrees of fiscal independence. In addition, AC Transit and San Francisco Muni were established long before the MTC. Although the MTC controls the distribution of state subsidy funds, there is great pressure not to use this authority except at the margin, and formula allocations have been developed to ensure that this in fact occurs. In particular, the MTC has been hesitant to criticize the service delivery policies of the transit operators, as they are viewed as having more legitimacy than itself in making operational planning decisions. The MTC has thus adopted a traditional posture towards transit service planning and has devoted much of its efforts to improving coordination of the services and fare policies of the different operators. The operators, consequently, have considerable autonomy, and are the ultimate decision makers on public transportation issues which primarily concern each individual agency.

## 1. San Jose

The key institution for public transportation in the San Jose metropolitan area is Santa Clara County. The County operates the transit system and the County Board of Supervisors make all major public transportation decisions in their capacity as the board of directors of the Santa Clara County Transit District. Transit is thus a highly autonomous mode in San Jose.

Since public transit's inception in the region in 1971, the County has had major ambitions for the transit system. In 1973 it implemented the most ambitious integrated DRT-fixed route system ever attempted in the U.S. in an effort to spur transit patronage in its low density service area. However, this attempt at innovation proved to be a costly fiasco, and was eventually abandoned. The Board of Supervisors then became interested in more traditional strategies, albeit ones which gave the appearance of being innovative, notably light rail transit and commuter express bus service. The Board has continued its policy of aggressive support for transit, and is now promoting the development of light rail transit lines, one of which may soon be constructed.

The local funding base for transit is provided by a 1/2¢ sales tax dedicated to transit and revenues are so abundant that SCCTD is currently unable to spend all the money. Without this generous local subsidy, however, public transit would be in serious trouble in Santa Clara County. SCCTD carries less than 120,000 riders a day in a service area with over 1.3 million persons, and its farebox recovery ratio is 10 percent, the lowest of any major transit agency in the entire country. Despite this performance, and the region's unfavorable--to transit--transportation and land use conditions (including future land use plans for the area), neither the transit agency nor the Board of Supervisors has strongly promoted alternatives to traditional transit service delivery strategies. In fact, the emphasis is on traditional strategies, such as the proposed light rail lines and increases in peak period bus service.

#### 2. North Bay

A much different institutional system encompasses public transportation in the North Bay area of the region, where Golden Gate Transit is the transit operator. The transit agency is a component part of GGBHTD, whose Board of Directors is comprised of representatives from San Francisco, Marin, Sonoma, and Napa Counties. Golden Gate Transit was established in 1972 to take over the private commuter services of Greyhound, which operated between Marin and Sonoma Counties and San Francisco. GGBHTD uses surplus Golden Gate Bridge tolls as the local source of subsidy for the transit operation, although state subsidies contribute a greater portion of the funding base. Because the bridge tolls must also be used to pay for operation and maintenance of the bridge, transit does not have exclusive claim on these revenues. In fact, the tolls have had to be raised several times to meet the ever growing subsidy needs of Golden Gate Transit.

These actions have sparked constituent discontent in Marin and Sonoma Counties, where the bridge is the only access route to San Francisco. Consequently, the GGBHTD Board of Directors has adopted a policy of encouraging the transit agency to improve its cost-effectiveness, and has largely abandoned its support of service expansion. In addition, both Marin and Sonoma Counties have served notice that they cannot continue indefinitely to subsidize transit service at the rates Golden Gate Transit is charging, and are investigating other local service delivery options. Thus the transit agency is under increasing pressure to improve cost-effectiveness as its funding agencies cannot politically or economically afford a business as usual approach to transit service and fiscal decisions.

## 3. Regional Vanpooling

RIDES, the Bay Area's ridesharing agency, evolved out of carpool matching activities initiated by Caltrans (the state DOT) during the energy crisis of 1973-74. It was not until 1977, however, that RIDES was created. The agency was established largely in response to a desire to have third party vanpooling as a commuting option. With its vanpooling program, a sophisticated carpool matching system, and an employer marketing activity, RIDES is now a full-service ridesharing organization, one of the largest and most dynamic in the country.

RIDES funding comes from Caltrans and the MTC, and the agency is governed by a Board of Directors composed of representatives from both the private and public sectors. The staff has been primarily responsible for setting RIDES direction and shaping its priorities; the Board usually goes along with staff proposals. Although RIDES promotes vanpooling and carpooling into San Francisco, which is also transit's largest market, there have been few complaints about competition by the transit agencies. The trip lengths for vanpools and carpools are much longer than for transit, and there is a recognition that there is little overlap between the markets. RIDES also consciously avoids the appearance of direct competition in its marketing and service development activities, as it promotes transit as well as ridesharing.

#### B. Private Sector Options

1. Golden Gate Transit's Development of Nontraditional Commuter Services

# Private Subscription Bus Service

Golden Gate Transit has supported a wide spectrum of private sector alternatives to regular commuter bus service. Even before GGBHTD had created the transit operating agency, it was subsidizing "Club Buses" into San Francisco. The club buses, which are essentially a subscription bus service, were initiated by commuter groups in Marin, Sonoma, and Napa Counties, who contracted with private bus companies to operate the service. The club buses operated from areas which were not served by the Greyhound operation, which was a line haul service along U.S. 101. In 1971, faced with rising contract costs and passenger resistance to fare increases, the clubs' leaders approached GGBHTD requesting that a subsidy be granted to continue the service.

At this time the District was accumulating large surpluses of toll revenue (transit subsidization had not begun), and was interested in reducing peak period congestion on the bridge. One of the Board members took the lead in spearheading the clubs' proposal, reasoning that the club buses were a cost-effective way of keeping additional autos off the bridge. He persuaded the other Board members that the proposal had merit, and it was subsequently approved. Thus by 1971 GGBHTD had established a precedent of utilizing private sector options to supplement conventional peak period bus service.

Initially, the subscription bus program involved 6 clubs running 15 buses. The original subsidies were quite modest, and the commuter clubs essentially ran the program themselves. The carriers were selected by each club on the basis of competitive bids and were responsible for providing the vehicles. GGBHTD paid 50 percent of the cost of the contracts, with fares covering the other 50 percent. The District had minimal administrative responsibilities beyond paying the bills, and stayed entirely out of operational matters. Even after GGBHTD began operating its own transit service the program continued to grow, reaching 21 buses by 1977. Growth was caused by the fact that Golden Gate Transit is restricted in the destinations which it can serve in San Francisco, and also due to the inability of the transit agency to offer convenient express service from all areas north of the Golden Gate.

By 1983, the club bus program consisted of 15 routes and 27 daily bus runs (round trip). The routes vary in length from 20 to 60 miles, with most routes being 40 or more miles. Four bus companies are involved in the program.

The club bus program has been an attractive source of revenue to private bus operators in the region, and a relatively high level of competition for the routes has been maintained over the years. Guiton, Falcon, Mark IV, All Cal, Trans Cal, Western, Greyline and Pettersen bus companies have all participated. Trans Cal, Western, Pettersen, and Guiton are the current contract holders. Table A-1 provides service and financial statistics for the current providers.

## TABLE A-1

	Golden Gate Transit Contract Service as of June, 1982			
Provider	Routes	Route Lengths	Buses	Annual Contract Revenue
Trans-Cal*	8	20-50 miles	.12 .	\$572,700 %
Western	6	43~60	10	\$596,700
Pettersen	1	57	5	\$268,500
Total	15	20-60	27	\$1,437,900

\*Subcontracts one route to Guiton Bus Lines

GGBHTD has recently adopted a more liberal policy with respect to the age of vehicles eligible to serve club bus contracts. The previous emphasis was toward eliminating the use of vehicles which were more than 10 years old. Now exceptions are made for any vehicle subject to an inspection which is made prior to entry into service. In addition, vehicles over 10 years old must submit to an inspection every three months. The average bus age for the current club bus fleet is 11.8 years.

There are two reasons for the liberalization of the policy on bus age. The first is that a more liberal policy tends to minimize cost, as depreciation costs are lower for older serviceable equipment. The second reason is that allowing older buses enables the maximum number of providers to participate, thereby insuring competition which tends to keep costs low.

## Subscription Bus Providers

The contractors who provide services for the program all have an agreement with their drivers to pay a minimum amount per piece of work, regardless of the amount of time required. In the case of Trans Cal and Western this is the half day rate. That is, for any bus run the labor cost will equal one half day's wages. In the case of Pettersen Lines, the labor costs are a daily rate but they are paid only for the hours worked. This

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is possible because Pettersen hires drivers who are retired. The vehicles are parked in downtown San Francisco during the day and are not engaged in other revenue service. This arrangement in fact more closely approximates that of a buspool.

The current providers are all relatively small companies. The smallest is Pettersen Lines with ten buses. Pettersen's management has directed their operations almost entirely toward servicing Golden Gate contracts, and about 90 percent of their revenue comes from this source. One reason for this strategy is that they have had a great deal of difficulty switching equipment from midday operations to Golden Gate runs. Tours of San Francisco commonly run six hours long and begin at 10:00 AM. Consequently they are potentially in conflict with contract operations. The Pettersens have found that frequently the tours take more than the six hours they are allocated and therefore are in conflict with return contract trips, some of which begin at 3:30.

The Pettersen's strategy has had positive effects on their relationship with Golden Gate; however, it has had a negative impact on the overall viability of their operation. Golden Gate is currently considering cancelling the service from Napa due to a dispute with Napa County. If this occurs the club bus service will likely be disbanded and Pettersen is likely to cease operations. While attaching themselves to a secure source of revenue they have also isolated themselves from the charter market and reentry will be difficult. (In fact, Golden Gate did cancel the Napa Contract in mid-1983, but the service has continued as an unsubsidized operation. Due to Pettersen's low cost, the necessary increase in fares was not so great as to cause ridership to fall below break even.)

Trans Cal tours owns 17 buses, ten of which operate Golden Gate routes. The company has been in existence for four years. Total revenues for 1982 were approximately \$1.5 million, of which Golden Gate contract revenues were \$460,000, or approximately 38 percent of the total. Trans Cal is in the charter business and they regularly charter between San Francisco and Reno.

Trans Cal feels they may have bid somewhat too low on their current contract with Golden Gate. Their method of bidding took their competitors likely bid as well as their own costs into consideration. As a result of their contracts and their interstate business to Reno, however, they estimate that they are currently operating at a 90 percent utilization rate for their buses.

Trans Cal also takes advantage of driver home location to minimize costs. They have four runs from Sonoma, all of which are driven by drivers residing in Sonoma. The

rate of \$2.18 per revenue mile would not be possible if deadhead from San Francisco were to be included, as this is a 100 mile round trip.

# Vanpooling Program

By 1977, GGBHTD had become a transit operator of substantial size and was beginning to experience the fiscal problems common to public transit. Although ridership had grown rapidly, doubling from the 4000 commuters per day at the time of Greyhound service takeover to 8300 commuters per day, required subsidies were growing at an even faster pace. Meanwhile, commuting in the Golden Gate corridor was increasing at the rate of 2000 persons per year. The Bridge was already at capacity during the peak periods, indeed was congested on the approaches, and the only way to accommodate travel growth was through transit or ridesharing. To increase the transit operation's commuter bus service, however, meant worsening an already undesirably high peak to base ratio (approximately 5 to 1) and adding to the subsidy requirements. This would probably lead to higher bridge tolls, already perceived by many Marin and Sonoma County residents as excessive.

Vanpooling provided a way out of this impasse. The same Board member who had taken the lead in the club bus subsidy situation suggested that GGBHTD develop a vanpool program. The staff subsequently developed a proposal to obtain UMTA funding through the SMD program. As this was a new service, not simply financial support for an existing service as in the club bus situation, Board approval was not as easy to obtain. Some Board members were concerned that commuters would shift from transit buses to vanpools and create a loss of revenue for the transit agency. Indeed, there was an awareness on the part of all parties that vanpool and transit markets would overlap and that some van riders would be actual or potential transit users. But when the vanpool supporters demonstrated to hesitant Board members that the only alternatives to accommodating commuter growth would be even more expensive, the opposition largely evaporated and the proposal was approved.

While GGBHTD wished to place commuters in vanpools, it did not want to operate a large vanpool program itself. Consequently, the proposal to UMTA was based on the idea of "seed vans." The District would acquire a small fleet of vans and form vanpool groups. After 6 months, however, the vanpool would be required to obtain its own van (either purchasing a van or obtaining one through a third party lease) and GGBHTD would take back the van and lease it to a new group of commuters. In this way new vanpools were always being developed by the District, but the creation of a vanpool empire was not required and the program was of manageable size. UMTA approved the grant application in 1977, but the vanpool program did not get off the ground until the following year. The delay was caused by problems with the transit agency's union in negotiating a 13(c) agreement. The union was concerned that the vanpool program would divert transit riders and undermine job security, and initially demanded that vans not be placed in areas where commuters had easy access to District buses. GGBHTD management refused to acquiesce on this issue, as the very idea of the program was to relieve the burden on the bus system. When management refused to yield, but was willing to guarantee the size of the bargaining unit for the duration of the project, the union finally settled on these terms.

Once the vanpool program was implemented, it quickly became a success. In the first six months of operation 30 vanpools were formed. The vanpool formation rate even increased in the latter stage of the SMD project, and by the time the project ended (after 33 months) in mid-1980, it had formed 150 vanpools. The vanpool program was continued after the SMD project and by 1982, had established 230 vanpools, of which over 150 were still operating. Of these, 90 vanpools were using the Bridge in the peak direction of traffic.

#### Establishment of the Ridesharing Division

In 1979, the general manager of GGBHT decided that both vanpooling and subscription buses were part of the generic category of ridesharing, and that the two modes should be treated similarly. The vanpooling program had an organizational structure and a budget, while the club bus program was handled by a single staff person and the clubs had major administrative responsibilities.

The immediate cause of concern was the fact that the club bus program was more heavily subsidized in the aggregate than the vanpool program. Neither the general manager nor the bus transit manager were particularly supportive of the club buses, believing that if a service received substantial subsidies it should be provided by the transit agency itself. By this time the club bus program was requiring well over \$500,000 per year in subsidies. The vanpool program was requiring about \$250,000 annually in subsidies, but only a small portion of this was direct operating subsidy (primarily to subsidize low load factors during the first two months of vanpool operation), whereas almost the entire club bus subsidy was for operations. The special projects director, who was in charge of the vanpooling program, was therefore given the assignment of examining the subsidy issue as it affected vanpoling and subscriptive buses, and developing a pricing scheme which made subsidies to the modes equitable. At the time passenger fares were covering 50 percent of the operating cost of the club bus service and subsidies the remainder.

Although the cost and subsidy study never resulted in a completely rational allocation of subscription bus costs, it was the first step towards a more comprehensive approach to ridesharing by GGBHTD. In 1980 the Ridesharing Division was created within GGBHTD, at the same level in the organization as the other operating divisions--bridge, bus, and ferry. The immediate cause for establishment of a separate division for ridesharing was the District's decision to make a long term committment to the vanpool program after the termination of the UMTA project. In addition, the general manager recognized that there was no surer way to kill vanpooling than by placing it in the bus operations area of the agency, where residual opposition existed. The Ridesharing Division was given responsibility for the club bus program as well as vanpooling, and a carpool matching program was also added.

## Re-Organizing the Club Bus Program

Placing the club bus program in the Ridesharing Division had a major effect on the activity. The most immediate impact was to formalize relations between GGBHTD, the clubs and the bus contractors. This caused some friction with both the clubs and the bus companies, who had become accustomed to informal working relations and a high degree of autonomy. The Ridesharing manager insisted that the clubs would have to begin paying for GGBHTD's administrative costs of running the program and that fares would have to cover a higher portion of the costs. Fares were first raised to 55 percent of costs, and in 1982, to 60 percent. Contractors were requred to meet more stringent performance guidelines and were penalized financially if they missed runs, were overly late, or substituted substandard equipment. After years of dealing formally with club leaders, these new policies caused considerable resentment on the part of some operators.

The Ridesharing Division also took over the competitive bidding process, changed the procedure by which routes were bid, and stimulated more competition. The net result was that some existing contractors lost business as new competitors bid lower prices. In fact, one company lost all of its routes and was forced to terminate its entire operation in San Francisco as a result. Not surprisingly, the companies which suffered economically in this new environment are very disgruntled with GGBHTD.

# Integrating Commuter Ridesharing into a Transit Agency

Golden Gate Transit is relatively unique among transit agencies in that it includes a separate Ridesharing Division which offers a full range of commuter paratransit

services. The problems which the transit agency faces, however, are also uncommon. It has an exceptionally high peak to base ratio--approximately 5 to 1--and must contend with continually increasing demand for service across the Golden Gate Bridge. The District has set as its goal the maintenance of southbound bridge traffic at 21,000 vehicles or less during the 6-10 AM morning peak, a goal which it has been achieving in spite of a 25 percent increase in the number of commuters crossing the bridge since 1973. Transit fares are already among the highest in the nation--the average fare is now \$1--and auto tolls have probably reached their political limits, which sharply limits the District's ability to increase revenues for service expansion. The District's attempt to use ferries to alleviate the strain on the bus system has been a partial, but very costly success. In 1981 the ferries carried 20 percent as many passengers as the buses but cost 40 percent as much, and require three times as much subsidy per passenger. Thus the District has been attracted to programs such as ridesharing which increase vehicle occupancy at low cost. The club bus service requires a subsidy per passenger of \$1.25 to 1.74, depending on distance, compared to \$1.39 to \$3.01 for comparable Golden Gate commuter bus service. Vanpooling is even less expensive, with an estimated subsidy of \$.37 per rider.

While the rationale for the commuter paratransit activities has become apparent to the Board and top management, there still exists a somewhat uneasy fit between these programs and conventional transit. The top transit managment of the District is traditional in its orientation and would prefer to control all aspects of service delivery, but recognizes that it cannot due to financial constraints. Ridesharing is accepted because of its cost-effectiveness; only administrative and marketing subsidies are required, not operational support with the exception of club buses. It is for this reason that the club buses have become a sore point with transit management. Management believes that they should eventually receive no subsidies because they are a form of ridesharing, and ridesharing should not be directly subsidized. The recently imposed increase in fare support is an attempt by the Ridesharing Division to move the club buses in the direction of operational self-sufficiency. Whether this will ever culminate in a total phase-out of subsidy is doubtful, however, as the clubs have some influence with the Board and can demonstrate that even with subsidies they save money compared to regular bus service. Top management would like to see the club bus program evolve into owner-operator buspools or vanpools, but the clubs prefer the current type of arrangements and can be counted on to fight to retain what they have.

The philosophical differences between traditional transit management and the Ridesharing Division are even more apparent when the issue is subsidized vanpooling. In 1982 road damange from heavy rains forced the discontinuation of a GGBHTD bus route in West Marin County. As the result of an initiative by the Ridesharing manager, a subsidized vanpool was established to provide commuter service to San Francisco from this area. Even though the bus route is the worst performer in the GGBHTD system, and the subsidies for the van are only a fraction of those needed for commuter bus service, the general manager and the bus manager wish to terminate the vanpool when bus service is restored unless the van can be self-sustaining.

These reactions are indicative of the fact that the District has subscribed to the use of different forms of commuter paratransit service on a programmatic basis because they represented highly cost-effective ways of solving problems for which all other strategies suffer from major deficiencies. The District has not yet accepted, however, the more general philosophy of using a mix of services to match supply to demand characteristics irrespective of the consequences for traditional transit service delivery. Nonetheless, GGBHTD has demonstrated that a transit agency can effectively promote and sustain private sector options that complement its traditional services, with no more than moderate management and labor obstacles to their implementation.

# Private-Public Sector Activities to Improve Employee Transportation in Santa Clara County

Santa Clara County has come to be symbolic of the many transformations affecting American society since 1950. Commonly referred to as Silicon Valley, the region's high technology industries have completely reshaped its economy, settlement patterns, and lifestyle. The San Jose SMSA has quadrupled in population in the past 30 years, and the rapid residential and industrial development has outstripped the capacity of the region's highway system. The land use pattern further adds to the transportation problems, as most residential development has occurred in the City of San Jose and in adjacent areas to the south and east, whereas employment growth has been concentrated in the northern portion of the county. Consequently, sections of the region's freeways and expressways are severely congested during commuting periods, and many of the arterial highways are also overloaded.

These traffic congestion problems, when combined with the region's high housing costs, represent a significant liability to the area's major employers in their quest to attract new employees and to retain them after they join the firm. Many of the

region's companies chose to locate in Santa Clara County because of the pleasant quality of life, but now are finding the business environment compromised by transportation and housing problems. As most of the firms rely on human capital for their success, and are in competition with companies in other parts of the country for talented workers, there is widespread concern about the welfare of employees. Indeed, several of the region's largest companies are nationally noted for their emphasis on employee well-being (e.g. Hewlett-Packard). There is thus a widespread recognition among employers that the commuting problems of their employees are the company's concern as well.

## Employer Involvement in Commuter Transportation

The most important effort in the San Jose region to improve employee transportation has been organized by the Santa Clara Manufacturing Group (SCMG). which is comprised of the region's major industrial companies. SCMG has 80 members with 180,000 employees, representing about 25 percent of all employment in the region and about 75 percent of all manufacturing jobs. In 1980 the SCMG decided that traffic congestion had become sufficiently serious that something needed to be done about it. As new transportation infrastructure could not be created for many years, the most promising short term solution appeared to be an organized effort to promote alternatives to single occupant automobile commuting. SCMG requested each of its member companies to assign a transportation coordinator who would be responsible for a company ridesharing program and transit promotion. A Lockheed Corporation vice-president, who headed SCMG's transportation task force, personally contacted the other member companies to persuade them to set up their own transportation programs. The effort was relatively successful, as 55 of the 80 companies now claim to have their own commuter program. The SCMG staff evaluates 22 of the programs as good to excellent, but these companies account for 53 percent of all the employees among the members (and 13 percent of regional employment), so the best response has been among the largest companies.

The company transportation programs represent a partnership between the private and public sectors. After a company designates a commuter transportation coordinator, this individual may call upon the resources of SCMG, RIDES, Santa Clara County Transit, and the MTC to develop the company's program. The MTC has established a training program for employer transportation coordinators, the Commute Alternatives Program, which has been widely used by the SCMG companies. This program gives coordinators detailed information on and training in how to establish a ridesharing program and promote commute alternatives, including such temporal strategies as flex-time. RIDES is available to do computerized carpool matching, although coordinators are encouraged to do in-house matching if appropriate. RIDES and SCCTD are jointly responsible for vanpool development, with RIDES employees stationed at the transit agency. The coordinators can also work with SCCTD to set up new express bus routes, or to modify existing routings so they better serve company employees. Both RIDES and SCCTD personnel are available to do marketing of transit and/or ridesharing at the work site, and are utilized for this purpose.

The SCMG staff, while pleased with the developments to date, recognizes that the company programs can be improved. Many companies have not yet made a major committment to employee transportation, as reflected by poorly trained or relatively powerless transportation coordinators. Better communication with commuters is necessary in many company programs, and data collection and evaluation activities are very limited. Due to the absence of a systematic monitoring activity it is difficult to determine how well the objectives of the programs are being met, a particular problem as most of the ridesharing activity is in carpooling. Vanpooling is a much easier activity to keep track of, but the relatively short trip lengths of commuters in the region discourage vanpooling and lead to an emphasis on carpooling and transit. Despite these problems, the SCMG believes that much progress has been made in creating the organizational infrastructure, among both private employers and public agencies involved with transportation, necessary for its member companies to develop effective commuter transportation programs.

## 3. Third Party Vanpooling in the Bay Area

RIDES, the Bay Area's ridesharing organization, had created approximately 450 vanpools by mid-1982, and was also responsible for the creation of several thousand carpools. These accomplishments make RIDES one of the most successful ridesharing organizations in the country. What is particularly impressive about these achievements is that they have occurred in a stronghold of conventional transit, in a region where few companies have sponsored their own vanpool programs, and in an institutional environment in which two transit agencies have totally or partially pre-empted the ridesharing field in their area of jurisdiction.

Although RIDES is nominally responsible for ridesharing in the entire Bay Area, in both Santa Clara County and the Golden Gate Transit service district it has been forced to share responsibility with these transit agencies. In Santa Clara County, RIDES

stations two employees at SCCTD who are responsible for marketing of vanpools and carpools. The transit agency, however, also does ridesharing marketing and promotes bus transit before ridesharing. SCCTD's first priority is to get commuters into its buses, and vanpool development is a secondary objective. Not surprisingly, only 4 intra-county vanpools have been created by RIDES and SCCTD in Santa Clara County, although short trip lengths are another obstacle to vanpooling.

In the Golden Gate Transit service area, the entire ridesharing responsibility falls to GGBHTD's Ridesharing Division. The latter is supposed to carry out employer contact as well as marketing vanpools and carpools directly to commuters. RIDES recognizes that GGBHTD is primarily concerned with its own ridesharing activities, and that stimulating employer-based programs is a secondary concern, but has chosen to avoid friction by leaving the entire field to the transit agency. Consequently, only a handful of GGBHTD vanpools have transitioned to RIDES vans, and only one major employer-based program has been established north of the Golden Gate. In contrast, RIDES works closely with SCMG in Santa Clara County, and has been able to establish good relations with company commuter coordinators. Thus organizational imperatives and modal preferences have restricted RIDES activities in a substantial portion of the Bay Area. Third party vanpooling in these areas is much less prominent than would be expected.

RIDES has been most successful in stimulating ridesharing in areas not well-served by conventional transit, notably Contra Costa County and the eastern portion of Alameda County. Not only is there a demand in these areas for collective transportation to major employment centers (particularly downtown San Francisco), but the lack of a major transit presence prevents turf conflicts from arising.

## VI. Los Angeles

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The Los Angeles megalopolis sprawls across a vast expanse of Southern California, encompassing several thousand square miles of land, over 11 1/2 million people, and four SMSA's, three of which contain over 1 1/2 million persons each. The lack of major topographical barriers, combined with the unrelenting development of Southern California since World War II, has created a metropolitan region which is almost continuously developed. San Bernardino and Riverside Counties to the east, Ventura County to the west, and Orange County to the south are separate SMSA's, yet are indisputably cut from the same fabric which created Los Angeles at the core of the region. Although intra-regional differences in density and lifestyle exist, the major intra-regional boundaries are psychic and economic, not physical. For most purposes the megalopolis functions as a single huge entity which is in a constant state of internal flux due to in-migration and intra-regional shifts of households and businesses.

Transportation patterns in the Los Angeles region have been profoundly shaped by this extensive, mixed-use land use system. As large scale intensive development has been limited, travel patterns have been dispersed rather than concentrated. The region contains literally scores of major trip attractors. The freeway system, with its many north-south and east-west routes, is designed to accommodate the dispersion of employment and residential areas. Although numerous well-defined travel corridors exist in the region, it is the freeway system itself which serves to define the corridors; in many cases they do not reflect concentrated movements which would exist in its absence.

Only a superb transportation system could link together a region so large, and the automobile-highway system has served this function in Los Angeles. Public transit use is miniscule in the surrounding SMSA's (1 percent or less of all trips), although transit does play a significant role in moving commuters in and out of downtown Los Angeles and a few other major activity centers. Transit carries 7 percent of all work travel in the Los Angeles-Long Beach SMSA (about 3 percent of all travel) and about 40 percent of peak hour trips to the downtown. In general, however, the automobile is <u>the</u> transportation system for most residents of the region.

The dominance of the automobile for commuting purposes is now creating significant problems in many locations of the region. The freeway system has not been significantly expanded since the late 1960's, and peak period traffic causes serious congestion problems for several hours a day in many areas. Congestion is particularly severe on the freeways leading to the Los Angeles CBD and to the major concentrations of aerospace employment in the western portion of Los Angeles County. Major congestion problems also exist on freeways leading to Orange County and within the county. Yet growth in population and employment continues, albeit primarily in the outer portions of the region, placing ever greater pressure on the transportation system during peak periods. The peak has already lengthened to about 3 hours in both the morning and evening in Los Angeles County.

Ambitious plans have been developed to improve the public transportation systems in the region, including plans for an extensive rail transit system in Los Angeles County. In 1980 the County voters approved a  $1/2\phi$  sales tax which is to be primarily used to fund the local share of the capital and operating costs of rail transit. The first

segment of the system (along the Wilshire Corridor), however, is now expected to cost over \$3 billion and require an operating subsidy of at least \$100 million annually. At the same time, the operating deficit of the major transit operator, the Southern California Rapid Transit District (SCRTD), has steadily escalated. These growing costs call into doubt the ability of the sales tax revenues to finance a truly comprehensive rail transit system. Moreover, the region's plans for rail transit depend heavily on huge amounts of federal capital subsidies which will not be necessarily forthcoming. It is thus likely that the transit development program will have only a minor effect on peak period traffic congestion over the next 10 to 20 years.

The region's traffic problems and its far-flung labor markets have been instrumental in stimulating both private providers and private employers to become actively engaged in commuter transportation. Three major private commuter bus operations exist in the region, and many large employers have developed company ridesharing programs. One major employer, Hughes Aircraft, has even taken the unique step of developing a regular route commuter bus system for the employees at its El Segundo plant.

The presence of the private commuter bus operations, moreover, has encouraged transportation planning and policy making agencies to seek out ways in which private providers might be used to reduce the costs of SCRTD commuter bus service, which is extremely expensive. Los Angeles County already contracts for commuter bus service from a private operator. The region's planning agency, the Southern California Association of Governments (SCAG), recently sponsored a study which examined the feasibility of transferring SCRTD's peak period only express bus services to the private sector, on a subsidized or unsubsidized basis.

## A. Institutional System

Each of the five counties comprising the Los Angeles megalopolis has its own regional transit agency and its own set of institutions for making transportation planning and programming decisions. As Los Angeles County has been the locale for most of the private sector options which have been developed, its institutional system for public transportation is most relevant.

There are four major actors for public transportation in Los Angeles County. (1) The Southern California Rapid Transit District (SCRTD), the major transit operator in the county. (2) The Los Angeles County Board of Supervisors, who are politically powerful and appoint several members of the SCRTD's Board of Directors. In addition,

Los Angeles County is responsible for transit service provision in the unincorporated areas and outlying cities of the county. (3) The Los Angeles County Transportation Commission (LACTC), a state created agency whose appointed commissioners include most of the major political officials within the county (the mayor of Los Angeles, the County Board of Supervisors, the Los Angeles City Council president, etc.). (4) SCAG, which is responsible for regional transportation planning for the five county area, and is the region's MPO.

The SCRTD carries 90 percent of all public transit passengers in the county (several municipalities also have their own transit operations), and operates an extensive route network. Its fleet of 2800 buses is the largest in the U.S. Although the system is highly productive, and transports over 1 million passengers per day, it has faced major financial problems in recent years. Operating costs are among the very highest in the U.S., and until recently the SCRTD had no source of local subsidy. Rather, it was forced to rely on state and federal subsidies and annual contributions from the County to bridge the gap between farebox revenues and operating expenses.

With costs escalating more rapidly than these subsidies, the result was a series of fare increases that pushed fares from 45¢ in 1978 to 85¢ by 1982. Even this was not enough, as an unfunded deficit of \$50 million loomed for 1982-83. In April, 1982, however, the California Supreme Court validated the 1/2¢ transit sales tax which had been challenged in the courts. One of the provisions of the ballot measure required the SCRTD to reduce its fares to 50¢ and allocated whatever sales tax revenues were needed to maintain service at this fare level. Thus the SCRTD was able to simultaneously solve its fiscal problems and reduce fares to more affordable levels (which has led to a 25 percent increase in ridership). The respite may be short-lived, however, as the fare reduction program is authorized only until June, 1985.

The financial problems of the SCRTD constitute one recurring theme in public transportation decision making in Los Angeles. The other major theme has been the development of a rail rapid transit system. The SCRTD has been preocupied with rail transit since the 1960's. It now appears that the region will get one or two rail transit lines within the next decade. In looking to the future, then, the SCRTD Board and staff have focused on conventional transit options. The result is a traditional transit agency that is quite zealous in the protection of its service prerogatives, skeptical of all innovative services, and convinced that it knows what is best for the region's public transportation system.

These attitudes have angered many other transportation actors, but the SCRTD is relatively insulated from the influence of other interests. The Board of Directors is appointed, not elected, and thus not directly accountable to the public. Its subsidy funds, moreover, are all dedicated to transit, so no other agency has purse string powers over SCRTD services. The LACTC does have some financial influence over the transit agency, but hesitates to use it. The Commissioners are reluctant to confront the SCRTD over transit issues which are not of high priority in the larger political scheme of things.

The LACTC is nominally the policy making and fiscal programming agency for all transportation in Los Angeles County. The LACTC's ability to independently orchestrate public transportation development in the County is sharply circumscribed, however, by the agenda which it inherited when it was created in 1976. This agenda stressed the development of high capacity, high cost transit modes. While politically attractive to most of the Commissioners, this agenda has diverted attention away from many other public transportation issues and reinforced SCRTD autonomy. The LACTC has succeeded in rationalizing the transit financing system and has forced transit operators to justify their programs, but primary influence still lies with those agencies which can implement projects and deliver services. Thus, although the LACTC staff is now trying to devise a strategic plan for public transportation that is more sophisticated than single minded reliance on rail transit, it must still persuade the SCRTD to carry out the elements of the program, a formidable task if it includes non-traditional activities.

The Los Angeles County Board of Supervisors has in the past been a strong supporter of improved public transit, and one of its current members was the prime architect of the transit sales tax. The Board now has a conservative majority, but the conservatives have chosen not to attempt to impose their philosophy on the SCRTD. Although the Board majority has taken a strong stance in favor of contracting out certain public services, it has not included SCRTD services on the list. The supervisors have only indirect control of the SCRTD Board (through their appointees), however, and apparently do not believe it to be worth the trouble to make transit contracting an issue. The County already does contract for local and commuter transit service in its area of jurisdiction with the state transit funds it directly controls, but the SCRTD has its own source of funds which cannot be used by the County for other purposes. There is little incentive for the elected officials to start a fight for purely ideological

purposes, particularly as most persons involved in transportation issues want to spend more money, not less.

While the LACTC and the County have tended to focus on the financial aspects of public transportation, the planning issues have been primarily the province of SCAG. The planning agency has been an important force in keeping innovative service options visible within the institutional system. It has taken a leading role in encouraging paratransit development and was responsible for making the importance and potential of the private commuter bus operators widely known. Despite the quality and relevance of its studies on private sector commuter options, however, SCAG has no power to implement any of the study recommendations.

# B. Private Sector Options

# 1. The SCAG Commuter Bus Study

In 1980, a SCAG planner completed an inventory of private commuter bus operations in the greater Los Angeles area which revealed that over 100 buspools and subscription buses were in operation during the peak period. The planner concluded the study with a brief set of recommendations which suggested that public agencies should do what they could to encourage more such private sector activities, as they were unsubsidized and typically operated in markets either unserved or poorly served by public transit. These seemingly innocuous recommendations, however, raised the hackles of the SCRTD and the Orange County Transit District (OCTD), who complained that the benefits of private bus operations were unproven and that the policy recommendations were inappropriate. The transit agencies in the region succeeded in blocking the release of the study with these recommendations. They suggested instead that a comprehensive study of private and public commuter bus services be undertaken. The SCAG planning staff agreed to perform such a study, and in early 1981 it was initiated.

The technical analysis was carried out by SCAG staff, under the oversight of a working committee composed of private bus operators, academics, consultants, and representatives from the LACTC, SCRTD, OCTD, municipal bus operators, Caltrans, and the state regulatory commission. The study examined five scenarios for commuter bus operations. These consisted of an <u>expansion</u> of <u>public</u> commuter bus operations, the <u>expansion</u> of <u>private</u> commuter services, with and without public subsidies, and the <u>replacement</u> of <u>public</u> express bus operations with <u>privately provided</u> services, with and without subsidy. For each scenario the economic impacts, service level, and
institutional feasibility were analyzed. The public agency operations analyzed consisted of the park-and-ride and subscription bus services of SCRTD and OCTD.

The scenarios of primary interest were those in which SCRTD and OCTD commuter service was either turned over without subsidy to private bus companies or contracted out to them on a subsidized basis. Cost estimates for the SCRTD and OCTD services were obtained by applying cost allocation models developed for the LACTC and for OCTD to the specific characteristics of the peak period routes. Estimates of the cost of private bus operations were obtained from a survey of private companies in the region, in which the operators were asked to quote a cost for serving nine existing SCRTD and OCTD express routes.

Based on an analysis of SCRTD's 8 subscription bus lines, its 9 park-and-ride routes, and OCTD's 5 park-and-ride routes, the study concluded that the cost of these operations could be reduced by 50 percent through private operations. The cost allocation models indicated that the current cost of these services was \$10.5 million annually. Conversion to private operation would result in a cost of only \$5.2 million annually. The public agency services were requiring a subsidy of \$5.5 million annually, and this could be reduced to a fraction of that amount if the routes were operated by private companies. In fact, the analysis indicated that 12 of the 22 routes would be profitable for private operators at current public agency fares, and three other routes would be profitable with relatively modest fare increases. Thus 15 of the 22 routes could be turned over directly to the private sector without subsidies, at a savings of \$4.5 million. The remaining seven routes could be operated by private providers under contract at a savings of over \$1.2 million, with required subsidies decreasing from \$1.875 million to \$650,000. The overall result would be a \$4.85 million reduction in public subsidy for these commuter services.

The study also indicated, however, that significant institutional obstacles stood in the way of implementing service turnovers and/or contract services. Neither SCRTD nor OCTD was keen to give up any of its commuter services. The agencies preferred to control all transit services within their service district, and the high costs of the commuter express services were not an issue. They served a middle class market and, in the case of the SCRTD, were an integral part of what the agency saw as its primary mission, serving commuter travel. Neither agency wished to contract for service either, foreseeing union problems and generally being antipathetic to the notion of contracting. In addition to the unfavorable management orientation of the agencies, labor contracts and Section 13(c) were raised as important potential problems by the study. Service turnovers would not directly create labor problems, as no subsidies would be involved, but contracting could. Only if the drivers displaced by the contract arrangement could be accommodated elsewhere in the transit agency's service delivery system would major labor problems be avoided. Even then, the current SCRTD labor agreement prohibits service contracting for regular bus operations and would have to be changed to allow it to occur.

Despite these institutional problems, the study recommended that the region's transit operators promote the expansion of privately provided commuter bus service, including taking steps to remove institutional barriers to converting public agency services to private operation. As these were merely SCAG recommendations, it was up to the transit agencies to implement them, and there was no movement in this direction by SCRTD or OCTD.

In the spring of 1982, therefore, a LACTC Commissioner decided to initiate activity. This Commissioner had served on the Commuter Express Bus Task Force and was convinced of the need to eliminate high cost SCRTD services in view of its impending fiscal crisis. Over the objections of the SCRTD he convened a meeting of private bus operators, LACTC and SCAG staff, and public transit operators to discuss the steps needed to turnover SCRTD express service to private providers.

Although the LACTC could not order the SCRTD to turnover service, its indirect influence over the transit agency is significant, and the Commissioner hoped to build such a strong movement for the service turnovers that the SCRTD would find it politically expedient to do so. A few days after the initial meeting, however, the state Supreme Court validated the 1/2¢ sales tax for transit in Los Angeles County. This removed all the fiscal pressure on the SCRTD to seriously consider the conversion of its express bus routes to private operations. The proposal was placed on hold for the time being. When the fare reduction program ends in 1985 these fiscal pressures will be renewed with a vengeance, however, and the LACTC expects to activate the proposal at that time. It also expects to encounter the same opposition from the SCRTD.

# 2. Private Commuter Bus Services

Three companies in the Los Angeles area provide a significant amount of private commuter bus service. Commuter Bus Lines, Inc. (CBL) and Antelope Valley Bus, Inc. each currently have 30 to 35 buspools in operation, while COM-BUS, a company which organizes subscription bus service, has approximately 10 commuter buses in service. CBL and Antelope Valley operate only buspool service, in which the company provides

the vehicle and one of the commuting workers drives the bus, leaving it at work site during the day and near his/her residence at night. COM-BUS differs in that it is not a bus operating company, but rather a middleman which organizes the riders and contracts for service from a private bus company, usually a charter carrier. Because COM-BUS's operations have been reported on elsewhere [McCall, 1978] and because it has become much less active recently, the primary focus in this discussion is on the buspool services of CBL and Antelope Valley Bus.

Commuter Bus Lines was established in 1977 when its owners acquired the assets of a commuter operator which had been serving aerospace plants since shortly after World War II. The new owners upgraded the equipment and began to aggressively market the company's services. The company now operates 31 buspools and 3 subscription buses in the Los Angeles area, 4 buspools in the Sacramento area, and also provides scheduled service to area race tracks during the horse racing season. In addition, it operates the public transit system in Yolo County (near Sacramento) under contract to the County. About 45 percent of the company's revenues come from its private commuter service.

Antelope Valley Bus is based in the Lancaster area and operates charter, buspool, and transit contract services. Currently, about 30 percent of its revenues are derived from private commuter operations. It also has a contract with Los Angeles County to provide peak period express bus service from the Newhall area to downtown Los Angeles, a contract it lost to CBL during 1981-82 but then reacquired. Whereas CBL took over the routes operated by its predecessor company, Antelope Valley Bus entered into the buspool field at the request of employees who wanted commuter bus service. Most of its routes serve either Lockheed Aircraft or Edwards Air Force Base in the Palmdale area, or provide service from the Antelope Valley into Los Angeles, a lengthy commute. Population has been growing rapidly in the Antelope Valley, with many new residents commuting long distances to their jobs in Los Angeles. A natural market has thus been created for buspool service, with little formal marketing required by the bus company.

Both CBL and Antelope Valley Bus use essentially the same method to initiate and operate buspools. They market their services at large employment sites, typically containing several thousand workers. These are primarily aerospace companies, although other types of emloyers are also served. The companies are interested only in long haul service, with routes at least 25 miles in length from first pick-up point to the work site. Most routes are 30 to 50 miles in length. Routes typically have 2 or 3 pick-up points (most passengers park-and-ride) and travel in express mode for most of

their distance. Some routes serve more than one company at the destination end, but in most cases the buspool serves a single work site. A new bus is started only when a sufficient number of workers (usually 20) have agreed to use the service and one member of the group has agreed to become the driver. Once the service has started, the driver and the passengers are encouraged to recruit other riders, as they are informed that a certain load factor must be maintained to continue the service. If ridership stabilizes at 25 to 30 daily users, the buspool is typically viable.

Although the commuter services provided by CBL and Antelope Valley properly fall into the category of buspools, they are treated as regular route operations by the California Public Utility Commission (PUC), which regulates intercity bus service. According to California law all carrier services available to the public on an individual fare payment, non-subscription basis are subject to regulation. Consequently, these buspool services must obtain route authority and must have their fare schedules approved by the PUC. Where potential competition exists with other private carriers or with public transit agencies, applications are usually protested.

As in most regulatory situations, the PUC's regulatory system is designed to protect companies with existing service rights, rather than to facilitate service development. Duplicate route authority is usually not granted, and the PUC is even reluctant to authorize a new service when dormant route authority exists. COMBUS has route authority for many services it no longer operates or never did, but strenuously resists efforts of CBL or Antelope Valley Bus to initiate services that would infringe on these markets. To prevent protests by public transit agencies, the buspool operators must sign agreements stipulating that the transit agency has the right to start competing services at some future time.

Even when there is absolutely no problem with an application for new route authority, it still requires 30 to 90 days to be approved. But once a group of sufficient size has been assembled to start a buspool, there is the danger that it will disintegrate if the service cannot begin for several weeks. Thus it is not uncommon for operators to begin the service simultaneously with filing an application that they are confident will be uncontested. Although technically illegal, this practice is sound business sense.

Both CBL and Antelope Valley utilize used intercity coaches to provide the service. CBL's operation is representative, and will be described here. CBL uses 45 buses for its buspool operations. All are at least 19 years old, and the oldest is a 1953 model. The company purchased these vehicles for a mere \$400,000, although it has spent large sums on repairs and upgrading. Even though the vehicles are too old to be

suitable for charter service, they are in good condition, with attractive paint jobs and well-upholstered, reclining seats. A stringent preventive maintenance program keeps the vehicles in top condition. CBL has traded off depreciation against maintenance: due to the low purchase price, CBL's depreciation on the vehicles is minimal (less than 5 percent of total costs), while maintenance expenses represent nearly 30 percent of total cost.

CBL's operating cost is quite low, averaging about \$1.25 per vehicle mile in 1981. (Antelope Valley's cost per bus mile is similar.) The efficient use of driver labor is one important reason for the low costs. With no deadheading, drivers are paid only for productive time. Consequently, payments to buspool drivers represent only 11 percent of the total cost of CBL's buspool service. In addition, both CBL and Antelope Valley pay their buspool drivers a percentage of the buspool fare revenues, thereby tying their income directly to the productivity of their bus.

In 1982-83, CBL grossed approximately \$1.1 million from its buspool services, yet made only a small profit. It was able to make the profit, moreover, only because it raised fares approximately 12 percent during 1982. The fares remain quite modest, ranging from \$16 per week for a 25 mile trip to \$24 per week for a 50 mile trip, or approximately 5-6¢ per mile. CBL can apparently make a profit at load factors of 60-70 percent, which it is managing to maintain so far.

Both CBL and Antelope Valley have been plagued by competition from vanpools, some of which have been created directly from buspools. Consequently, it is a continual effort to keep load factors sufficiently high. The vanpools are very strong competitors in the long haul market, as they can offer fares which are comparable or slightly lower than CBL, and can also provide a more personalized service. Since current buspool load factors are only slightly above the breakeven point, a loss of even a few riders can lead to a buspool's demise. Rather than merely complain about vanpool competition, however, CBL has adopted a proactive stance, and has sought to use the regional ridesharing agency's data base to identify potential new markets for buspools. It has also been successful in persuading the ridesharing agency to market buspool services along with vanpooling and carpooling. CBL believes that it has one important advantage over vanpools, namely the greater amenity of bus service--more legroom, a less crowded vehicle, less social pressure to interact--and attempts to capitalize on this in its own marketing activities.

## 3. The Hughes Aircraft Commuter Bus Service

In November, 1982 the Hughes Aircraft Company initiated a novel commuter bus service for the employees at its El Segundo plant. Although a number of companies around the country have established commuter bus service for their employees, it has invariably been for long distance commuters and typically has taken the form of subscription service or buspools. The Hughes bus service differs in two unique ways. First, it is designed to accommodate relatively short trips, those 15 miles or less in length. Second, it is a regular route operation in which each route has many stops at which riders can board the bus. Riders do not have to subscribe to the service.

The decision by Hughes to develop and subsidize a regular route commuter bus service for its El Segundo employees was the product of several factors. The region's air pollution problem and the mid-1970's threat of restrictions on automobile use to combat the problem, the two gasoline crises, and the high cost of gasoline had caused management to become concerned about employee transportation. In addition, when the company moved most of its operations from Culver City to El Segundo, even though the distance involved was only a few miles, the company moved to an area which had much greater traffic problems and the prospects of even worse problems in the future. It is projected that over 100,000 persons will eventually work in the El Segundo area, which will severely overtax both the nearby San Diego Freeway (already heavily congested) and the arterial street system.

These factors created a receptive environment for initiatives to develop alternatives to automobile commuting. After the second gasoline crisis (in 1979), the company made its first venture into commuter bus service. In response to requests for assistance from employees with lengthy commutes, Hughes in mid-1979 established a commuter bus service from the San Fernando Valley to El Segundo. It contracted with Antelope Valley Bus to run 3 buses to El Segundo from a park-and-ride lot at a Hughes facility in Canoga Park, a service which continues in operation.

The Assistant Director of plant services, the department which administers the bus and vanpool programs, had even larger plans. A native of England, he had long been convinced that automobile commuting in the heavy Los Angeles traffic was not a particularly sensible method of getting to work. He was also convinced that large numbers of employees would use the bus for commuting if a good level of service was provided. By couching his arguments in productivity terms--more productive workers due to an easier commute, more productive use of land by eliminating the need for future parking expansion, greater ability to retain and recruit skilled employees--he was

able to convince the company's top management that a large scale bus program should be established for short distance commuters. Company surveys had revealed that 70 percent of the workers lived within 15 miles of El Segundo or Culver City, and any major reduction in automobile commuting would have to come from this group. Moreover, the long distance commuters were already being served by the San Fernando Valley park-and-ride service and private bus operators (COMBUS, Commuter Bus Lines, and Antelope Valley Bus). (A vanpool program for long distance commuters was added in September, 1981 and has experienced rapid growth since then.)

In October, 1979 the company invited all the transit agencies in its area to a meeting at which Hughes requested additional commuter bus service and stated that it would fully subsidize any losses from the service. It even offered to layout the bus routes. To the company's great disappointment, only the small Culver City bus operator even expressed interest in the proposal. Nothing concrete ever resulted from the meeting. An approach to the LACTC yielded nothing more than encouragement. Throughout this period the employers in the El Segundo area were being served by SCRTD's Bus Express Employee Program (BEEP). Although the routes were tailored to the residential locations of employees, BEEP did not drop off passengers at the plant entrances, but on the street instead. As a public agency service, BEEP was designed to serve all of the large employees in the El Segundo, not just Hughes. The SCRTD service was not responsive, therefore, to the latter's desires for a company oriented bus program.

In 1981, the plant services director decided that it was futile to hope that the public transit agencies would develop the type of service he wanted. Accordingly, he approached the company's top management and persuaded them to authorize an experiment to test the market for short distance bus service to the plant. He would design the routes based on where workers lived, and the service would be contracted to a public or private bus operator. Top management agreed to a limited one week trial. Of the 12 routes which had been designed, it was decided to use 6 routes for the experiment. On the basis of competitive bids, two contractors were selected: Gray Lines, a private operator, and Culver City Transit. The former operated 4 routes using late model inter-city type coaches, and Culver City was awarded the remaining two routes, on which it operated new GMC transit buses.

The experiment, which was conducted in March, 1982, was a noteworthy success. Approximately 500 individuals agreed to pay \$5 to subscribe to the service for the one

week trial period. With 15 daily bus runs, this resulted in an average of about 33 passengers per bus, a load factor which was deemed satisfactory.

On the basis of the success of the experiment, the plant services director proposed that a permanent bus program be established. It was decided to operate initially on the same 6 routes and to charge users a  $75\phi$  one-way fare. A subsidy of \$100,000 annually was projected, which management found acceptable.

In the fall of 1982, the transportation department hired a bus manager (a former manager of both a public transit agency and a private bus company) to administer the program. A request for proposals was prepared and Hughes went out to bids on the commuter bus service. Seven operators submited bids (only one was a public agency) for all or part of the six routes. Although Hughes was not committed to taking the low bidder--other criteria than cost included the quality of the vehicles and the drivers--the low bidder, Aztec Bus Lines, was selected as the operator.

Aztec is a charter and contract carrier based in San Diego, and it had submitted a low bid because it saw the Hughes contract as a way of breaking into the Los Angeles charter and tour market. The company believed that if it could develop a base in Los Angeles through a contract operation, it would have the equipment needed to integrate charter and contract services and could offer less expensive rates for both services. In addition, Hughes had pledged to consider the successful bidder for additional charter type services which it might need.

In November, 1982 the company's commuter bus service was initiated. Service was on 6 routes, each with two to three runs in both the morning and evening. Both shifts were served, which necessitated a minimum of two runs per route. While the level of service was essentially the same as during the experiment, the fares were not. Even though Aztec Bus Lines had been the low bidder, its price was still higher than the transportation manager had anticipated the company would have to pay. It was therefore necessary to establish a fare of 90¢ per one-way trip in order to minimize the required company subsidy. The initial ridership response was disappointing, only 300 to 350 one-way passengers per day (i.e., 150–175 persons). This was only about one-third of the ridership during the experiment. Consequently, the schedules were revised on two separate occasions in order to make the bus more convenient. Nonetheless, by mid-June, 1983 the number of daily trips (one-way) had increased to only 400.

Major changes were made to the service in June in an attempt to salvage the program. Four new routes were added, bringing the total number of routes to 10. At the same time, some bus runs on existing routes were discontinued. Half of the routes

now serve only one shift, where previously there was a bus run for each shift on each route. Fares were reduced to 75¢, as there was a perception that potential users were deterred by the 90¢ fare. In addition, pick-up points were added along the routes in an attempt to more closely match the residential origins of actual and potential users. Finally, additional marketing of the service was done to the 16-17,000 workers who are potential users.

By the end of July, ridership had increased to 525 daily trips. While the above actions undoubtedly caused some of the ridership gain, another major contributing factor was the termination of much of the BEEP service at the end of June. Ridership gains from former BEEP patrons more than offset the losses of riders due to discontinuing some of the bus runs.

Despite the recent ridership increases, the service is still not doing well financially. Hughes' objective is to maintain an 80 percent load factor for the buses, at which level the cost of service provision (exclusive of administrative costs) would be about \$1.30 per passenger. At the current level of service, this would necessitate a subsidy by Hughes of 140-150,000 annually, plus administrative and overhead costs (chiefly the salary of the bus manager). At the current ridership level, however, the annual subsidy of the contract alone would be about \$240,000. In an effort to reduce its cost of the program, Hughes has offered the service to other El Segundo employees. Other companies would be required to sell tickets to employees for 75¢ a ride and to subsidize 55¢ for each ticket sold. There is some interest among the other companies, and one has entered into serious discussions with Hughes about participating. In spite of the lower than anticipated ridership and higher than anticipated costs, Hughes remains committed to the service and expects that it will eventually achieve its financial goals.

#### 4. Employer Ridesharing Programs

Many of the major employers in the Los Angeles region have established large scale ridesharing programs for their employees. Arco, Fluor, Bechtel, Hughes Aircraft, and the Aerospace Corporation are among the companies which have made major commitments to ridesharing as a means of getting their employees to work. In addition, 20 companies in the El Segundo area, many of them quite large, have established the El Segundo Employers Association (ESEA) to address transportation problems of common concern.

Some of the employer programs in the region date back to the mid-1970's; others were more recently developed in response to the 1979 gasoline shortages or particular

company concerns. In most cases, however, the motivations for establishing a program were similar. The work forces of these large companies are scattered throughout the Los Angeles megalopolis. High housing prices have forced many recently hired workers to live a considerable distance from the work site, which is often surrounded by areas with expensive real estate. Not only are trip lengths long for many workers, but the increasing and relative pervasive freeway congestion results in time consuming and arduous commuting. Travel times of 60 to 90 minutes one way are not uncommon.

While ridesharing cannot reduce the amount of time spent commuting, it can make the commuting situation more tolerable, and thus has had substantial appeal to long distance commuters. Companies recognize that recruiting skilled employees has become difficult due to the housing and transportation situation. A ridesharing program, particularly vanpooling, is a relatively inexpensive means of making it easier for new hires to find suitable housing and commuting arrangements. In addition, it is a strategy for retaining workers who might otherwise become so disgruntled with a difficult commute that they would find another job. Successful recruiting and retention of workers has a definite economic pay-off, which more than outweighs the cost of a ridesharing program.

While some employers cite savings in parking costs as a reason for sponsoring ridesharing, it appears to be of secondary importance in comparison to maintaining a tolerable commuting situation for the work force. To the extent that there are parking cost savings associated with ridesharing, they are the avoidance of future costs of parking expansion as a company grows. The vast majority of companies with major ridesharing programs are <u>not</u> located in areas where parking is very expensive, such as the Los Angeles CBD, and therefore tend to provide virtually unlimited free parking. Employers in the CBD and other areas well-served by transit usually do not maintain a large-scale ridesharing activity, as the SCRTD provides excellent commuter bus service to these areas.

# Individual Company Programs

The activities of Fluor Corporation and the Aerospace Corporation exemplify involvement of private employers in commuter transportation.

The Fluor Corporation's headquarters are located in Irvine in Orange County. Of its 5,500 employees at Irvine, a total of 1600 (30 percent) are ridesharing, with 1100 employees in vanpools and a little more than 500 employees in carpools. Fluor's program began when it relocated its facilities from The City of Industry to Irvine in 1977. The company leased fifteen vans to offer its employees an alternative to moving

to Orange County. It also established a carpool matching program. Much of the area surrounding the Irvine facility is high income housing and many Fluor employees chose not to move to Orange County because of the housing situation. Fluor kept leasing the vans as the demand for ridesharing increased until it had leased over 100 vans. Much of the new demand has been caused by recently hired employees who have located in Riverside County, where housing is much more affordable, but entails a 30-60 mile commute each way. The Orange County portion of this commute is also heavily congested. The company has decided to gradually replace the leased vans with vans that the company owns and is in the process of doing so. It is felt that the company can obtain a more attractive tax write-off by owning the vans.

From its inception, Fluor subsidized the vanpool program. The company contributes 25 percent of the total cost of the program. The rationale for subsidization is that vanpooling is a cost of doing business in Orange County with its high housing prices, and enables the company to recruit and retain employees who would otherwise find the commuting situation intolerable. In addition, Fluor estimates that the vanpool and carpool programs have reduced parking demand by about 1000 vehicles, and this may save the company money in the future. There is very limited transit service to the site, so relying on transit was never a viable alternative.

Like Fluor, the Aerospace Corporation has about 30 percent of its employees commuting in ridesharing modes. Aerospace also has many employees who face lengthy commutes to its El Segundo site, and it is located in an area plagued by much more severe traffic congestion than Irvine. Carpooling is the major ridesharing mode at Aerospace, followed by vanpools and private buspools/subscription buses. In addition, the company was heavily involved in the development of the BEEP program, which until mid-1983 provided express bus service somewhat tailored to the locations of Aerospace employees. The company was also one of the catalysts for the development of ESEA, and its ridesharing staff served as ESEA staff during its formative stages.

Unlike Fluor, Aerospace does not subsidize ridesharing. Its status as a quasi-federal agency prohibits such actions. The company does charge for parking (\$30 per moth), however, and this acts as incentive for ridesharing, as does preferential parking for carpoolers and vanpoolers.

# El Segundo Employers Association

Aerospace was a moving force in the establishment of ESEA in 1981. The motivation for this action was the congestion problem in the area, which affects employees of all the companies located there. With 60,000 employees already located

in El Segundo, and projections that this number could soon grow to 100,000, the large companies wanted to do something effective about transportation problems. The ESEA is funded by contributions from its member companies and has a small staff.

ESEA has focused most of its attention on TSM type strategies. Commuter ridesharing programs at the member companies are currently the most important activities. According to ESEA statistics, the number of ridesharing commuters has increased by 33 percent since 1981, and the percentage of commuters in ridesharing modes has grown from 21 percent to 24 percent in the past two years. Approximately 250 vanpools now serve the ESEA members, more than 2 1/2 times as many as in 1981. Despite these achievements, however, the growth in employment has added 7500 new solo auto commuters to the roadway system, and traffic congestion has continued to worsen. Consequently, ESEA has undertaken or sponsored studies on such TSM activities as traffic signal coordination, intersection improvements, reversible traffic lanes, and improved routing of the SCRTD BEEP service to the area. It has also assisted Caltrans in locating new park and ride lots for El Segundo commuters. In addition, ESEA conducted a feasibility study of a light rail service from Redondo Beach to El Segundo using an abandoned rail right of way, and concluded that the idea had potential.

These activities have thrust ESEA into the transportation planning and decision making system in Los Angeles County. The public agencies in the region now recognize that the private employment sector, at least in El Segundo, is a major actor to be reckoned with, and have begun to interact with ESEA on a regular basis. The public-private sector relationship is still in its formative stages, but all the parties have at least agreed that the relationship should be developed further.

#### 5. Contract Commuter Bus Services

Both Los Angeles County and Ventura County are involved in contracting for commuter bus service. The County of Los Angeles is responsible for public transit on the unincorporated and non-urbanized areas of the county. It has never wished to provide transit service itself, and has contracted out all transit operations, a not uncommon practice in California. As the outlying areas of the county have grown in population, commuting flows into Los Angeles have increased and demands for peak period transit service have been articulated.

In 1980, the County initiated an express bus service from the Santa Clarita Valley to downtown Los Angeles, a distance of about 35 miles. There are three departures in

both the morning and evening, and service is provided by a private bus company under contract to the County. Both Antelope Valley Bus and Commuter Bus Lines have been the providers as the contract has changed hands with rebidding. The operator is required to provide the buses. The contract rate per revenue vehicle mile is relatively expensive (about \$2.50 per revenue vehicle mile) due to the vehicle provision requirement and the fact that considerably more than 50 percent of the miles are deadhead miles (neither bus company is located near the route's origin or destination). Nonetheless, the cost to the County is less than purchasing service from the SCRTD. There have been few operational problems and the County expects to continue to contract for this service.

In Ventura County, an organization of private employers, in cooperation with the County, is providing subsidized subscription bus service to workers at several major industrial parks. The motivation for the service is to expand the labor market of the employers--they are located in a high housing cost area and many jobs pay only moderate wages. Both state transit subsidies and CETA funds have been used to subsidize the operation which, although targeted at low income workers, is open to anyone. Riders must subscribe for one week at a cost of \$8, and currently the service is carrying over 250 passengers per day in 8 buses.

Service is provided by a local private bus company which engages in both school bus and charter operations. The provider uses school buses. Vehicle and driver utilization during the off-peak is a problem, and both are often left idle at the destination end of the trip. Despite this problem, the cost is only \$1.67 per revenue mile, or about \$50 per revenue vehicle hour. Low driver wages, the use of inexpensive equipment, and the decision not to deadhead the vehicles unless they have other productive uses account for the low costs. The County is apparently willing to continue to subsidize this service as long as the costs do not increase significantly.

#### VII. Houston

Houston is one of several "sunbelt" metropolitan areas to experience tremendous growth during the past decade. The oil and natural gas industries have historically been a major factor in the economic growth of the Houston-Galveston region. Since the 1973-74 fuel crisis these industries have expanded dramatically, generating a "multiplier effect" of economic growth in the area. Between 1960 and 1980 the population of the metropolitan area doubled, and employment increased by an even greater percentage. With a population of over 3 million persons, the Houston region is now the 7th largest in the country.

The rapid growth of the area has led to problems, particularly in the area of infrastructure development. Houston historically has prided itself in minimizing the role of the public sector, and very little planning for this growth took place. The result has been overloads of several systems, including sewers and water supply as well as the highway and public transportation systems.

Unlike many regions which have experienced rapid growth during the 1960's and 1970's, Houston's central city has continued to have a large share of the area's employment. As of 1980, the CBD had about 158,000 employees. In addition, other major employment concentrations are located in Greenway Plaza (97,000 jobs) and the Texas Medical Center (33,000 jobs). All three of these areas are located within the inner loop of the local freeway system. Recent residential development, on the other hand, has taken place primarily in the suburbs. Suburban population increased more than twice as fast as central city population between 1970 and 1980. The concentration of employment activity in the City of Houston, coupled with suburban residential growth, has generated severe peak hour traffic congestion on Houston's freeway and arterial system. Although several freeways were built relatively recently, capacity has not kept pace with demand. Furthermore, Houston's residents are very sensitive to the congestion because it has increased rapidly over a relatively short period of time. For example, average daily traffic on freeways within the inner loop area increased an average of 5.4 percent between April, 1981 and April, 1982.

Houston's freeway system consists of seven corridors radiating out from the CBD area. An inner loop freeway encompasses the inner city area; an outer loop which approximately borders the city boundaries is under construction. The major north-south freeway, Route I-45, has a 13 mile HOV lane which serves both public transit express buses and vanpools. It was opened as an UMTA-SMD demonstration project in 1979 and is now a joint operation of the Houston Metropolitan Transit Agency (MTA) and the Texas State Department of Highways and Public Transportation (SDHPT). Because of the project's success, several other HOV facilities are being planned for other major freeways.

## A. Public Transportation and the Institutional System

Given the concentration of employment activity, pervasive traffic congestion, and the high cost of parking in many areas, it might be expected that public transportation would play a major role in serving Houston's commuters. In fact, this is not the case: as of 1982, transit's share of work trips was only 5.2 percent. The history of public transportation helps to explain this situation.

Bus service in the Houston area remained in the private sector until 1974. Prior to 1974, a local transit system operated within the City of Houston and several intercity carriers operated express service between Houston and adjacent communities. The local transit system was in financial trouble for several years prior to its takeover by the City of Houston. After the takeover, the system continued to decline. Low fares were maintained at the expense of \$4 to 6 million per year in subsidies out of the City general fund. The City apparently had little interest in operating the system; no major service changes took place, and no attempt was made to obtain UMTA capital assistance funds for either vehicle purchase or construction of new facilities until 1978.

Efforts to form an independent transit authority began in 1975 with a ballot proposal which included local sales tax funding. The proposal was defeated, and was not put on the ballot again until 1978. In view of the poor service provided by the transit system, it was difficult to convince the electorate that the system merited additional financial support. The 1978 ballot measure proposed the formation of a regional transit authority encompassing all of Harris County. However, cities within the county which did not pass the measure were not required to join the authority. The MTA was to be financed by a 1 percent sales tax. The commitment was to develop a county-wide bus system with emphasis on high quality express service. A key component of the MTA system is the transitway development program, a joint venture with the SDHPT which seeks to combine freeway improvements and the development of HOV facilities. The 1978 ballot measure passed and the MTA became the regional transit operation in 1979, taking over the city transit system as well as regulatory authority from the Railroad Commission.

#### Organizational Structure for Transit

The MTA is headed by a 7 member Board of Directors. The Mayor of the City of Houston appoints 5 members, 1 member is appointed by Harris County, and 1 member is appointed by the suburban communities within the MTA. Since the MTA sales tax revenue is an earmarked funding source, it does not compete with other local programs. The task of the Board of Directors is to allocate funding among the MTA's different programs. To date, primary emphasis has been placed on accomplishing two objectives: 1) expanding MTA express service and reorganizing the local route system, and 2) pursuing a comprehensive capital improvement program. (As of June, 1982, a new General Manager was hired, and it appeared that the MTA would undergo substantial reorganization.) Management at the MTA claimed that the City exerts little pressure on the MTA. Most of MTA's funds and efforts go to capital projects which are usually cooperative ventures with other agencies. As will be discussed below, the private sector no longer views the MTA as a potential commuter transportation provider; their support is based on the capital improvement program.

## MTA Services and Finances

The MTA inherited an aging and badly maintained fleet, inadequate maintenance facilities for the existing fleet, and an outmoded route system. At the same time, the MTA was commited to a rapid expansion of service throughout the MTA service area (nearly 1300 square miles). To make matters more difficult, in early 1978 the City applied for capital assistance to purchase 329 Gruman Flexible buses to replace the existing fleet. These buses turned out to be extremely unreliable due to structural and mechanical problems. As a result, the MTA has had serious maintenance and reliability problems from the beginning which have not yet been overcome. As of April 1982, MTA had 370 vehicles in peak operation out of a total fleet of about 900 (or 580 "active" vehicles).

The MTA operates a variety of bus services, ranging from Park and Ride express service to local routes. It has 18 Park and Ride facilities currently in operation, with one more under construction. Each Park and Ride lot is served by a different express route. Of these, 5 are operated by the MTA and 13 are provided by private contractors. The MTA also operates VANSHARE, a ridesharing program which offers matching service and assistance in forming third party vanpools.

Although the MTA's farebox recovery ratio is only 20 percent, the overall financial status of MTA is extremely favorable. Sales tax revenue alone exceeds operating expenses by 65 percent, and total revenue amounted to \$213 million in 1982, or \$115 million more than operating costs. Owing to the Houston area's rapid growth, sales tax revenue has more than kept pace with system costs. This favorable financial position has enabled MTA to pursue a program of service expansion with little regard to costs. In addition, it has provided a source of funds for joint highway/transit projects which have generated political support for the agency. These local funds can be used for matching state and federal projects, as well as for locally sponsored projects. At present, capital improvements (primarily Park and Ride lots, HOV lanes, and road improvements) are being funded at a rate of \$120 million per year.

#### Β. Private Sector Options

#### 1. MTA Contract Service

The MTA contract service employs 5 different private bus companies which together operate 112 buses. They provide approximately 23 percent of the MTA's total service on a vehicle mile basis. Contract service annual costs are \$10.5 million, or 11 percent of MTA total operating expenses. (Contract service cost does not include MTA administrative expenses.) The MTA is the largest contractor of regular route service among U.S. transit agencies.

While the motivation for utilizing contract services is usually financial, this was clearly not the case in Houston. Rather, faced with inadequate and unreliable equipment, the MTA turned to the private sector for assistance in pursuing its program of expansion. Prior to the formation of the MTA, three of the current providers (Northline, Kerville, and Transportation Enterprises) had been operating routes on I-45 as intercity carriers. These routes were absorbed by the MTA, which then contracted with the same carriers to continue their operation. The carriers were quite satisfied with the arrangement, as the routes had been losing money, while the MTA contract assured profitability.

Table A-2 gives MTA contract service as of May, 1982. The amount of contract service has remained relatively stable since 1979, because MTA views it as a stop gap measure that will eventually be eliminated as MTA overcomes its vehicle problems. Agency policy has been to limit contractors to the existing service, and to have all new routes provided by the MTA. When the express service expansion has been completed, plans are to eliminate all of the existing contract service.

MTA Contract Service as of May, 1982					
PROVIDER	ROUTES	BUSES	DAILY BUS RUNS		
Transportation Enterprises, Inc.	3	26	80		
Houston Coaches	1	6	20		
Kerville Bus Co., Inc.	5	45	158		
Northline Bus Center	2*	20	91		
7-K Transit	2	15	44		
TOTAL	13	112	393		
*One route shared					

#### Table A-2

The transit union accepted contracting because of the MTA's assurance that it is an interim strategy. Furthermore, the union contract limits contract service to 15 percent of total service. An emergency limitation of 25 percent was obtained during the first two years when the service expansion program was just beginning. It should be noted, however, that since the MTA (and its predecessor) had never operated these express services, there is no potential 13(c) issue involved. During the period of MTA's worst equipment problems, private contractors were also used to cover regular MTA runs on an emergency basis. When this happened, the MTA driver rode in the bus and collected fares.

The first contracts were quite renumerative for the private providers, as the MTA had little experience and was more interested in getting service on the road than in striking a bargain. The private providers charged the going charter rates, ranging from \$375 to \$475 per day per bus, depending on the route mileage. Contracts have a duration of three years plus two yearly renewal options. Service price is fixed for the first two years and negotiable thereafter. The contractor supplies both vehicle and driver and is responsible for all aspects of the service except the route schedule, which is set by the MTA. Contract operators do not collect cash fares; only tickets and monthly passes are accepted, and these must be purchased at MTA outlets. Contract provisions also include vehicle specifications, performance standards and penalties, back-up vehicle requirements, as well as the route schedule. Contracts are written for a minimum quantity of service, and MTA has the option of requiring additional service up to a pre-specified maximum subject to three days notice. The volume of MTA business available has been such that there is little competition; all of the local private operators capable of contracting are involved.

#### Contract Problems

As MTA has gained experience in contracting, the contracts have become more stringent. In an effort to reduce service costs, the MTA has based recent contracts on revenue vehicle hours rather than a daily rate per bus. Since the majority of service is provided during the A.M. and P.M. peaks, it was decided that there was no reason to pay the entire daily rate. Contractors do not agree with this policy. They claim that they must provide the vehicle and pay the driver his/her half-day guarantee no matter how many runs the service requires, and therefore the daily rate is more appropriate. Their response to the new policy has been to bid a vehicle hour rate which corresponds to their daily rate. Furthermore, there have been some problems with the new contract arrangements because the request for proposals gave the number of buses, trips, and

revenue vehicle hours, but not the schedule. Thus some buses could end up making only one run, for which MTA paid only the revenue hours.

There have also been other problems with the MTA contracts. First, there was a problem with missed runs. The MTA claimed that some contractors would miss an MTA run if a lucrative charter job required the bus. The MTA has responded by imposing a penalty of \$100 plus the hourly contract fee to a maximum of \$250 for any missed trip or portion thereof. Second, there have been some problems with equipment, as the MTA prefers the use of newer buses. Thus the new contracts require a 43 passenger (or larger) coach, and this eliminates several older model buses. This requirement of course adds significantly to contract costs. A final problem has been the short start-up time (3 days) provided for in the contract. This has been particularly difficult for smaller operators who do not have immediate access to additional vehicles and drivers. Their choice is either to take the risk of obtaining equipment before the contract is awarded, or to lease vehicles from another local operator. In most cases, the latter occurs.

#### Private Operators

The private operators vary in size from Kerville Bus which is a subsidiary of Greyhound and has 65 vehicles in service in Houston to Houston Coach (encouraged to participate for affirmative action reasons) with less than 10 vehicles.

Kerville Bus Company started operations as a local carrier in the hill country of Texas during the 1930s. They were not involved in commuter services in the Houston area prior to MTA contracting; their primary emphasis was on charter service. They were MTA's first contractor, and presently, 45 of 65 buses in the Houston division are used for contract service. The Houston division comprises approximately 50 percent of the total fleet.

Northline Bus Company operates 30 buses and employs 22 full-time drivers and four part-time drivers. Northline is in the sales and charter business as well. Seventy-six percent of Northline's service revenues are derived from contract services. Their MTA contract requires the use of 20 of their 30 bus fleet.

7K has 23 intercity coaches and 40 school buses, and their MTA contract requires 15 buses. As of May, 1982, 7K was subcontracting one of its routes to Transportation Enterprises due to equipment problems.

Transportation Enterprises, Inc. operates a variety of contracts and services in different parts of Texas. Their total statewide fleet is 400 buses. The Houston fleet is 53 units of which 29 are used for MTA runs.

Table A-3 presents information on the contract revenue received by MTA private operators. It is evident that the total amount of revenue is quite large for all but Houston Coach. Although exact numbers were not available, contract revenue in all cases amounts to well over 50 percent of each operator's total revenue.

#### Table A-3

	MTA Private Operator Contract Revenue			
OPERATOR	REVENUE VEHICLE HOURS/MONTH*	ESTIMATED ANNUAL REVENUE	REVENUE/ REVENUE VEHICLE HOUR	
Kerville Bus	4,384	\$3,685,000	\$72.53	
Trans. Enterprises	2,596	2,815,000	93.56	
Northline	2,365	1,881,000	68.63	
7-K Transit	1,575	1,434,000	78.58	
Houston Coach	383	320,000	72.02	

MTA Private Operator Contract Revenue

\* These are totals for all routes operated by each company

\*\*Based on month actual data

Source-MTA Contract Service Statistics May 1982

When calculated on a revenue vehicle hour basis, the contract service cost is similar to typical transit agency peak service costs. There are several factors which contribute to these high contract costs. First, as stated earlier, MTA was not concerned about contract costs initially. Thus MTA was willing to pay charter rates, even though their service provided a revenue guarantee to private operators which was not available through charter service. As contracts have come up for renewal, average service costs have either declined or remained stable. All of the private operators agreed that MTA service was profitable, and two operators stated that their contract bids included a 15 percent profit. (It bears noting that this rate of profit is quite unusual in the industry.) Second, contract requirements for vehicles add to service costs. The MTA requires coach type vehicles with air conditioning and reclining seats, and requires them to be either relatively new or recently refurnished. Such vehicles cost upwards of \$100,000, and due to the short duration of contracts, must be depreciated rapidly. Finally, the private operators also have a "peak service" problem;

drivers must be paid their guaranteed minimum even for one peak trip. In Houston, the typical guarantee is half the daily wage rate for each AM or PM shift.

#### Future of MTA Contract Service

At this point both the MTA and private operators are quite satisfied with the contract service. However, as discussed earlier, the MTA views the service as temporary. Private operators, on the other hand, are unanimous in their conviction that the service is in fact quite permanent. They cite the MTA'a long history of operating problems, the poor morale and training of MTA employees, and the great demand for commuter services in the Houston area as reasons why contract services will continue. Within the MTA, there is some perception that contract service can be cost-effective. As the MTA becomes more aware of their own service costs, particularly peak hour express services, contracting may become a more attractive long term strategy.

#### 2. The MTA VANSHARE Program

VANSHARE, the MTA ridesharing program offers a computer matching service and assistance in carpool and vanpool formation. The program is an outgrowth of a previous ridesharing program funded jointly by FHWA and the state. It is currently funded 70 percent by the MTA and 30 percent by an UMTA-FHWA National Ridesharing Demonstration Grant. The program presently includes 35 vanpools and is authorized to do matching outside the MTA area to serve long distance commuters. The VANSHARE program serves an important political purpose. Some outlying areas in Harris Country which voted for the MTA (and are thus part of the MTA service area) are not served by MTA transit service. The vanpooling effort is directed at these areas in order to assure residents that MTA intends to serve all of its constituency. The program, however, has had only limited success, and no great effort is being made within the MTA to market the program more aggressively. Rather, the MTA is more interested in pursuing its long term transit program.

#### 3. Employer-Based Vanpools

The Houston metropolitan area has more vanpools than any other city in the U.S. As of April 1982, 83 private employers had vanpool programs, which together were operating approximately 1900 vanpools. Quite understandably, Houston is known as the "vanpool capital of the world."

Ridesharing programs began in Texas with the support of Federal Aid Highway funds in 1973. The first employer-based vanpool program was initiated in Dallas by

Texas Instruments in 1974. The first program in Houston was that of CONOCO, which began in 1975 with 10 vans. The founder of that program, Bill Fortune, was an avid promoter of the concept both within and outside his own company. Fortune was instrumental in assisting other companies with vanpool programs, and in garnering the support of the Texas Energy and Natural Resources Advisory Council (TENRAC). TENRAC provides technical assistance and information exchange for prospective vanpool organizers.

Houston very rapidly took the lead in vanpool formation. By 1977, there were 10 programs with 160 vans operating. The CONOCO program alone had grown to 40 vans. The growth in the number of vanpools has been continuous; as the growth of older programs stabilizes, new programs are initiated. Table A-4 lists the 6 largest programs currently in operation. Of this group, CONOCO, Gulf Oil, and Brown and Root have been operating for more than five years. Brown and Root had the largest program in the state in 1980 (265 vans), but the program was vastly cut back as a result of large employee layoffs and company financial problems. These six largest programs have 37 percent of Houston's vanpools. Energy related industries are heavily represented among the employer programs are operated by single employers, there are some exceptions. Texas Medical Center and Greenway Plaza operate programs which are available to all employees within the center. The Woodlands, a planned residential community located in the suburbs about 25 miles north of downtown, operates a vanpool program for its residents.

Table	A-	4
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Houston's Largest Employer-Based Vanpool Programs

Gulf Oil	161
Houston School District	138
Brown and Root	132
TENNECO	127
CONOCO	86
Texas Eastern Transmission	70

In addition to the remarkable number of vanpools operating in the Houston area, the success of several employer programs is also quite impressive. The most successful ridesharing program is that of Gulf Oil. It was begun in 1977, when Gulf moved 1700 employees from downtown to a west side area location. Two of the employees involved suggested vanpools to assist employees with their now longer commutes. Within the first year 28 vanpools were organized, and the program continues to grow today, in spite of some layoffs within the company. In addition to the vanpool program Gulf also offers the MTA matching service to employees interested in carpooling. Gulf estimates that 90 percent of their employees are engaged in some form of ridesharing, with about 1800 of the 2300 employees in vanpools.

Another very successful program is that of Texas Eastern Transmission Corporation (TET). TET is a rapidly growing energy company headquartered in downtown Houston. Management states that their program was a response to the Clear Air Act. (The Texas State Department of Energy included vanpooling in the State Energy Conservation Plan in 1978, and enlisted the Texas Transportation Institute to develop and market vanpooling programs). Like many other companies, TET's first response to employee commute problems was the MTA. They offered a \$25/month discount on transit passes (and distributed free bus tokens), but found that very few employees were able to conveniently use transit. The vanpool program began in 1979 and in 1982 had 70 vanpools in operation. TET also provides carpool matching service and continues to provide transit pass discounts. TET management estimates that 64 percent of the workforce (which totals about 2000 downtown) is involved in ridesharing.

## Success of Employer-Based Vanpools in Houston

Interviews with company ridesharing coordinators revealed that programs which have substantially increased ridesharing within their organization have several factors in common. First, the program is operated by a single employer. Programs operated by employer associations, or developers of commercial centers, have more difficulty getting vanpools on the road. Information exchange is more difficult when different employers are involved, and there are problems with different work hours. Second, the most successful programs enjoy the strong support of top management, and the program is aggressively marketed at all staff levels. At Gulf Oil and TET, for example, employees are exposed to vanpool promotion as part of their orientation. A small ridesharing staff is available for monitoring and marketing on an ongoing basis. Third, vanpool fees are quite low, and always lower than the out-of-pocket cost of auto commuting. Typical fares for a 50 mile round trip are \$35 to \$40 per month. (Assuming 20 mpg and gas at \$1.20/gal., fuel cost alone would be \$66/mo.) Additional incentives are sometimes provided in the form of discounted parking fees. In order to maintain low fares, employees absorb the administration expenses of the program (which most claim to be inconsequential) and sometimes subsidize part of the operating expenses as well. Finally, large employers tend to have higher participation rates. All things being equal, the larger the employee pool, the more likely it is that commute trips can be matched. Several program managers mentioned that the start-up phase is slow because there are not enough potential trips to enable good matches. Once a large enough pool of trips is reached, however, additional vanpools form very quickly. Large companies also have the advantage of absorbing vehicle insurance costs, thus futher reducing program costs.

A potential alternate to vanpooling is the MTA bus service, but few companies have found this to be a viable option. As noted previously, transit was in a period of extended decline during the 1970s when vanpooling got started. The nature and limitations of the transit system are not conducive to employer participation. Employers who subsidized employee transit passes found that few workers were willing or able to use them.

Another potential solution to employee transportation problems would be the use of buspools. The vanpool distribution maps observed in many of the program administration offices indicated sufficient densities to make buspooling feasible. However, this option was not used by any of the employers interviewed (in contrast to Los Angeles) and there were a number of consistent reasons given: 1) the need for a special driver's license, 2) storage problems, and 3) maintenance problems. The first of these is the least substantial and would not be particularly difficult to overcome--this objection probably originates from the lack of exposure to buspooling operations. The second, however, is substantial in that some of the employers have parking structures which could not accommodate buses. The final reason is most likely the most important. Van maintenance is easily integrated into the regular company fleet maintenance program. In contrast, bus maintenance would require diesel mechanics, as well as special parts and equipment, and consequently significant added expense.

# 4. Overall Observations on Private Sector Strategies

The transportation characteristics of the Houston area--large concentrations of employment, high parking costs, and traffic congestion--are all conducive to less emphasis on private auto commuting and more emphasis on transit and ridesharing.

Heavy private sector involvement characterizes both of these commuter modes and has been a major factor in their growth. The growth of vanpooling has been nothing short of spectacular, with the number of vanpool commuters now about 40 percent as large as the number of MTA peak hour travelers. (Approximately 20,000 vanpoolers vs. 50,000 peak period transit users.) There is every indication that vanpool growth will continue. The Houston chapter of NAVPO is very active, and the Chamber of Commerce is also an advocate of privately sponsored ridesharing activities.

As noted earlier, a large proportion of the private employers involved in vanpool programs are energy-related companies. Several of them have a long tradition of providing employee transportation to remote work sites, and their involvement in urban commuting is to some degree an extension of this tradition. Moreover, energy related companies freqently mention the importance of practicing energy conservation for the sake of public image. Finally, these companies have experienced such financial success that the risks involved in supporting an employee vanpool program are inconsequential.

Another factor which has influenced the supply of transportation services in Houston is the history of profitability of private bus operators. According to the private operators interviewed, their business has been lucrative for several years. The development of the area has led to growth particularly in the charter business, but also to relatively financially healthy of intercity service as well. Prior to the formation of the MTA, some intercity routes operated as commuter service, and there was also some subscription bus service in operation. In addition, several charter operators in the region were involved in busing workers to remote worksites. Thus the private sector has been an active participant in commuter services, even in recent times when the bus industry in other areas of the U.S. has experienced significant decline. Consequently, a number of financially healthy operators were available to provide contract service for the MTA. MTA business has also been quite profitable. In fact, according to a recent survey, Kerville Bus Co. is the fourth most profitable bus company in the U.S.

In contrast, the public transit agency has been relatively ineffective in contributing to the supply of Houston's commuter transportation. MTA's poor service record has deterred private employees from approaching MTA as a potential resource for employee transportation. In all cases, the employers interviewed stated that public transportation was not a viable solution for their employees.

MTA's service and reliability problems have also limited its ability to achieve more influence on regional policy decisions and to develop support as a monopoly supplier of commuter services. For example, when the I-45 contraflow demonstration project was initiated, the MTA was unsuccessful in its attempt to limit use of the lane to MTA vehicles. (The argument was that only trained MTA bus drivers were capable of driving the contraflow lane.) There was great demand among vanpoolers to use the facility, and they gained access to it. Similar conflicts have occurred over Park-and-Ride facilities. Current MTA policy is to exclude vanpoolers from using a lot when it reaches 80 percent capacity. Aside from such a policy being unenforceable, it has antagonized vanpool commuters, and efforts are underway to eliminate this rule.

Primary support for the MTA comes from its capital funding capability. Its joint program of highway improvements, HOV facilities, and Park-and-Ride express services provide facilities which benefit all travelers. Thus Houston business interests are strong supporters of the program. In contrast, only downtown business supported the proposed Houston rail project, and it was recently defeated in a public referendum. As MTA operating costs absorb a greater proportion of sales tax revenue, pressure to control MTA's peak service expansion and to improve cost-effectiveness will probably develop in order to protect this funding capability.

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DOT-1-85-09



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