TCRP
REPORT 75

TRANSIT
COOPERATIVE
RESEARCH
PROGRAM

Sponsored by
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The Role of the Private-for-Hire Vehicle Industry in Public Transit

TRANSPORTATION RESEARCH BOARD

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The Role of the Private-for-Hire Vehicle Industry in Public Transit

GORMAN GILBERT
Oklahoma State University
Stillwater, OK

THOMAS J. COOK
ANNA NALEVANKO
Institute for Transportation Research and Education (ITRE)
North Carolina State University
Raleigh, NC

and

LYNN EVERETT-LEE
Multisystems, Inc.
Dallas, TX

SUBJECT AREAS
Public Transit

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TRANSIT COOPERATIVE RESEARCH PROGRAM

The nation's growth and the need to meet mobility, environmental, and energy objectives place demands on public transit systems. Current systems, some of which are old and in need of upgrading, must expand service area, increase service frequency, and improve efficiency to serve these demands. Research is necessary to solve operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the transit industry. The Transit Cooperative Research Program (TCRP) serves as one of the principal means by which the transit industry can develop innovative near-term solutions to meet demands placed on it.

The need for TCRP was originally identified in *TRB Special Report 213—Research for Public Transit: New Directions*, published in 1987 and based on a study sponsored by the Urban Mass Transportation Administration—now the Federal Transit Administration (FTA). A report by the American Public Transportation Association (APTA), *Transportation 2000*, also recognized the need for local, problem-solving research. TCRP, modeled after the longstanding and successful National Cooperative Highway Research Program, undertakes research and other technical activities in response to the needs of transit service providers. The scope of TCRP includes a variety of transit research fields including planning, service configuration, equipment, facilities, operations, human resources, maintenance, policy, and administrative practices.

TCRP was established under FTA sponsorship in July 1992. Proposed by the U.S. Department of Transportation, TCRP was authorized as part of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). On May 13, 1992, a memorandum agreement outlining TCRP operating procedures was executed by the three cooperating organizations: FTA, the National Academies, acting through the Transportation Research Board (TRB); and the Transit Development Corporation, Inc. (TDC), a nonprofit educational and research organization established by APTA. TDC is responsible for forming the independent governing board, designated as the TCRP Oversight and Project Selection (TOPS) Committee.

Research problem statements for TCRP are solicited periodically but may be submitted to TRB by anyone at any time. It is the responsibility of the TOPS Committee to formulate the research program by identifying the highest priority projects. As part of the evaluation, the TOPS Committee defines funding levels and expected products.

Once selected, each project is assigned to an expert panel, appointed by the Transportation Research Board. The panels prepare project statements (requests for proposals), select contractors, and provide technical guidance and counsel throughout the life of the project. The process for developing research problem statements and selecting research agencies has been used by TRB in managing cooperative research programs since 1962. As in other TRB activities, TCRP project panels serve voluntarily without compensation.

Because research cannot have the desired impact if products fail to reach the intended audience, special emphasis is placed on disseminating TCRP results to the intended end users of the research: transit agencies, service providers, and suppliers. TRB provides a series of research reports, syntheses of transit practice, and other supporting material developed by TCRP research. APTA will arrange for workshops, training aids, field visits, and other activities to ensure that results are implemented by urban and rural transit industry practitioners.

The TCRP provides a forum where transit agencies can cooperatively address common operational problems. The TCRP results support and complement other ongoing transit research and training programs.

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The members of the technical advisory panel selected to monitor this project and to review this report were chosen for recognized scholarly competence and with due consideration for the balance of disciplines appropriate to the project. The opinions and conclusions expressed or implied are those of the research agency that performed the research, and while they have been accepted as appropriate by the technical panel, they are not necessarily those of the Transportation Research Board, the National Research Council, the Transit Development Corporation, or the Federal Transit Administration of the U.S. Department of Transportation.

Each report is reviewed and accepted for publication by the technical panel according to procedures established and monitored by the Transportation Research Board Executive Committee and the Governing Board of the National Research Council.

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FOREWORD

By Staff
Transportation Research Board

TCRP Report 75: The Role of the Private-For-Hire Vehicle Industry in Public Transit describes the types of public transit services being provided by private-for-hire-vehicles (PHVs) and categorizes such services. This report is published in two parts. The first part documents the results of a national survey of PHVs. The results of this survey indicate a continuing trend toward diversification of PHV operators, a size distribution skewed toward smaller operations, heavy reliance on independent contractor drivers, and a high incidence of contracting (particularly among taxicab operators). The results also indicate that transit service contracting is not a significant source of PHV revenues.

The second part of the report summarizes eight case studies and draws conclusions from the analysis of these case studies. The case study sites are Ann Arbor, Michigan; DuPage County, Illinois; Houston, Texas; Los Angeles, California; Montgomery County, Maryland; Portland, Oregon; Seattle, Washington; and the State of Wisconsin. The functional areas examined for these case studies consist of funding, the selection process, contract terms, general administration, public/private roles and responsibilities, regulatory requirements, and operations.

This report includes a multimedia presentation on CD-ROM. This presentation provides information on the current services that PHVs provide in the public transit sector and showcases the case studies.

The report should be useful to public and private transportation managers, metropolitan planning organizations, and other transportation decision makers at local, state, and federal levels.

There is no current description of the types of public transit services being provided by PHVs and no inventory of such services. Most statements about the role of PHVs in public transportation are anecdotal or based on a few case studies or news reports. Thus, a new descriptive profile of the public transit services provided by PHVs is needed in order to assess their current role properly. The information and statistics assembled in this report document the roles of PHVs in the public transportation sector and illustrate the importance of PHV and paratransit operations.

The Institute for Transportation Research and Education (ITRE) at North Carolina State University, in association with Multisystems, Inc., and the Taxicab, Limousine, and Paratransit Association, prepared the final report and the CD multimedia presentation for TCRP Project B-16. To achieve the project's objectives of defining current and potential services provided by PHVs in the public transit sector and describing the role of PHVs, the research team performed a literature review, conducted a national survey, conducted a workshop, and performed case studies.

CONTENTS

PART 1

PART 2

AUTHOR ACKNOWLEDGMENTS

The research reported herein was conducted under TCRP Project B-16 by the Institute for Transportation Research and Education (ITRE) at North Carolina State University in cooperation with Multisystems, Inc., and the International Taxicab and Livery Association (ITLA). The research reported herein in Part 1 is from Phase I of the research project.

For Part 1, Gorman Gilbert, director of ITRE and professor of civil engineering, North Carolina State University, was the principal investigator and the author of Part 1 this report. Assisting with this research and report were Tom Cook and Anna Nalevanko of ITRE, Lynn Everett-Lee and Will Rodman of Multisystems, and Hal Morgan and Al LaGasse of ITLA.

The research reported herein was conducted under TCRP Project B-16 by the Institute for Transportation Research and Education (ITRE) at North Carolina State University in cooperation with Multisystems, Inc, and the Taxicab, Limousine, and Paratransit Association (TLPA). The research reported herein in Part 2 is from Phase 2 of the research project.

For Part 2, Gorman Gilbert, former Director of ITRE and Professor of Civil Engineering, North Carolina State University, was the principal investigator. The primary authors are the ITRE team of Gorman Gilbert, Anna Nalevanko, and Thomas Cook; and Lynn Everett-Lee of Multisystems, Inc. Assisting with this research and report were Hal Morgan and Al LaGasse of ITLA.

PART 1

CONTENTS

PART 1

THE ROLE OF THE PRIVATE-FOR-HIRE VEHICLE INDUSTRY IN PUBLIC TRANSIT
PART I

SUMMARY

The goal of TCRP Project B-16 can be simply stated:

To compile accurate and relevant information on the private-for-hire (PHV) industry and how it can best be incorporated into public transportation services and to engage the PHV and transit industries in the consideration of service collaboration.

This goal requires an understanding of the nature and capabilities of the PHV industry before the application of that knowledge in promoting collaboration between PHV operators and public transportation providers. To understand the nature and capabilities of the PHV industry requires accomplishment of the following research objective:

To document the inherent characteristics of the PHV industry that are relevant to public transit operations.

To accomplish this research objective, several steps must be taken: (1) definition of the nature and scope of the PHV industry; (2) description of the salient characteristics of the industry; and (3) provision of whatever information is available on these salient characteristics.

Part I of this report accomplishes all three of these steps, which together constitute the first three tasks of the research study. Part I describes the results of the national PHV survey and compares these results with earlier data pertaining to the industries that constitute the PHV industry. It is, therefore, the first research report that deals comprehensively with the entire PHV industry.

The remainder of Part I has a body of six parts. Chapter 1 defines private-for-hire vehicles and delineates the scope of the services that constitute the PHV industry. Chapter 2 identifies the characteristics of the PHV industry that are relevant for the purposes of this research. Chapter 3 also reviews data sources. Chapter 4 describes how the national PHV survey was conducted. Chapter 5 provides the results of the national PHV survey; Chapter 5 also includes comparisons of the results of the national survey and the results of earlier surveys. Finally, Chapter 6 presents some conclusions.

In addition, a glossary and references are included as supporting material for Part I.

CHAPTER **1**

PHV INDUSTRY SCOPE AND DEFINITIONS

Conceptually, the PHV industry is easy to define: It is the range of private urban and rural passenger transportation services that might augment or even substitute for conventional transit services. However, it is not so easy to provide an operational definition of the scope and contents of the PHV industry. Indeed, the TCRP B-16 steering committee struggled with this task and invented the term "private-for-hire vehicle" (PHV) to describe this assortment of private services. The committee assigned to the PHV moniker "primarily taxicabs, but shuttles, limousines, and jitneys are also included." However, this definition is but a starting point in operationally delineating PHV services and their salient characteristics.

Going beyond this results in several definition problems. One is that PHV operators frequently operate more than one type of PHV service. PHV operators frequently operate PHV services along with services outside the realm of PHV. For example, many taxi operators also operate premium sedan services, van services under contract to third-party providers, and even airport shuttle services. Some also operate charter buses, which fall outside the PHV range of services. Thus, any enumeration of PHV operators may result in the miscounting of such important statistics as the number of operators and the number of vehicles operated. Statistics describing the PHV industry must be compiled and interpreted with care.

A second problem is that there is no agreed-upon terminology for and definitions of component PHV services. "Premium sedans," "executive sedans," and "black cars" are but three of the terms used in different cities to mean a service falling between taxi service and limousine service. The term "livery" is particularly ambiguous in that it is used in different ways in different jurisdictions. Webster (1997) uses "livery" to mean a "light-highway-vehicle-for-hire-with-driver." In New York City, the term "livery" is used to mean a car service, which in other cities would be called a taxicab. The term "taxicab" is used differently in New York City than elsewhere; in New York it means a vehicle that is not dispatched and responds only to street hails. Added to these ambiguities are such terms as "for-hire vehicles," "shuttles," and "jitneys," all of which are defined differently from place to place.

Even the one characteristic common to all PHV services—belonging to the private sector—is not without ambiguity. Many private operators contract with public agencies to provide service, thus raising the question: what is private and what is public? Is a service private if it is operated by a private operator, even if it is provided under the auspices and funding of a public agency?

Because of these problems two challenges emerge. One is to define exactly what services are included in—and excluded from—the range of services making up the PHV industry. Second is to obtain relevant, reliable, and consistent data on these PHV services and operations. This second challenge is especially difficult because there are several associations representing the PHV industry, and national data sources use different definitions of specific services.

To meet these challenges, we must first establish operational definitions of PHV services. For the purposes of this study, PHV services

- Provide surface transportation for passengers;
- Are owned and operated by private, for-profit firms; and
- Generate revenues through fares, scrip, or contracts.

These criteria include the specific services listed by the Project B-16 steering committee:

- Taxicabs,
- Shuttles,
- Limousines, and
- Jitneys,

as well as several services not included in the committee's list:

- Liveries and car services,
- Executive sedans and black cars,
- Ambulettes, and
- Children's transportation.

The definitions of these service names, as well as other related terms, are included in the Glossary.

Perhaps as important to the PHV definition are the services *excluded.* Excluded services are as follows:

- ADA or other specialized or general paratransit services operated directly by public transit agencies,

- Charter bus and sightseeing bus services,
- Transportation operated directly by social service agencies,
- Hotel and other courtesy vehicles, and
- Transportation management firms.

The first exclusion is ADA services operated not by a private contractor but by a transit agency. These services are excluded because they are not in any sense private. The second exclusion is made because charter and sightseeing operators usually operate motor coaches. Social service agencies that operate their own transportation are excluded because they do not involve private, for-profit operators. Courtesy vehicles are excluded because they are available only to the patrons of selected activities, such as hotels, auto repair shops, and other businesses.

CHAPTER **2**

RELEVANT CHARACTERISTICS OF PHV SERVICES

Although PHV services have many interesting characteristics, only a few characteristics are relevant to the goal of this research: size, structure (i.e., size distribution of the industry), organizational structure, economic and safety regulatory factors, and contract services. One is the *size* of the PHV industry. The size of the industry is of general interest and is of particular interest in assessing the capacity of the PHV industry to provide additional public transportation services. It is also important to know if the industry is growing or decreasing in size and how the PHV industry is distributed geographically. To discuss how PHV operations may augment public transit services, first, the extent to which PHV operators serve areas served by transit operators must be determined.

The *structure* of the industry is equally important. "Structure" is defined herein as the size distribution of the industry. Is the PHV industry highly concentrated among a few operators or spread among many small operations? To understand how PHV operators and transit operators can work together, one must first understand the structure of the PHV industry.

A third characteristic is the *organizational structure* of the PHV industry. Of importance is the range of organizational forms used predominantly in the industry. For example, most taxi companies use independent contractor drivers, and a few taxi operations have recently become co-operatives or associations. These organizational characteristics raise questions among some transit operators about whether taxicab organizations have control over service quality and, therefore, whether they can manage contracted services. Of particular concern among public transit operators is whether taxicab drivers can be required to undergo the training required for transit service contracts.

The fourth characteristic is how the PHV industry is *regulated.* Here one must differentiate between two types of regulation: *economic regulation* and *safety regulation.* The latter is relatively common, generally not controversial, and includes vehicle inspections, insurance requirements, and driver testing and licensing. Safety regulation is important though because it also includes passenger service quality standards. Economic regulation also is common, but can be controversial and is carried out in many different ways. Such regulation includes limiting the supply of service, setting fares, and restricting how and where service can be provided. Another aspect of regulation is what agencies regulate a particular PHV service. Perhaps the most important PHV regulatory concern among public transit operators, however, is whether taxi operators can be required to comply with three requirements common to transit operators: high limits on liability insurance; training of drivers; and drug and alcohol testing.

Finally, one must seek to know the extent and nature of *contract services* in which PHV operators participate. This information is necessary in order to determine the extent of PHV/transit contracting; we also want to learn of innovative contract services information that is of direct relevance to the study goal. Given that contract services are so closely linked with the range of services provided, these are combined in this report.

There are, therefore, five relevant characteristics that will be used in describing the PHV industry:

1. Size and geographical coverage;
2. Size distribution or structure;
3. Organizational structure;
4. Regulation; and
5. Range of services provided and extent of contracting.

Although there are many other interesting characteristics and although some of these others are mentioned in this report, these five characteristics will be relied on in describing the PHV industry.

CHAPTER **3**

LITERATURE REVIEW

3.1 PREVIOUS DATA SOURCES

Before the national PHV survey conducted as part of this study, there were three categories of potential data sources regarding the PHV industry: (1) national surveys of travelers; (2) industry surveys; and (3) regulators' reports.

National traveler surveys come in several forms. The U.S. Bureau of the Census collects demographic data every 10 years. These data include travel questions relating to the respondents' journeys to work. The Bureau has also conducted the Census of Transportation, Communications, and Utilities, the last of which was conducted in 1997 but will not be fully published until 2000. Hence, the 1992 results are the most recent ones available. This survey only covers establishments with employees, thereby excluding many taxi and livery operations. The Internal Revenue Service provides limited information relevant to PHVs: it reports data from sole proprietor tax returns. The Bureau of Labor Statistics publishes its Consumer Expenditure Surveys on typical household expenditures for various items, including taxi service. However, it does not report business expenditures, meaning that taxi expenditures are greatly underreported. The Nationwide Personal Transportation Survey (NPTS) has been conducted periodically, usually every 5 to 7 years. The most recent edition was for 1995. The survey covers all major modes of personal transportation, but not limousines or liveries. It reports very few taxi trips; for 1995 there were only about one thousand taxi trips reported.

Industry surveys are sometimes conducted on a national basis. There have been four national surveys of taxicab and paratransit services (Gilbert et al., 1982; and Stanley and Burby, 1988). Each of these surveys asked taxicab operators to report on their operations, including non-taxi services that they provide. The national PHV survey conducted as part of this research study falls into this category of data sources.

Regulators are also a source of some information regarding PHV operators. New York City, for example, has occasionally published fact books covering taxis and for-hire-vehicles in the City. Some taxi regulators were contacted as part of this research to provide mailing lists of PHV operators in their areas.

By far the most comprehensive and most recent source of PHV data is Webster (1997). Webster focuses on the taxi industry, as well as various "light-highway-vehicle-for-hire-with-driver services," a category he labels "liveries." The livery category includes black cars, car services, and limousines. Thus, his scope of focus, "taxis and liveries," incorporates most of what the research team has defined as PHVs. The exceptions are shuttles, children's transportation, and ambulettes. Webster makes a significant contribution by examining, combining, extrapolating, and comparing more than 90 sources of information on "taxis and liveries."

In the remainder of this chapter, all these data sources are examined. In Section 5 comparisons, where possible, are made with the results of the national PHV survey.

These data sources are inadequate either to describe the PHV industry fully or to make many meaningful comparisons with the results of the national PHV survey. The inadequacy of previously available PHV data sources underscores the need for TCRP B-16. The previous taxi data are old; the most recent data come from the national taxicab survey conducted in 1986 and published in 1988. The limousine data are recent, but they are not as comprehensive as are the taxi data. For the other modes few data are available. The sole exception is car services, which, because of their apparently unique presence in New York City, are completely covered by the data from the New York Taxicab and Limousine Commission (Schaller, 1993).

3.2 SIZE AND GEOGRAPHICAL COVERAGE

There are several common measures of industry size, including number of operators; number of firms; revenues generated; and usage measures such as number of passengers, passenger miles, and vehicle miles. Although each of these has relevance to the understanding of the PHV industry, some are more useful and reliable than are others.

One way to assess the size of the PHV industry is by the number of operators. By "operator" the research team means an entity operating in a single locale. Operations that span two or more service areas are considered to be two or more operators, even if owned by the same company. This interpretation has historically worked well in the PHV industry, given that there were few multicity operators. Recent consolidation within the taxicab and limousine industries, however, has made the term "operator" more difficult to interpret.

Table 1 shows what is known about the numbers of PHV operators in the United States. The 1981 and 1986 estimates are from national surveys of taxicab operators. Unlike the 1998 survey, these surveys made no attempt to capture data on non-taxi PHV operators. The estimates from *Limousine and Chauffeured Transportation Magazine* are based on the magazine's annual surveys of its readers; for 1998, nearly 1,200 limousine operators responded. The 1992 Webster estimates are based on a sample of local transportation regulators (Webster, 1997, p. I-15). Webster extrapolated these numbers by geographical sizes of cities and towns. As noted earlier, Webster placed all non-taxicab PHV industries into one category called "livery." The 1996 numbers reported by Webster are from American Business Information, Inc., (ABI) which has a national database compiled from yellow page listings and other sources for all industries (Webster, 1997, p. II-2). The estimates from Schaller are for New York City only. For car services, the New York City and the national estimates are probably the same because the term "car service" is apparently unique to New York City. However, there are executive sedans (or black cars) in cities other than New York.

The variations in the estimates in Table 1 illustrate the difficulties in assessing the number of PHV operators. First, these estimates come from different sources using different methodologies. Second, even those using similar methodologies show different results. For example, the 1981 and 1986 national taxicab surveys produced vastly different estimates of the number of taxi operators in the country.

There are several reasons for the discrepancies evident in Table 1. A major source of the reliability problem is that many PHV operators operate more than one type of PHV service. The 1981 national taxicab survey found the 17.3 percent of the taxi operators also operated limousines (Gilbert et al., 1982); the 1986 survey found 14.6 percent (Stanley and Burby, 1988). Webster analyzed 1996 ABI data to find 6,709 taxi-only operators and 664 firms that operate taxicabs and limousines and/or car services (Webster, 1997). Likewise, he found 9,527 limousine-only operators and 719 entities that operate limousines and taxicabs and/or car services. The multiple-service nature of PHV operators means that one must be careful to eliminate double counting when reporting statistics denoting the size of the industry.

TABLE 1 Number of PHV operators, U.S.

	1981	1986	1992		1996
Taxicab	3,089[a]	6,349[b]	5,701[d]		7,373[e]
Limousine	n.a.	4,500[c]	7,500[c]		9,000[c]; 9,527[e]
Car Service	n.a.	n.a.	477[f]		786[e]
Executive Sedan	n.a.	n.a.	45[f]		
				7,500[d]	
Shuttle	n.a.	n.a.	n.a.		6[e]
Children's	n.a.	n.a.	n.a.		7[e]
Ambulette	n.a.	n.a.	n.a.		9[e]
Total	n.a.	n.a.	13,201		17,181-17,708

a. Source: Gilbert *et al.*, 1982.

b. Source: Stanley and Burby, 1988.

c. Source: *Limousine and Chauffeured Transportation Magazine,* 1998.

d. Source: Webster, 1997.

e. Source: Webster, 1997, using Business USA data.

f. Source: Schaller, 1993.

There are also at least three other sources of discrepancies in the size estimates in Table 1. One is that many operators operate simultaneously under different names, such as several taxicab operations operating from the same facility. Another is that many taxicab fleets contain owner-operators who in some cases own more than one cab, meaning that there are actually sub-fleets operating within a larger fleet and raising the question of what the term "operator" actually means. Finally, there is the problem that PHV operators come and go, and, therefore, any mailing list or tabulation is always out of date.

Another measure of industry size is the number of PHV vehicles in operation. Table 2 shows the best evidence available on the number of PHV vehicles. As with the number of PHV operators, the number of PHV vehicles shows discrepancies. A notable example is the two widely different estimates of the number of taxicabs for 1982 and 1986.

Because of the differences in the data in Table 2, few conclusions can be made safely from Table 2. We really do not know the overall size of the industry, even though Webster's estimate for 1992 is the only estimate that comes close to being comprehensive. A second conclusion is that the estimate of the number of car service vehicles is probably close to the 19,559 number because car services seemingly exist under that name only in New York City and this number is based on the number of car service vehicles licensed in New York City.

Yet another measure of the size of the PHV industry is the geographical coverage of the industry. Very little information is available on this measure—only Webster has estimated it. To make his estimates, Webster used telephone listings and regulator reports for samples of cities and towns and expanded these estimates to cover all cities and towns by size category. For 1992, Webster cites data from the Bureau of the Census showing that there were 1,057 cities and towns over 25,000 population in the United States. Of these, more than 67 percent (710) had taxi service and more than 69 percent (733) had livery service of some type. For the 18,160 places under 25,000 population enumerated by the Bureau of the Census, the picture is very different. More than 16 percent (2,906) had taxi service, and more than 7 percent (1,271) had livery service.

It is interesting to compare these results with the coverage provided by transit service. Unfortunately, such data are not

TABLE 2 Number of PHV vehicles, U.S.

	1981	1986	1992		1996
Taxicab	94,023[a]	170,800[b]	101,351[c]		n.a.
Limousine	n.a.	n.a.	18,605[c]		50,050-113,750[d]
Car Service	n.a.	n.a.	19,559[e]	61,590[c]	n.a.
Executive Sedan	n.a.	n.a.	7,968[e]		
Shuttle	n.a.	n.a.	n.a.		n.a.
Children's	n.a.	n.a.	n.a.		n.a.
Ambulette	n.a.	n.a.	n.a.		n.a.
Total	n.a.	n.a.	162,941		n.a.

a. Source: Gilbert *et al.*, 1982.

b. Source: Stanley and Burby, 1988.

c. Source: Webster, 1997

d. Source: *Limousine and Chauffeured Transportation Magazine*, 1998.

e. Source: Schaller, 1993.

available. The American Public Transit Association (APTA) reports that there are 552 urban transit agencies in the United States, but it does not report how many urbanized places have transit (APTA, 1997). It also reports that there are 1,074 rural transit agencies and 3,594 specialized transportation providers.

As a corollary to the geographical coverage of the PHV industry, it is interesting to note the extent to which PHV operators have competition with other PHV operators. This information has direct bearing on the ability of transit operators to solicit competitive bids from PHV operators on contracted transit services. Unfortunately, the only available information on competition is for taxicabs and this information is rather old. Stanley and Burby (1988) report that about 75 percent of the taxi operators in 1986 faced competition from other operators in their service areas. This percentage varied with city size: 93.1 percent of taxi operators in cities over 200,000 population faced competition from other taxi operators whereas 69 percent in cities under 50,000 faced competition.

3.3 SIZE STRUCTURE

Another important characteristic of the PHV industry is its concentration or size distribution. Here one must differentiate between concentration and consolidation. By "concentration," the research team means the distribution of PHV operators by the numbers of vehicles they operate. By "consolidation" the research team refers to the extent to which operations are owned by a single firm. Although there has been activity by Coach USA, Carey Limousine, and SuperShuttle to consolidate the taxicab, limousine, and airport shuttle industries, all three of these industries—as well as the PHV industry have generally been unconsolidated. That is, there have been few instances of multicity operations.

The available evidence of size structure or concentration is shown in Tables 3 and 4. The evidence is scanty. Table 3 shows the 1981 and 1986 data for taxicab operators, and Table 4 shows 1992 data for New York City car services, black cars, and limousines. Because car services apparently exist only in New York City, the data in Table 4 for this mode are also national estimates.

TABLE 3 Size distribution of taxicab operators, U.S., 1981 and 1986

	Percent of Operators	
Taxicabs	1981	1986
1-24	76.6[1]	77.4
25-49	9.4	10.6
50-74	5.3	4.3
75-99	2.5	1.6
100+	5.9	6.1

[1] Includes category of 0 vehicles.

Source: Gilbert *et al*. (1982) and Stanley and Burby (1988)

TABLE 4 Size distribution of car services, black cars, and limousine operators, New York City, 1992

	Percent of Operators, 1992		
Number of Vehicles	Car Services	Black Cars	Limousines
1-19	49	0	56
20-49	27	13	33
50-99	16	16	6
100+	9	71	5

Source: Schaller, 1993.

The data in Table 3 indicate that the taxi industry in both years was rather unconcentrated, although perhaps more concentrated in 1986 than in 1981; however, the level of concentration in the taxicab industry remained relatively constant between the 1981 and 1986 studies. Conversely, only about 5 percent of the operations in each year had at least 100 vehicles. These data present a picture of an industry characterized by numerous small operations.

For the data in Table 4, the picture is much the same—except for the black cars. Only 9 percent of the New York City car services have 100 or more vehicles, and nearly half have fewer than 20 vehicles. This size distribution is nearly the same as that for taxicabs in Table 3. This similarity is expected because car services are equivalent to taxicabs outside New York City. Limousines also display a pattern of many small operations with only 5 percent having 100 vehicles or more.

The size distribution of New York City black cars, however, is very different in that it is much more concentrated. There are no operations with fewer than 20 vehicles, and 71 percent have 100 or more vehicles. This pattern reflects the fact that New York black car operations need to be large in order to serve their large corporate customers and sustain their heavy investments in communications, billing equipment, and personnel.

3.4 ORGANIZATIONAL STRUCTURE

Organizational structure includes two parameters: the legal form by which the PHV operator is organized and the manner in which drivers are compensated. Both are directly

relevant to public transit operators' understanding of how best to contract with PHV operators.

The relevance of organizational structure to transit services is that transit operators often have requirements that they must meet and pass on to their subcontractors. Three important ones are high liability insurance limits; driver training; and drug and alcohol testing. To contract with PHV operators, public transit operators must be able to ensure that PHV organizations can comply with such operational requirements or determine that alternatives are acceptable, such as assuming liability or purchasing coverage.

The published information is scanty and exists primarily for taxicab operations. Tables 5 and 6 summarize the available information for the taxicab industry. Four out of five taxi operations are closely held corporations, individual proprietorships, or partnerships. Few (about 4 percent) are public corporations; a similar number are associations or cooperatives. There is, however, evidence that the percentages for both public corporations and associations and cooperatives are considerably higher now than in 1986 when the data in Table 5 were collected. Several national public corporations have been purchasing taxicab operators, so the percentage of taxi operations that are publicly held has probably increased slightly. In addition, taxicab operators in several cities have transformed themselves into cooperatives in order to spread ownership among large numbers of drivers and thereby fend off deregulation initiatives while promoting driver longevity. Thus, one would expect that the percent of associations and/or cooperatives has increased slightly since 1986.

Table 6 shows one of the most pronounced and important changes that has occurred in the taxi industry over the past few decades. The industry has changed from employee drivers to independent contractor drivers. The first two categories in Table 6 represent employee drivers; the latter two are independent contractor drivers. In 1981, 41.9 percent of the taxicab industry's drivers were employees; in 1986 only 25.8 percent were. Given the long-term nature of this trend away from employee drivers, one would expect this percentage to be even lower now.

TABLE 6 Categories of taxicab drivers, 1981 and 1986

Driver Category	Percent of Taxi Drivers 1981	1986
Commission	38.6	19.9
Hourly	3.3	5.9
Lease	48.3	50.7
Owner-Driver	9.8	23.4

Source: Stanley and Burby, 1988.

Also evident from Table 6 is the switch toward owner-drivers. These drivers own their own vehicles and perhaps their own vehicle permits and drive under the auspices of a larger taxi organization. They may be cooperative or association members or owners or simply vehicle owners. Regardless, they form a growing segment of taxicab drivers, increasing from 9.8 percent to 23.4 percent from 1981 to 1986.

These various forms of taxicab operator organization have been conceptualized into five categories by Dr. Ray Mundy of the University of Tennessee. Category 1 is the historical taxicab company representing firms that own all the taxicab vehicles and for which drivers are employees. The form is nearly extinct. Category 2 includes firms that own vehicles and permits and lease the vehicles to drivers, who are independent contractors. Next in the order of descending company control is Category 3, which includes companies or individuals which lease both permits and vehicles to individ-

TABLE 5 Taxicab organizational forms, 1981 and 1986

Organizational Form	Percent of Taxicab Organizations 1981	1986
Closely Held or Family Corporation	56.3	47.2
Individual Proprietorship or Partnership	34.6	40.4
Public Corporation	2.7	4.7
Association or Cooperative	4.6	4.2
Other	1.6	3.4

Source: Stanley and Burby, 1988.

ual drivers. Category 4 includes individual drivers who own their own vehicles and permits, and Category 5 is individual drivers who lease their permits and operate independently.

There are no comparable organizational data for other PHV modes. Only the limousine industry has data on driver compensation mechanisms; for 1998, 50.5 percent of the limousine drivers were employees.

3.5 REGULATION

PHV regulation is the process by which a public agency sets and enforces rules regarding how a PHV operator provides service. It includes rule-making, enforcement, and adjudication of penalties.

The theoretical basis for PHV regulation is to correct market failures. The concept of market failure is that all markets do not operate according to economists' criteria for perfect economic markets. For instance, a taxi patron hailing a cab does not know how many other cabs are available nor how they compare with the one he or she is considering engaging. Thus, this taxi patron is not able to shop for his or her best choice of cabs, and the market violates the assumption of perfect customer information. It is the existence of such situations that calls for public intervention to protect the customer through regulation.

There are two categories of PHV regulations: *safety regulation* and *economic regulation.* They are very different and must be considered separately.

Safety regulation includes all rules and enforcement activities designed to ensure passenger service quality and to protect the health and welfare of the public. Typical safety regulations include requirements for liability insurance coverage; driver licensing and training; and vehicle specifications and inspections.

Economic regulations pertain to the amount of service provided and the fares charged to passengers. Typical economic regulations include setting fares; establishing financial disclosure requirements for operators; and market entry controls.

Comparing economic and safety regulation produces some interesting insights. One is that there is some overlap between economic and safety regulation. For example, maximum age limits on vehicles can be viewed as a safety regulation as well as an economic regulation.

A second insight is that safety regulation is almost never controversial whereas economic regulation often is. There is a clear consensus—even in deregulated transportation industries such as airlines and railroads—that the government must continue to provide elements of safety regulation such as facility inspections and accident investigation. In the PHV industry it is similarly non-controversial and accepted that government has a necessary role in licensing drivers, requiring insurance, and inspecting vehicles. Not so with economic regulation. Arizona, for example, has eliminated economic regulation of all ground transportation modes. A few large U.S. cities—such as Indianapolis—and some smaller cities have dropped limits on the numbers of taxicab licenses. In fact, the term "deregulation" has become synonymous with the elimination of key economic regulations while retaining safety regulations.

The most controversial element of economic regulation is entry control. A 1982 survey of 120 U.S. cities revealed that 87.7 percent exercised some form of entry control. The available methods of controlling entry are as follows:

1. Fixed ceiling on number of vehicles licensed,
2. Population-to-vehicle license ratio,
3. Public convenience and necessity,
4. Franchise, and
5. Minimum standards.

These methods are listed in descending order of stringency.

The first method sometimes involves issuing medallions and is exemplified by New York City where the number of medallions had been fixed at 11,787 since 1937 until the City recently auctioned off 400 new medallions. However, not all fixed-ceiling cities use medallions; some even have fixed ceilings that are not attained because all available taxicab permits are not requested. In 1982, about 31 percent of the cities used this method of entry control.

The population ratio method was used by about 9 percent of the cities. This method requires a city periodically to evaluate the need for additional taxicab permits to be issued by examining the change in city population. A few cities have experimented with more complex formulae by also including such economic variables as airport traffic and hotel room occupancy rates.

About one in every four cities used the public convenience and necessity (PC&N) method. This method places the burden of proof on applicants for additional taxicab licenses to show that the public requires additional service.

The franchise system is unique to Los Angeles among large cities. This system involves granting an operating franchise to a taxicab company in exchange for the company paying franchise fees and meeting certain service standards.

The minimum standards approach does not limit the numbers of taxicabs and indirectly controls the numbers of taxicab operators by requiring each operator to meet certain standards, such as having a minimum number of cabs. Seattle recently switched to using a minimum standards approach.

In addition, a few cities have experimented with open entry. Price Waterhouse examined 21 cities that adopted open entry prior to 1990 (Price Waterhouse, 1993). Of these, only 4 still had open entry when Price Waterhouse conducted its study in 1993; the other 17 cities had re-imposed entry controls.

Taxi regulation is generally a local responsibility. A few states regulate taxis: Nevada, Colorado, and Pennsylvania. A few other states share taxi regulation with local governments: Rhode Island, Maryland, and Kentucky are examples.

Among the non-taxicab PHV modes, there is regulatory information only for car services because, apparently, all car services operate in New York City where they are regulated by the Taxi and Limousine Commission. The Commission has defined "for-hire vehicles" (FHVs) to include car ser-

TABLE 7 Services provided by taxicab operators, 1981 and 1986

	Percent of Operators Providing Service	
	1981	1986
Regular Services		
Exclusive Ride	82.0	82.0
Shared Ride	46.5	50.6
Limousine	17.3	14.6
Package	72.6	65.9
Contract Services	62.2	65.1
Contract Services		
Company Employees	39.6	46.7
School Children	54.1	44.2
Hospital Patients	40.7	45.8
Government Employees	11.7	14.2
Blood/Hospital Supplies	52.1	48.3
Senior Citizens	40.9	44.6
Welfare Recipients	38.4	44.2
Handicapped	42.0	35.0
Dial-a-Ride	9.0	10.0
Package Delivery	n.a.	59.6
Other	n.a.	13.8

Source: Stanley and Burby, 1988.

vices, black cars, and limousines, and it has adopted a minimum standards approach to control entry. The Commission does not set the fares for these FHV operators.

There is no comprehensive source of information on how other PHV industries are regulated (Webster, 1997).

3.6 SERVICES PROVIDED AND CONTRACTING

In assessing the services provided by the PHV industry, one must consider three elements: (1) the amount of service, (2) the range or types of services, and (3) the sources of revenues for these services.

TABLE 8 Services provided by limousine operators, 1998

Service	Percent of Industry Total Revenue, 1998
Weddings	20
Airport Transfers	22
Corporate Clients	24
Night on the Town	17
Hotel/Resort	6
Funerals	4
Other	7

Source: *Limousine and Chauffeured Transportation Magazine*, 1998.

The amount of service can be measured in several ways. The 1986 national taxicab survey estimated that the taxi industry provided 1,433 million passenger trips per year. Webster estimates that taxicabs in 1992 provided 1,059 million passenger trips. He also estimates that liveries (i.e., limousines, black cars, and car services) in 1992 provided 223 million passenger trips. For taxicabs and liveries combined, Webster estimates total 1992 revenues of almost $6 billion.

The types of services and sources of revenues for taxicab operators are shown in Table 7. It is noted that 65.1 percent of the operators in 1986 reported that they provided some contract services. The sources of those contracts are also shown in Table 7. The percentages illustrate a long-term trend in the taxicab industry toward more contract services.

Comparable information for the limousine industry is provided in Table 8. In addition, limousine revenues also come partially from national networks of limousine operators. In 1998, 27 percent of the limousine operators belonged to national networks, and 13 percent of these operators received at least 50 percent of their annual revenues from these networks.

There are no comparable data for other PHV modes.

CHAPTER **4**

NATIONAL PHV SURVEY—METHODOLOGY

4.1 QUESTIONNAIRE DESIGN

The national PHV survey was conducted in order to meet two research objectives. One was listed earlier in this report:

> *To document the inherent characteristics of the PHV industry that are relevant to public transit operations.*

The national PHV survey also partially fulfills the second research objective of Project B-16:

> *To document the current and potential services that PHVs provide in the public transit sector.*

These two research objectives require that the national PHV survey be more than a status report on the industry, as were the earlier national taxicab surveys and as was the recent national limousine survey. Rather, the national PHV survey also must be a source of information on current collaboration between the PHV and public transit industries.

Because of these two important, demanding requirements, the design of the PHV survey questionnaire was challenging. On the one hand, the questionnaire had to be comprehensive enough to gather the relevant data items. In particular, the questionnaire had to include several questions that had appeared on the earlier taxi surveys in order to identify temporal trends. On the other hand, the questionnaire had to be short enough to avoid discouraging operators from taking the time to fill it out and return it. Moreover, the questionnaire had to be interesting enough to encourage recipients to respond.

The basic questionnaire design was a series of charts. Charts were used to allow respondents to provide a great deal of data in a small amount of space, as well as to make the questionnaire interesting. The questionnaire was pilot-tested by sending it to 10 randomly chosen PHV operators. It was also sent to members of the International Association of Transportation Regulators (IATR) board of directors and to the members of the Project B-16 review committee. The research team received extensive and helpful comments from all three sources, and the questionnaire was greatly improved as a result of these comments.

4.2 SURVEY ADMINISTRATION

The national PHV survey, conducted during the fall of 1998, asked respondents to report operating data for the preceding 12 months. The questionnaire was mailed out in early October, and responses were accepted through the end of December. In November, a follow-up post card was mailed to non-respondents urging them to fill out and return the questionnaire. In February of 1999, another mailing was made to all non-respondents.

In addition to the post card reminder, the research team used other methods of encouraging responses. The International Taxicab and Livery Association (ITLA) announced the importance of the survey to its members via its national convention and two short articles in its publications to members and non-members. ITLA also sent follow-up questionnaires, accompanied by notes from the ITLA executive vice president to about 1,000 members who had not responded by the end of November, and reminders were given to taxi operators at regional meetings that the survey was very important to the industry. Finally, in cooperation with the National Limousine Association (NLA), the Airport Ground Transportation Association (AGTA), and the National Medical Transportation Association (NMTA), the ITLA sent out the mailing to all non-respondents in February of 1999.

The questionnaire was mailed to PHV operators on a mailing list assembled from three sources. One was the ITLA, which provided a list of 10,764 operators. The second source of names and addresses was the International Association of Transportation Regulators (IATR). Through the cooperation of the IATR board of directors, the research team were provided with names and addresses of PHV operators in 11 metropolitan areas and 3 states. After removing obvious duplicates between the IATR and ITLA lists, the research team reduced the IATR list to 1,250 operators. The third source was American Business Information, Inc. (ABI), from which the research team purchased current names and addresses of operators of ambulettes (253), car services (793), children's transportation (51), handicapped transportation (1,367), and shuttles (59). A total of 2,473 names and addresses were purchased from ABI.

There are problems with this—or any other—mailing list of PHV operators. In Chapter 1, the research team discussed several such problems. The research team noted that PHV operators often operate more than a single type of service and that there are many definition problems. Another problem was discussed in Section 3.1: many taxicab operators operate—and sometimes advertise—individually, while at the same time operating within a larger taxicab operating

organization. All of these problems lead to miscounting of the true numbers of operators.

Added to these problems are two others. One is the apparent fluidity of the PHV industry. That is, operators come and go at a rapid rate. Thus, even though our mailing list had been continually "cleaned" by ITLA and IATR, or—in the case of the purchased ABI list—kept current, the research team still had 1,005 surveys (7.31 percent) returned as undeliverable. A month later, the research team sent out reminder post cards to 12,713 operators and had 272 returned as undeliverable. The February mailing yielded another 412 undeliverable questionnaires.

Yet another problem with any PHV mailing list is the multiple use of names by the same operator. Thus, an operator may own several operating names and use all but one as marketing tools. Therefore, a listing of "operators" will over-count the true number.

4.3 RESPONSE

The questionnaire was mailed to 13,751 PHV operators. More than 12.3 percent of these were returned as undeliverable, leaving 12,062 questionnaires presumably delivered. A total of 677 PHV operators responded to the national survey. This number represents a response rate of 5.61 percent of the deliverable questionnaires mailed to PHV operators.

It is impossible, however, to compute the *true* response rate, which is the number of responses divided by the true number of PHV operators in the country, a number that is unknown because of the problems discussed in Section 3.2. What is known is that problems discussed in Section 3.2 result in overcounting of the number of PHV operators. On the other hand, the IATR list indicates that there are at least *some* PHV operators who are not included in the ITLA/ABI mailing list. In fact, of the 12,062 presumably good names and addresses discovered in this study, 1,132 come from the IATR list.

Thus, one is left with a situation in which several factors point to 12,062 being too high and the possibility of missed names indicating that the 12,062 estimate is too low. About all one can do is assume that these factors approximately cancel each other leaving 12,062 as a reasonable estimate of the number of PHV operators. If so, then 5.61 percent is close to the true response rate.

One of the concerns in assembling the mailing list was whether the research team should have relied more on local regulators to supply PHV mailing lists. Because of this concern, the research team tracked the respondents from the IATR list separately from those of the ITLA and ABI lists. The response rates for the IATR list and the ITLA list were 3.62 percent and 5.82 percent, respectively.

These results indicate that the response rate for the ITLA/ABI list was considerably higher than that for the IATR list. The IATR list included only names that were not on the ITLA/ABI list for the 14 jurisdictions. Thus, had the response rate for the IATR list been high, it would have suggested that there were many PHV operators not included in the ITLA/ABI list. However, the opposite occurred, suggesting that the IATR list did not provide a large number of names and addresses of operators not already covered by the ITLA/ABI list. The likely explanation is that many of the IATR names are probably additional names of operators already on the ITLA/ABI list or owner-drivers who operate under the authority of these operators.

4.4 QUALITY OF SAMPLE

Before making any inferences from the survey results, it is necessary to determine the extent to which the sample is free of biases. There are two approaches to this determination. One is to examine the survey procedures to identify actions that could possibly produce biases. The other is to examine the results for apparent discrepancies that might be construed as resulting from inherent biases.

There are several potential sources of bias in the research procedures. One is the construction of the mailing lists. The research team used ITLA's mailing lists, which are heavily focused on taxicab, livery, limousine, airport shuttle, and executive sedan services. However, the ITLA list is based on the ABI lists, which, in turn, are primarily dependent on telephone listings and which were also used for the other categories of PHVs. So, it is impossible to know if substantially different mailing lists would have been produced had the research team received inputs from other industry trade groups.

The second source of possible bias is the more intensive efforts to solicit responses from taxicab and limousine operators versus other PHV operators. The research team actively reminded taxi operators to respond by sending out a second mailing of the questionnaire to about 1,000 ITLA members. The research team even sent out a third mailing of the questionnaire to all non-respondents in February. This third mailing included endorsements from the ITLA and three other associations: the National Limousine Association, the National Medical Transportation Association, and the Airport Ground Transportation Association. Although the ITLA membership includes non-taxicab PHV operators, the membership is probably skewed toward taxicab operators, meaning that one should expect that the response rates would be higher for taxicab operators than for non-taxicab PHV operators. Yet, the respondents indicate that only 22.9 percent of the services they provide are taxicab services. Thus, the responses do not indicate a bias toward taxicab operators.

A third possible source of bias is the size distribution of the sample. As discussed in sections 5.1 and 5.2, the sample has proportionately more large taxicab operators than did either of the 1981 or 1986 national taxicab surveys. Also, the average number of taxicabs per operator is higher than in previous studies.

Table 9 shows the response rate on a state-by-state basis. It shows the sample includes every state and the District of Columbia. Furthermore, the sample is spread broadly across

TABLE 9 Respondents by state

State	Number of Respondents	Percent of Respondents
Alabama	3	0.5
Alaska	2	0.3
Arizona	11	1.7
Arkansas	2	0.3
California	64	10.0
Colorado	11	1.7
Connecticut	13	2.0
Delaware	1	0.2
District of Columbia	4	0.6
Florida	53	8.3
Georgia	13	2.0
Hawaii	7	1.1
Idaho	1	0.2
Illinois	22	3.4
Indiana	9	1.4
Iowa	1	0.2
Kansas	4	0.6
Kentucky	8	1.3
Louisiana	7	1.1
Maine	8	1.3
Maryland	12	1.9
Massachusetts	29	4.5
Michigan	19	3.0
Minnesota	7	1.1
Mississippi	2	0.3
Missouri	11	1.7
Montana	1	0.2
Nebraska	5	0.8
Nevada	3	0.5
New Hampshire	6	0.9
New Jersey	25	3.9
New Mexico	2	0.3
New York	65	10.2
North Carolina	22	3.4
North Dakota	3	0.5
Ohio	21	3.3
Oklahoma	4	0.6
Oregon	15	2.3
Pennsylvania	28	4.4
Rhode Island	1	0.2
South Carolina	3	0.5
South Dakota	2	0.3
Tennessee	4	0.6
Texas	30	4.7
Utah	3	0.5
Vermont	4	0.6
Virginia	20	3.1
Washington	10	1.6
West Virginia	7	1.1
Wisconsin	30	4.7
Wyoming	1	0.2

TABLE 10 PHV distribution by population of area served

Size of Place	Percent of Operators	
	Webster's Estimates	PHV Sample
50 K	53.5	19.9
50K-250K	18.3[1]	24.6
250K - 500K	10.9[1]	3.3
500K - 1m	5.0	7.2
1 m	12.2	31.2

[1] Webster used 200,000 as the boundary between these categories.

the states with only two states accounting for as much as 10 percent: California (10.0 percent) and New York (10.2 percent). The sample also generally conforms to Webster's estimates of the distribution of taxicab and livery operators by size of community. Table 10 shows this comparison, which is inexact because Webster used 200,000 population to divide the second and third groupings. Table 10 indicates that the PHV sample is more highly concentrated in the highest population category and less concentrated in the smallest category than are the Webster estimates.

CHAPTER 5

NATIONAL PHV SURVEY—RESULTS

5.1 SIZE AND GEOGRAPHIC COVERAGE

The 677 respondents represent a broad mix—both geographically and by service type. The sample contains operators from 50 states and the District of Columbia. The results show that 28.5 percent of the respondents primarily serve rural areas and 71.5 percent serve urban areas. The breakdown of the sample by population of service area was shown in Table 10. These 677 PHV operators also operate a total of 38,859 vehicles and provide work for 59,541 persons.

The services provided by PHV operators are displayed in Table 11. The respondents report operating a total of 1,575 individual PHV services, meaning that the average operator provides 2.3 PHV services. This finding corroborates the discussion in Section 3.2 about the diversification of PHV operators. It further underscores the difficulty in categorizing operators by type and in defining such terms as "taxicab operator" or "limousine operator" and the problems in counting the total number of PHV operators.

Table 11 also shows the breadth of the services provided by the PHV industry. All PHV services are provided, although only 2.0 percent of all PHV services are represented by jitney services and 3.2 percent by private fixed-route services. Conversely, the most prevalent PHV service, taxicab service, accounts for only 22.9 percent of all the 1,575 services provided by the respondents. The services provided by PHV operators are discussed in detail in Section 5.5.

The survey results confirm another difficulty discussed in Section 3.2. The respondents report that 30.0 percent of them use two or more operating names, with the average being 2.58 names. This result illustrates the potential for overcounting the numbers of PHV operators. It also partly accounts for the high percentage of undeliverable questionnaires and for the survey response rate.

Table 12 reports the numbers of vehicles, by type, for each PHV service. The results show the PHV industry to be very diverse with respect to vehicle type. For instance, the respondents report that they operate 38,859 vehicles. Most of these are sedans (74.8 percent). The remaining vehicle types and percentages of the total PHV fleet are: mini-van (7.2 percent); van (10.2 percent); mini-bus (2.8 percent); and bus (3.8 percent). The PHV fleet is primarily operated in taxicab service (61.1 percent). The remaining vehicles are operated as limousines (2.9 percent); executive sedans (7.4 percent); liveries or car services (4.9 percent); shuttles (4.3 percent); private fixed-route (1.8 percent); ambulettes (11.4 percent); children's transportation (5.4 percent); and jitneys (0.7 percent). Of the total PHV fleet, 6.8 percent of the vehicles are wheelchair-accessible.

The right-hand column of Table 12 shows the breakdown of the fleet by service type. These numbers are calculated by dividing the number of, say taxicabs, by the number of PHV operators providing taxicab service (361). Table 12 shows that, among the PHV operators responding to the survey, those providing taxicab service have the largest fleets (65.8 taxicabs). For these taxicab providers, 91.9 percent of their fleets are sedans and 6.3 percent are mini-vans.

In Table 13, the vehicle fleet is broken down in a different manner. Here one computes the fleet mix for a hypothetical "average" fleet. This is done by dividing the numbers of each type of vehicle by the total number of PHV respondents. The results show that a hypothetical "average" PHV firm has 59.9 vehicles, of which 44.8 are sedans. These results corroborate the other survey results, as well as long-term trends in the industry, and document the extent of diversification in the PHV industry.

These results raise the question of how many PHV operators there are in the country and how many vehicles they operate. It is necessary to estimate the first of these parameters in order to estimate the second.

It is challenging simply to estimate the number of PHV operators in the United States. As was noted in Table 1, the past estimates of the numbers of PHV operators have not been conducted in a consistent manner from study to study and have not been in agreement. Webster's 1997 study is the most comprehensive analysis of the size of the largest industries constituting the PHV industry. Based largely on ABI data, for 1992, he estimated that there were 5,701 taxicab operators and 7,500 other operators, which he lumped together as "liveries." He estimated for 1992 that there were 13,201 operators in the four largest segments of the PHV industry. For 1996, he estimated that there were 17,708 PHV operators, but this estimate covers a wider set of Standard Industrial Classification than do the 1992 estimates and, therefore, is not directly comparable.

By comparison, for the national PHV survey, the research team mailed out 13,751 questionnaires, of which 1,689 were undeliverable, leaving a total of 12,062 PHV operators. Several

TABLE 11 Services provided, 1998

Service Type	Number of Operators	Percent of Operators
Ambulette	188	11.9
Children's	155	9.8
Executive Sedan	200	12.7
Jitney	32	2.0
Livery/Car Service	251	15.9
Limousine	218	13.8
Private Fixed- Route	51	3.2
Shuttle	119	7.6
Taxicab	361	22.9
Total	1575	100.0

TABLE 12 Vehicles operated, 1998

	Vehicle Type					
Service Type	Sedans	Mini-Vans	Vans	Mini-Buses	Buses	Avg. Veh. per Operator
Taxicab	21,836	1,516	227	87	86	65.8
Limousines	895	33	96	44	54	5.1
Executive Sedan	2,744	14	58	22	40	14.4
Livery/Car Service	1,572	65	173	26	45	7.5
Shuttle	293	100	940	251	112	14.3
Private Fixed- Route	214	46	122	99	241	14.2
Ambulette	1,037	708	2,029	424	231	23.6
Children's	834	204	265	121	685	13.6
Jitney	126	102	38	4	0	8.4
Total	29,551	2,788	3,948	1,078	1,494	

TABLE 13 "Average" PHV operation

Vehicle Type	Average Number of Vehicles
Sedans	44.8
Mini-Vans	4.3
Vans	6.1
Mini-Buses	1.7
Buses	2.3

factors argue that this number *over-estimates* the true number of operators. The diversification of PHV operators and the use of multiple operating names both tend to make 12,062 an over-estimate. Likewise, the likelihood that some firms in the 12,062 are sub-fleets within larger fleets also in the sample argues that the sample contains some double-counting and hence is too high. On the other hand, the mailing list may have excluded PHV firms, and these omitted names makes the 12,062 estimate conservative. These estimates leave in doubt any single estimate of the number of PHV operators. At best, one can conclude that there are between 11,000 to 13,000 PHV operators in the country.

It is no easier to estimate the number of vehicles per operator. For 1992, Webster estimated that there was an average of 12.3 vehicles per operator. Our estimate is much higher: 59.9 vehicles per operator. For taxis only, the 1986 taxicab survey estimated 26.9 vehicles per taxi operation; Webster estimated 17.8 vehicles per taxi operation for 1992.

These wide variations call into question anything but broad estimates of the numbers of PHV vehicles in the country. About all that the results allow us to conclude is that the number of PHV vehicles estimated by Webster (162,941) for 1992 is probably very conservative.

Table 14 shows the degree to which PHV operators face local competition from other PHV operators providing the same types of services. Only 14.7 percent of the PHV respondents indicate that they face no local competition from other PHV operators. For taxicab and limousine operators, the respective percentages are 23.3 percent and 10.8 percent. This finding agrees with the 1986 national taxicab survey, which found that only about one of every four taxicab companies faced no competition. It also dispels the myth that taxicab operators often have local monopolies.

5.2 SIZE STRUCTURE

Table 15 presents the size distributions of the PHV industry and the taxicab industry. The data in Table 15 are the percentages of respondents that fall in each size category.

Several conclusions are evident from Table 15, particularly when compared with data from previous studies shown in Tables 3 and 4. One conclusion is that most PHV operators (64.8 percent) operate fewer than 25 vehicles. Furthermore, this finding holds for taxicab operators, and it holds for the past two national taxicab surveys. The PHV industry and the taxicab industry may both be described as large industries of small companies.

It is also evident that the national PHV survey results for taxicabs have proportionately more larger firms than did either of the two previous taxicab surveys. As shown in Table 3, the 1986 survey produced a size distribution that is slightly less skewed toward small companies than was the 1981 survey. The 1998 survey continues this apparent trend away from smaller operators. However, it is not possible given the small number of studies (i.e., 1981, 1986, and 1998) to determine if this apparent trend is real or merely a reflection of the three samples. In particular, it appears that the current study sample is skewed toward larger PHV operators.

TABLE 14 Market share

Market Share Percentage	*Taxicabs*	*Limousines*	*Other*	*All*
0-9	17.6	51.5	39.9	35.9
10-24	9.4	14.7	15.1	13.6
25-49	13.6	8.3	11.5	11.5
50-74	19.3	11.8	11.2	11.0
75-99	16.8	2.9	10.5	13.4
100	23.3	10.8	11.8	14.7

TABLE 15 Size distribution, 1998

	Percent of Respondents	
Number of Vehicles	*Taxis*	*Total PHV's*
1-24	59.7	64.8
25-49	12.5	13.2
50-74	6.4	4.6
75-99	4.7	3.6
100-249	10.0	7.4
250+	6.7	6.4

5.3 ORGANIZATIONAL STRUCTURE

Table 16 presents the distribution of types of organizational forms used by taxi operators, limousine operators, other (i.e., neither taxicab nor limousine operators) PHV operators, and all PHV operators.

Generally, the results are similar across these four vehicle types. The differences are that other PHV operators (i.e., non-taxicabs and non-limousines) are more likely to be organized in private corporations, taxi operators are more likely to be organized as cooperatives and associations, and other PHV operators are less likely to be organized as sole proprietorships.

Comparisons can be made between the taxicab results in Table 16 and the results in Table 5 for the last two national taxicab surveys. Although there is general agreement, two notable differences exist. One is that the use of private corporations is more prevalent in 1998 than for either of the previous studies. The other is that the use of cooperatives and associations has doubled from 4.2 percent in 1986 to 8.5 percent in 1998.

Table 17 shows the distribution of organizational forms as a function of the size of the PHV operation. These results show that smaller firms are more likely to be organized as either sole proprietorships or partnerships than are larger firms. The other differences do not produce any apparent trends.

5.4 REGULATION

The PHV operators were also asked about the regulatory structures under which they operate. The operators were asked which governmental agencies regulate their fares and vehicle permits. Not surprisingly, the most frequent answers were “city” (52.1 percent) and “state” (47.4 percent). Other responses were “county” (17.1 percent), “federal government” (10.4 percent), “transit district” (7.1 percent), “school

TABLE 16 Organizational forms, 1998

	Percent of Operators			
Form of Organization	*Taxicab*	*Limousine*	*Others*	*All*
Private corporation	67.3	69.7	75.7	72.5
Public corporation	5.1	4.6	5.7	5.4
Partnership	5.4	6.2	5.0	5.3
Association	4.8	3.1	1.9	2.9
Cooperative	3.7	1.0	1.1	1.9
Sole proprietorship	22.8	23.1	16.7	19.3

TABLE 17 Organizational form by size, 1998

Size of Operation (no. of vehicles)	Type of Organization						
	Private	*Public*	*Partnership*	*Public*	*Association*	*Co-Op*	*Sole Proprietorship*
1-24	59.2	60.0	70.0	60.0	46.4	37.5	88.4
25-49	15.8	5.7	10.0	5.7	17.9	6.3	4.8
50-74	5.0	8.6	5.0	8.6	10.7	12.5	2.7
75-99	4.8	8.6	2.5	8.6	10.7	6.3	1.4
100-249	9.0	2.9	5.0	2.9	3.6	12.5	1.4
250+	6.1	14.3	7.5	14.3	10.7	25.0	1.4

board" (2.8 percent), and "other" (7.4 percent). These results confirm that PHV regulation is generally a function of local governments and agencies.

Table 18 shows the relationships between types of PHV services and types of regulations. Among all types of PHV services, insurance is almost universally required by regulators. Because all PHV operators presumably have some type of insurance requirements, one would expect the right-hand column in Table 18 to be all "100 percent." That it is not can only be interpreted as meaning that some respondents inferred that the survey question applied only to their local regulators and not to include state motor vehicle regulations.

For other types of regulations, however, there are considerable differences among PHV services. For example, fares are regulated for 76.0 percent of taxicab operators, but only for 31.4 percent of executive sedan operators. Likewise, the incidence of market entry controls is 64.2 percent for taxicabs and only 47.8 percent for children's transportation services.

5.5 SERVICES AND CONTRACTING

PHV operators depend heavily on contracts for revenues. They report that 64.0 percent of the PHV operators engage in some types of contracting.

PHV operators report that 36.7 percent of their aggregate revenues come from contracts. In aggregate, the PHV industry receives 16.5 percent of its revenues from contracts with

TABLE 18 Regulation of PHVs, 1998

Service Type	Type of Regulation				
	Market Entry	*Fares*	*Driver Background*	*Owner Background*	*Insurance*
Taxicab	64.2	76.0	78.4	66.6	89.3
Limousine	62.9	32.6	54.4	52.2	87.6
Executive Sedan	55.8	31.4	55.1	51.9	89.1
Livery/Car Service	57.4	37.0	55.1	49.6	81.9
Shuttle	49.4	49.4	55.2	44.8	87.4
Private Fixed-Route	56.1	56.1	63.4	53.7	95.1
Ambulette	55.3	52.3	70.5	64.4	89.4
Children's	47.8	38.8	71.6	62.7	85.1
Jitney	57.1	35.7	64.3	57.1	92.9

TABLE 19 Sources of revenues by size, 1998

	Revenue Sources (%)			
Size of Operation (No. of Vehicles)	*Regular Service*	*Private Contracts*	*Public Contracts*	*Other Contracts*
1-24	64.1	16.3	16.8	2.8
25-49	63.3	16.9	16.9	2.8
50-74	61.8	11.5	18.4	8.3
75-99	58.0	18.4	21.5	2.0
100-249	60.5	17.3	19.0	3.2
100-250+	66.5	11.8	21.1	0.7
All	63.3	16.5	17.3	2.9

private firms, 17.3 percent from public sector contracts, and 2.9 percent from other contracting sources.

Table 19 shows how the sources of revenues differ with PHV operator size. This table presents a striking result: there is little difference among PHV size categories with respect to percent of revenues garnered from contracts. Slightly more contract revenues are received by PHV operators in the two middle-size categories than by operators in the other size categories. The relative lack of relationship to size suggests that operators of all sizes are well aware of contracting and is in contrast to the 1986 taxicab survey, which found larger operators contracted more than smaller operators did. Public and private contracting sources generally account for similar proportions of PHV operators' revenues.

The respondents were asked to rank 13 sources of contract revenue according to their importance in providing revenues. The research team weighted the responses with five for the most important, four for the next most important, and so on for the top five sources. The results are shown in Table 20. Private citizens and private companies are the most important sources of revenues, with Medicaid ranking third. The next eight sources are closely bunched. The least important is private schools.

Given the focus of this research project, it is interesting to note that transit ranks seventh in importance. This result confirms the need for Phase Two of this study.

Tables 21 and 22 show the incidence of contracting, by source, for those PHV operators who contract. The two figures are similar: Table 21 includes private sources of contracts, and Table 22 public sources. The results reflect many differences among types of PHV operators. For example, contracts with private companies are especially prevalent among taxicab, limousine, executive sedan, and livery/car service operators, but rather unusual among children's and jitney service operators. Package delivery is common among taxicab operators, but not among other PHV operators. Social service contracting is common among taxicab operators and livery/car service operators, but uncommon among other PHV operators.

The results show that taxicab operators have increased their levels of contracting since the most recent taxicab survey in 1986. Overall, 38.9 percent of the revenues received by taxicab operators come from contracts. Comparing Tables 21 and 22 with similar data for the 1986 survey shows that

TABLE 20 Most important sources of contract revenues

Source	Weighted Rank
Private Citizens	1720
Private Company	1205
Medicaid	594
Social Service Agency	487
Hotel	453
Local Government	378
Transit	354
Private Hospital	344
Public School	324
Package Delivery	320
Public Hospital	305
Other	209
Private School	92

TABLE 21 Contracts with private entities, 1998

Percent of Respondents with Contracts

	Private Company	*Private School*	*Private Hospital*	*Package Delivery*	*Hotel*	*Private Citizen*
Taxicab	79.8	32.1	58.9	62.3	46.0	73.2
Limousine	79.9	14.1	11.4	5.4	4.4	73.8
Executive Sedan	88.5	17.4	16.7	10.1	48.6	70.3
Livery/Car Service	78.3	16.7	26.7	23.3	28.3	65.8
Shuttle	60.0	24.0	8.0	22.7	56.0	60.0
Private Fixed-Route	48.7	20.5	5.1	15.4	17.9	48.7
Ambulette	59.0	10.5	60.5	7.6	3.8	63.8
Children's	33.9	53.6	10.7	0	5.3	46.4
Jitney	38.3	8.3	8.3	8.3	16.7	58.3
All PHV's	72.9	23.1	34.0	27.1	36.5	67.3

TABLE 22 Contracts with public entities, 1998

Percentage of Respondents with Contracts

	Public School	*Hospital*	*Medicaid*	*Public Transit*	*Local Government*	*Social Service*
Taxicab	50.2	60.2	42.2	31.8	54.3	73.7
Limousine	38.9	38.9	8.3	19.4	47.2	19.4
Executive Sedan	18.2	68.2	22.7	31.8	63.6	40.9
Livery/Car Service	32.7	38.8	44.9	18.4	38.8	65.3
Shuttle	32.5	30.0	7.5	5.0	45.0	35.0
Private Fixed-Route	29.6	11.1	18.5	25.9	40.7	29.6
Ambulette	19.8	43.8	74.3	28.9	42.1	62.8
Children's	74.1	13.8	20.7	8.6	31.0	36.2
Jitney	32.5	12.5	0	25.0	50.0	37.5
All PHVs	41.5	46.0	40.3	26.5	47.5	58.9

the incidence of taxicab contracting has increased across the board since 1986.

Of particular interest is the degree of PHV contracting with transit operators. Incidence of transit contracts varies from a high of 31.8 percent with taxicabs and with executive sedans to a low of 5.0 percent with shuttle operators. Overall, only 26.5 percent of the PHV operators report having contracts with transit operators.

Table 23 provides more detailed information on PHV operators' contracts with transit operators. For all PHV operators, the two most common types of transit contracts are ADA paratransit and voucher/user-side subsidy contracts. These two categories are engaged in by 47.2 percent and 46.5 percent, respectively, of the PHV operators with transit contracts. The least common is feeder service, with only 9.3 percent of the transit-contracting PHV operators engaged in this category of transit service.

The survey results provide useful information on other aspects of contracting. Of the PHV operators who have contracts, 61.0 percent use independent contract drivers for at least some of their contracts. Of these operators 18.2 percent provide their independent contractor drivers with CPR training, 22.0 percent require Commercial Driver's Licenses (CDLs), 45.1 percent do driver drug testing, and 33.7 percent provide sensitivity training.

The survey yields comparable information for employee drivers. Of the contracting PHV operators, 65.1 percent use employee drivers. Of these operators 36.5 percent provide their drivers with CPR training, 38.7 percent require CDLs, 66.7 percent require drug testing, and 45.7 percent provide sensitivity training.

To gauge how connected PHV operators are to local contracting opportunities, the survey included three questions about regular attendance at local meetings. In response to these questions 36.6 percent said that they regularly communicate with or attend meetings of their local transit agency, 21.4 percent for their local metropolitan planning organization, and 42.5 percent for their local regulatory body.

5.6 OTHER RESULTS

Virtually all (94.7 percent) of the PHV respondents report that they provide some type of dispatching services to their drivers. Table 24 shows that the most popular dispatching technology used by taxicab operators is the two-way radio, although 31.1 percent report using computers, either as computer-aided or fully computerized. For limousine operators, the most prevalent dispatching method is mobile phones (71.6 percent). Fully 39.1 percent of the limousine respondents report using some type of computer dispatching. For all PHV operators 31.5 percent use some form of computer dispatching.

The PHV national survey also presents a picture of the PHV workforce. The 677 respondents report having 59,541 workers, of which 87.3 percent are drivers. The remainder is made up of office personnel (9.6 percent) and maintenance personnel (3.1 percent). Among the drivers 73.7 percent are independent contractors.

TABLE 23 Transit contracting, 1998

	Percentage of Respondents					
	ADA Paratransit	*Dial-A-Ride*	*Guaranteed Ride Home*	*Fixed-Route Replacement*	*Feeder*	*Voucher*
Taxicab	39.6	23.4	27.3	8.4	7.1	61.0
Limousine	80.0	20.0	0	0	0	60.0
Executive Sedan	11.1	0	66.7	0	0	33.3
Livery/Car Service	47.6	33.3	14.3	4.8	19.0	42.9
Shuttle	50.0	25.0	6.3	37.5	18.8	6.3
Private Fixed-Route	40.0	13.3	13.3	33.3	26.7	26.7
Ambulette	83.0	24.5	3.8	9.4	5.7	34.0
Children's	29.4	5.9	12.6	5.9	11.8	35.3
Jitney	50.0	33.3	0	33.3	16.7	33.3
All PHVs	47.2	21.9	19.6	11.0	9.3	46.5

TABLE 24 Types of dispatching, 1998

Type of Dispatching Percent of Operators

	Taxi	*Limousine*	*Other*	*All*
Two-Way Radio	83.7	42.6	72.1	70.8
Computer-Aided	18.2	28.9	22.1	22.0
Fully Computerized	12.9	10.2	7.4	9.5
Pagers	13.5	49.7	36.9	32.1
Mobile Phones	27.8	71.6	50.0	46.9
None	4.4	8.6	4.8	5.3
GPS	4.4	2.5	3.0	3.3

More detailed information on independent contractor drivers appears in Tables 25 and 26. In the first of these figures, the percent of independent contractor drivers is shown as a function of size category of PHV operators. Generally, the larger the PHV operation the higher the percentage of independent contractor drivers. The variation of percent independent contractor drivers with PHV service type is shown in Table 26. The highest percentage is for taxicabs (91.0 percent); the lowest is for ambulettes (5.0 percent).

By examining taxicab operators alone, one can compare our results with the results from the past two national taxicab surveys. First, there is a continuation of the trend toward fewer non-driver personnel. Our results show that 8.1 percent of the taxicab workforce is office personnel and 2.7 percent are maintenance workers. The sum (10.8 percent) represents the percentage of the taxicab workforce that is non-drivers. This percentage is less than that for 1986 (11.4 percent) and for 1981 (12.6 percent).

Similarly, comparisons can be made for taxicab driver personnel. In 1998, fully 91.0 percent of taxicab drivers were independent contractors, compared with 74.2 percent in 1986 and 58.1 percent in 1981. Interestingly, the increase has occurred among lease drivers, rather than among owner-drivers. In 1986, the percentages of owner-drivers and lease-drivers were 23.4 percent and 50.8 percent, respectively. In 1998, the percentages were 21.5 percent and 69.5 percent, respectively.

These results also indicate that taxicabs—compared with other PHVs—have relatively fewer non-driver workers and much higher rates of independent contractor drivers.

TABLE 25 Percentage independent contractor drivers by size, 1998

Size of Operators (No. of Vehicles)	*Percent Independent Contractors*
1-24	38.3
25-49	46.6
50-74	72.2
75-99	63.6
100-249	71.3
250+	82.6
All	47.4

TABLE 26 Independent contractor drivers

	Independent Contractors Percent of All Drivers
Taxicab	91.0
Limousine	23.2
Executive Sedan	59.1
Livery/Car Service	53.1
Shuttle	17.8
Private Fixed-Route	8.4
Ambulette	5.0
Children's	33.4
Jitney	84.2
All PHVs	73.7

TABLE 27 Fare system for contract services

	Passenger	*Hourly*	*Zone*	*Mileage*	*Meter*	*Trip*
Taxicab	22.3	19.0	22.0	26.2	61.1	41.6
Limousine	12.4	80.7	7.5	14.3	0.6	43.4
Executive Sedan	13.8	71.7	16.6	19.3	5.5	47.6
Livery/Car Service	19.5	43.8	16.4	30.5	7.0	48.4
Shuttle	57.1	45.1	9.9	12.1	3.3	31.9
Private Fixed-Route	32.6	41.9	2.3	11.6	2.3	18.6
Ambulette	57.9	15.3	13.7	50.4	10.7	42.7
Children's	33.3	21.7	10.1	24.6	17.4	42.0
Jitney	17.6	47.1	5.9	17.6	11.8	23.5
All PHVs	26.6	40.4	14.8	24.8	22.5	41.3

Tables 27 and 28 present data on how PHV operators charge for their transportation services. Table 27 deals with contract services; Table 28 covers regular services. For both tables, the numbers are the percentages of operators in each category who report using each fare system.

It is apparent from both tables that there are considerable variations among types of PHV operators with respect to how they compute fares. For example, for contract services, 80.7 percent of the limousine operators use hourly rates, yet only 19.0 percent of taxicab operators do.

What is most evident from these two charts, however, is their similarities. For example, there are only slight differences between the two charts with respect to all PHV operators. The conclusion is that PHV operators generally use the same fare systems for contract services as for regular services.

TABLE 28 Fare system for regular services

	Passenger	*Hourly*	*Zone*	*Mileage*	*Meter*	*Trip*	*Reduced Fares*
Taxicab	16.1	14.1	20.3	18.3	67.3	24.2	14.6
Limousine	10.5	85.9	11.5	16.2	1.6	47.6	6.8
Executive Sedan	9.5	73.2	19.6	20.2	4.2	54.8	4.8
Livery/Car Service	16.2	45.3	16.9	29.1	7.4	54.7	5.4
Shuttle	5.4	39.4	17.0	12.8	6.4	37.2	10.6
Private Fixed-Route	53.5	25.6	4.7	4.7	4.7	16.3	9.3
Ambulette	50.4	13.2	13.2	47.1	10.7	43.8	11.6
Children's	34.5	19.0	12.1	29.3	20.7	43.1	8.6
Jitney	35.3	29.4	0	23.5	23.5	11.8	5.9
All PHVs	23.3	40.5	16.2	22.2	24.9	39.5	9.6

CHAPTER **6**

CONCLUSIONS

The national PHV survey confirms what the previous taxicab studies have shown: the PHV industry is increasingly diverse. It is diverse in its vehicle fleet, in its range of services, and in PHV operators using multiple names. The average number of services offered by a PHV operator is 2.3, and 30 percent of the PHV operators use more than one operating name. This diversification suggests that PHV operators are sensitive to addressing the needs of various market niches and purchase the diverse vehicle fleet necessary to do so.

Diversification also poses difficulties to researchers and policy-makers. It is increasingly difficult to categorize operators, and counting them encounters the real risk of overcounting. The number of PHV operators can be estimated as between 11,000 and 13,000.

The study confirms that PHV operations are primarily small businesses. As with prior taxicab studies, this survey shows that well more than one-half of the operators have fewer than 25 vehicles. The results also show that most PHV operators do have local competition from other PHV operators.

The PHV industry uses a wide variety of types of organizational structures, and the results show that taxicab operators have in the past 12 years doubled their use of cooperatives and associations. Most PHV operators are locally regulated, and most PHV operators face regulation of their fares and entry controls.

The study conveys much about contracting within the PHV industry. Most PHV operators engage in some service contracting, and comparisons with the two most recent national taxicab studies show that the amount of taxicab contracting has increased. Overall, the PHV industry receives 36.7 percent of its revenues from contracts. While public-sector sources are approximately the same in importance as contracting revenue sources as are private-sector sources, transit contracting is only modestly important as a revenue source. Just 26.5 percent of PHV operators contract with transit providers. The two most prevalent types of transit contracting services are ADA and voucher services. PHV operators tend to employ the same types of fare systems for contract services as they do for their regular services.

The PHV industry almost uniformly dispatches vehicles. The results show that 31.5 percent of the PHV industry uses computers in dispatching, either as computer-aided or fully automatic dispatching. Among taxicab operators, 12.9 percent use fully computerized dispatching.

The PHV industry depends heavily on the use of independent contractor drivers. Overall, 73.7 percent of PHV drivers are independent contractors. Among taxicab drivers, more than nine out of ten are independent contractors, and the rate is increasing.

The survey results, however, fail to produce a definitive estimate of the overall size of the PHV industry. To produce such an estimate requires additional survey research. In particular, it is necessary to do a targeted telephone survey of PHV operators and ask them to report how many vehicles they operate.

GLOSSARY

Private-for-hire Vehicles. Any vehicle operated by a private, for-profit firm and included in any of the following definitions.

Taxicab. A vehicle providing point-to-point, on-demand, passenger service.

Limousine. A luxury vehicle providing prearranged service to a party of one or more persons.

Shuttle. A vehicle—usually a van—providing service to and from a fixed location, such as an airport, a shopping center, or a transit terminal.

Ambulette. A vehicle used for non-emergency medical transportation.

Black Car or Premium Sedan or Executive Sedan. A premium sedan providing prearranged, on-demand service and usually paid for by corporate vouchers.

Livery. A taxi-like service operated on a prearranged basis.

Jitney. A vehicle operating on a fixed-route, non-scheduled basis.

Car Service. Identical to Livery.

Paratransit Service. A broad assortment of services that typically require advanced requests and provide curb-to-curb service in vans or sedans. Some paratransit services are operated as general public dial-a-ride service and many others are operated to serve persons with disabilities, seniors, low-income persons, and clients of social service agencies.

ADA Service. Same as Paratransit Service, except that it operates under authority of a transit operator.

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PART 2

CONTENTS

THE ROLE OF THE PRIVATE-FOR-HIRE VEHICLE INDUSTRY IN PUBLIC TRANSIT PART 2

SUMMARY

INTRODUCTION/BACKGROUND INFORMATION

There exists side by side with conventional transit a range of travel modes which are privately owned and operated, usually demand-responsive, generally unsubsidized, and relatively unencumbered by the burdens faced by fixed-route, fixed-schedule transit modes. These modes have various names that sometimes differ from city to city, but were labeled "private-for-hire vehicles" (PHVs) by the Transit Cooperative Research Program (TCRP) Project B-16 panel. These PHV modes include taxicabs, liveries, limousines, shuttles, and other similar services. The challenge is to understand how transit can more effectively utilize PHV services to achieve a higher market share in a cost-effective manner.

To encourage transit/PHV collaboration, it is necessary to learn from the experiences of transit operators who have taken steps to contract with PHV operators regarding what types of contractual provision work best and what types of barriers inhibit contracting. To achieve this research objective, eight case studies were conducted in Phase 2 of this study.

The case study sites were selected to meet several criteria as follows:

- A mixture of urban and rural situations and various geographic areas;
- A representative mix of services, such as complementary paratransit, fixed-route replacement, rural public, and fixed-route feeders; and
- Various organizational types, including statewide programs and rural, urban, and county-operated programs.

After a thorough discussion, the following case study sites were selected:

- Ann Arbor, Michigan;
- DuPage County, Illinois;
- Houston, Texas;
- Los Angeles, California;
- Montgomery County, Maryland;
- Portland, Oregon;

- Seattle, Washington; and
- State of Wisconsin.

The number of persons interviewed at a given site varied, depending on the number of private-sector contractors involved and the stakeholders recommended by the transit agency.

STUDY FINDINGS

The case study transit agencies use PHVs as

- Community circulators (Portland);
- Feeders/replacements for fixed-route service (Ann Arbor);
- Primary providers of Americans with Disabilities Act (ADA) paratransit service (Los Angeles, Ann Arbor, Houston, and Montgomery County);
- Secondary providers of ADA paratransit service (Seattle, Houston, Portland);
- Human service demand-responsive transportation (Montgomery County);
- Rural transportation (Wisconsin);
- Alternatives for providing specialized transportation for seniors (Seattle, DuPage County, Ann Arbor, Los Angeles); and
- Providing guaranteed rides home for participants in vanpool and carpool programs (Seattle).

Ann Arbor Transit Authority (AATA) A-Ride, Night Ride, Good as Gold, Ann Arbor, Michigan

The AATA has a fairly lengthy history of contracting with local taxicab companies for seniors, the general public, and ADA-complementary services. In 1983, the AATA began contracting to provide general public transit service during the evening hours when conventional service was not in operation. The Authority sought contractor services because of the lack of in-house resources, and a local taxicab company won the bid. The AATA soon realized benefits and cost savings from contracting for certain types of services. Today the AATA contracts with one provider, Paratransit, Inc., Yellow Cab, selected through a competitive bid procurement.

The contracted services include

- ADA-complementary service for persons with disabilities (A-Ride),
- Guaranteed Ride Home general public service during times when conventional fixed-route service is not operating (Night Ride), and
- Senior service (Good as Gold).

DuPage Subsidized Taxi Program, DuPage County, Illinois

The DuPage Subsidized Taxi Program service area covers the entire county, and service is available 24 hours each day. The program supplements existing transit services by making available taxicab service throughout the County to provide transportation to residents who are not served by the public transit system. Primary customers targeted are seniors and persons with disabilities. Participating municipalities and agencies provide subsidies to their respective customers. Each municipality and member agency determines its level of subsidy, its amount of participation, and its eligibility require-

ments. Customers may use multiple ride coupons to pay for a trip, dependent upon a sponsor's restrictions. Each sponsor tracks the coupons at the time of sale, and the program administrator tracks the coupons at the time of use. The PHV operator is reimbursed weekly for all coupons submitted and verified.

This program represents an approach to providing subsidized transportation service using taxicabs that provides flexibility for the sponsoring agencies, with strong broker oversight. The private operator of this subsidized taxi program is AutoRide, a family-owned, independent taxicab operator. AutoRide operates a fleet of approximately 50 vehicles that are company-owned and leased to independent contractor drivers.

METROLift Scheduled Sedan Service and Subsidy Program, Houston, Texas

METROLift was created to provide public transportation services to persons with disabilities within the METRO service area who could not use the regular bus service. This service, operated by a private contractor (ATE), is intended to complement existing paratransit service, as required by the ADA.

The METROLift services operated under contract with PHV operators are

- Scheduled Van Service—wheelchair accessible service;
- Scheduled Sedan Service—dedicated taxicab service paid on an hourly basis, not wheelchair accessible; and
- METROLift Subsidy Program (MSP)—same-day service, offering a higher level of service to customers who do not need a van; a specific percent of ADA trips are allocated to the MSP program.

In the Scheduled Sedan Service and MSP programs, taxicabs were used to add transportation capacity at a cost lower than that of the existing paratransit service. The MSP program provides a subsidy for taxicab service on a first-come, first-served basis. This program provides same-day service and is considered a premium service, offering greater flexibility than traditional van-based paratransit service. At the current time, the MSP service is not wheelchair accessible.

In addition to the MSP program, METROLift also contracts with two taxicab operators, Yellow Cab and Fiesta Cab, to provide dedicated sedan service as part of the ADA program. This service is operated by the taxicab company, but scheduled and dispatched by METROLift staff. The taxicab company is reimbursed by the service hour for providing this service.

Access Services Inc., Los Angeles, California

Access Services, Inc. (ASI), was designed to provide ADA-complementary paratransit on behalf of the 50 public operators in the County, resulting in a large and diverse service area. The service area was divided into eight geographic areas. As of July 1, 1999, the service area was also divided according to provision of advance reservation scheduled and real-time scheduled service. The service areas are generally divided along municipal and geographic boundaries such as the Santa Monica Mountains and the San Gabriel Mountains. Most trips occur within a single service area; however, because of the expanses of unserved areas between service areas, there are occasional requests for extremely long trips.

During the development of the ASI service network, the reliance on taxicab operators as primary service providers has resulted in both positive and unforeseen impacts. It is unlikely that a traditional paratransit provider using prescheduled service could have

accommodated the increase in ridership over the program's first 5 years. It is also unlikely that costs could have been maintained during this period, particularly for long trips between different areas of the County. With more than 3,000 daily trips provided by independent taxicab operators, the service has been quite flexible and well received by customers.

ASI has used incentives to encourage drivers to provide trips that are less economically attractive, such as short trips or trips located in remote areas of the County. Ridership has grown each year, doubling over the initial 5-year period, until Fiscal Year (FY) 2000, in which ridership remained at the previous year's level. Costs have grown at a rate greater than ridership, indicating the need for incorporating new approaches into the service model to maximize efficiencies where possible.

Because the ADA paratransit system was designed so as to benefit from using PHVs from its inception, the cost benefit observed by some other transit agencies shifting to contracts with PHV operators has not occurred in Los Angeles.

ADA Paratransit Service, Call 'N Ride Program, Medicaid, Montgomery County, Maryland

Private-for-hire vehicles are used to provide public transportation services for three programs in Montgomery County. Those programs include: (1) ADA paratransit service; (2) Call 'N Ride Program; and (3) Medicaid. The ADA paratransit service serves persons with disabilities. The Call 'N Ride Program is a county program to provide transportation to low-income residents who are elderly and/or have disabilities. The Medicaid transportation program is used only for travel to and from medical appointments, and is a program of last resort or a safety net for those least able to access medical care. These three programs provide the bulk of human service transportation in Montgomery County, functioning as a countywide coordinated system. Human service agencies in the County generally do not operate their own transportation services.

Cedar Mill Taxi Shuttle, Portland, Oregon

The Cedar Mill Taxi Shuttle operates between the Cedar Mill area and the Tri-Met Westside MAX service at the Sunset Transit Center. The Sunset Transit Center is a central transfer point for bus and rail transit, and also sees significant park-and-ride activity. The Cedar Mill Taxi Shuttle was envisioned as a means to alleviate a lack of parking at the Transit Center, while serving a community that was outside the Tri-Met fixed-route bus service area. The goal was also to implement a flexible feeder service at a cost comparable to fixed-route service with minimal start-up cost.

Sassy's Cab Company was awarded the pilot contract to provide the Cedar Mill Taxi Shuttle service. Cedar Mill Taxi Shuttle taxicab drivers receive pick-up requests and trip cancellations via cellular telephones, and the two drivers manage their own trip manifests. Drivers also negotiate pick-up requests among themselves, depending on a driver's availability and proximity to the pick-up location.

ACCESS Transportation, and Paratransit OPTIONS Program, Seattle, Washington

In addition to fixed-route transit service, King County Metro also operates one of the largest vanpool programs in the country, with over 500 vans serving 5,000 people daily. This vanpool program includes a guaranteed ride home program (the Home Free Guar-

antee program), which provides subsidized taxi trips to vanpool program participants who are authorized through their employer and need an emergency trip home.

Metro operates two paratransit programs: ACCESS Transportation service (ACCESS), providing ADA-complementary paratransit service, and the Paratransit OPTIONS Program. ACCESS services are operated by a contracted management services company, which provides lift-equipped van transportation brokered through a human service agency. Some ACCESS contractors subcontract with taxicab operators for provision of back-up service.

Metro's Paratransit OPTIONS Program is a user-side subsidy taxicab program that provides transportation to low-income senior citizens as well as to ADA paratransit customers. This subsidized taxi program is unusual in that Metro does not contract with the taxicab operators but has an agreement with taxicab operators for the taxicab companies to accept scrip from eligible passengers.

The Paratransit OPTIONS Program provides an opportunity to blend the user-side subsidy taxicab program with the new ADA van program (ACCESS) to get the best productivity and flexibility from the service. The Paratransit OPTIONS Program is designed to provide access to van and taxi service without impacting the service provided to ADA-eligible customers.

Customers using taxi scrip make their own reservations. Taxi scrip may be used for travel throughout King County 24 hours per day, 7 days per week. The taxi driver must enter all trips for which scrip is used on a scrip tally sheet, which is submitted to the County for reimbursement at face value. Tally sheets may be submitted no more frequently than once per month, with no reimbursement provided for improperly recorded trips.

State of Wisconsin Shared-Ride Taxi Program, Various Wisconsin Municipalities and Counties

The State of Wisconsin shared-ride taxi program began with one site, Ripon, in 1979. To maintain transportation service for elderly residents, the city requested and was granted operating assistance from the Wisconsin Department of Transportation. The shared-ride taxi program grew to include 43 sites in 1999. No model was used to develop the original program in Ripon; however, that and other earlier programs have been used as models for subsequent programs started within Wisconsin.

The State of Wisconsin uses shared-ride taxi services to provide public transportation in small cities throughout the state (a city in Wisconsin may have a population as little as 2,500). The state subsidizes the difference between operating revenues and operating costs (minus revenues from exclusive ride taxi service and package delivery). Drivers are typically employees of the contractor, who is responsible for ensuring compliance with drug and alcohol testing requirements.

Three of the 43 Wisconsin localities implementing this taxicab service are included in this study: Wisconsin Rapids, Marshfield, and Fort Atkinson.

CASE STUDY ANALYSES

The functional areas examined from the case study sites included

- Funding,
- Selection process,
- Contract terms,
- General administration,
- Public/private roles and responsibilities,

- Regulatory requirements, and
- Operations.

Funding

Transportation programs using PHVs can be structured to limit the financial cost to the customer, the sponsoring agency, or both. A program design should reflect the financial goals of the funding entity. Federal Transit Administration (FTA) Section 5310 funds have been used to offset capital costs of transportation programs at several case study sites, including Los Angeles and some Wisconsin shared-ride taxi programs. FTA Section 5311 funds were utilized as a primary funding source by all the case study sites.

Comparing the subsidy structure of several case study sites reveals an apparent correlation between subsidy limits and the most frequent type of trip made by customers. In both Houston County and King County, where the subsidy level is capped (by the trip in Houston, and by the month in King County), the average trip length is generally short. Interviews with staff at those sites indicated that customers are aware of the potential for unlimited out-of-pocket costs using local programs. The opposite situation appears to be the case in Los Angeles, where the customer contribution is capped at a maximum of $4.00 per trip, and the subsidy is unlimited. The average length of ASI trips has increased over time, which suggests that customers are maximizing their financial contribution by making longer trips than they would if the subsidy were capped.

Selection Process

All of the case study contracting agencies, with the exception of Seattle's Paratransit OPTIONS program, secure contractors through an open bid solicitation process and require a written contract between the public agency and the PHV operator(s). Most sites establish eligibility criteria in the solicitation that can serve to limit bid responses.

Many of the public agencies interviewed have established long-term contractual relationships with specific PHV companies. Many agencies seek to contract with established PHV operators, who have a record of providing reliable service.

Tri-Met focused on the ability to provide excellent customer service while maintaining flexibility to respond to changes in the program as it developed when selecting Sassy's Cab Co. to provide service for the Cedar Mill Taxi Shuttle. Assigning dedicated drivers to the Cedar Mill Taxi Shuttle has contributed to the perception of a high level of service quality for customers using the service.

Contract Terms

The terms of contracts vary and minimally include the contract period, contract amount, length of contract, renewal options, payment and billing processes, insurance requirements, maintenance of equipment, service description, trip reservations, dispatching, and service delivery expectations. Some contracts have more stringent requirements such as drug testing, training, and performance measures and penalties for not meeting performance standards. A contract period typically varies from 1 to 5 years, and many have renewal options.

Some of the case study public transit agencies (Ann Arbor, Houston, Portland, and the Seattle Metro ACCESS programs) contract for dedicated service. Dedicated service means that the PHV operator dedicates some vehicles to operate trips for only the funding agency during a specified time period. Drivers/vehicles providing dedicated

service trips do not mix those trips in among other general taxicab customer trips. Historically, most transit agencies in the United States have used dedicated services to provide their ADA-complementary paratransit service. Many transit agencies have found operating only dedicated service to be inefficient and have started to use PHVs to provide supplemental service to their dedicated service, as observed in Houston, Portland, and Seattle.

General Administration

PHV contract services are administered within various departments of county and municipal governments. Five of the eight sites are administered by the local public transit agency (Ann Arbor, Houston, Montgomery County, Portland, and Seattle). The Los Angeles ASI program was established as an independent, not-for-profit organization to allow it to contract with the MTA as a broker, and to enable ASI to apply for grant funds that are available only to not-for-profit organizations. In DuPage County, the DuPage County Department of Human Services serves as the program administrator and transportation broker. In Wisconsin, the state has some oversight, but places the day-to-day administrative responsibilities with the local site. Responsibility varies among the 43 sites as to the particular municipal department to oversee the contract.

Public Agency and PHV Responsibilities

Establishing clear roles and responsibilities is critical to achieving an effective contractual relationship. As described previously, at most of the case study sites, the designated municipality or county department serves as contract manager and general administrator.

Some of the contract administrators have expanded roles. For example, in DuPage County the DuPage County Department of Human Services, as a public entity maintains total control, serving as the contract administrator and also the broker for the contracted service in its area. Houston's scheduled sedan service is provided by METROLift, which schedules reservations and dispatches and is based on contract service hours. Requirements vary as to the party responsible for providing and maintaining equipment.

Regulatory Requirements

Most of the contracted PHV operators at the eight case study sites are regulated to some extent through municipalities or through a county. For example, an Ann Arbor City ordinance regulates taxicab and other private for-hire vehicle operators, and the Transit Authority "piggybacks" on that ordinance. The ordinance sets minimum standards for PHV operators, and there is no cap on entry. The ordinance requires an annual vehicle safety inspection.

Local municipalities and townships drive taxicab regulations in DuPage, Harris (Houston), and Los Angeles counties, as there are no countywide regulations in those counties. The City of Seattle and King County have joint taxicab regulation through interlocal agreements, including reciprocal enforcement and licensing agreements. Approximately 90 percent of the licensed taxicabs in the County are also licensed in the City of Seattle. Seattle recently implemented a performance system based on response times. There are currently 502 licenses issued of a total number capped at 561.

Operations

Findings from the case study sites included the following operations areas: fare media and payment, training, drug and alcohol testing, and insurance. The fare payment method and rates at the various case study sites are summarized in Table 45 (this is reproduced as Table 29).

Fare media for the Houston METROLift Subsidy Program is a combination of a cash fare of $1 and a voucher for up to $8, which is completed by the driver. Any metered charge above a $9 fare ($1 cash plus $8 voucher) plus any tips are the responsibility of the customer.

The vouchers are distributed to drivers, and represent no cash value until the registration number generated by the reservation is matched with the assigned voucher serial number for processing. Because the potential for a higher cost is associated with this program, most customers use it for short trips. Approximately 16,000 vouchers are distributed monthly, and all are usually used.

At several of the case study sites, the public agency provides limited training support. The Wisconsin Department of Transportation provided two recent training sessions for shared-ride taxi program operators in order to familiarize them with federal and state requirements. In Montgomery County, Maryland, driver training is conducted by each of the three taxicab companies that contract to provide the transportation services. Each contracting PHV operator in Los Angeles must provide training to meet standards by ASI such as defensive driving, passenger assistance, sensitivity, and use of Mobile Data Terminals (MDTs).

It can be argued that drug testing is not needed because most of the case studies' contract PHV operators do not employ drivers directly. Drivers, for the most part, are independent contractors. But most of the public agencies in this study do make this requirement, which is an additional expense and activity for the PHV operator. Federal regulations require contractors operating public transit service where no consumer choice of transportation provider is available to test drivers and others in safety-sensitive positions for substance abuse.

TABLE 29 Fare payment

Case Study Site	One-Way Trip Rate	Discounts	Other Charges
DuPage County, Illinois Subsidized Taxi program	Meter rate of $1.80 drop, $1.50 per mile (contract rate)	Coupons are purchased at a discount from the sponsor.	Customers are responsible for charges over the value of the coupon(s)
Houston, Texas METROLift MSP program	$1.00	METROLift receives a 4% discount on billing.	Any charge over a $9.00 meter rate
Los Angeles, California: Access Services program	$1.50-$4.00 (zone)	Monthly pass $4.00 for persons with disabilities	None
Montgomery County, Maryland Call N' Ride program	Meter drop charge of $1.70; $1.50 per mile	Low-income, senior citizens and persons with disabilities	$18/hour wait time fee
Portland, Oregon Cedar Mill Shuttle	$1.10 (within service area) $1.40 (transferring out of service area)	Seniors, persons with disabilities, and students	None
Wisconsin (Fort Atkinson)	$3.25 within City	$1.75 for elderly and persons with disabilities	$1.25 per mile outside city
Wisconsin (Marshfield)	$2.60 within City	$1.30 for elderly and persons with disabilities	$.60 for additional passengers
Wisconsin (Wisconsin Rapids)	$3.25 within City	$.50 coupons for low-income and persons with disabilities	$1.25 per mile outside city

Several of the case study public agencies require minimum insurance amounts. Some require a high level of insurance, although in other cases, the PHV operator maintains insurance coverage in excess of regulatory requirements. For example, the City of Wisconsin Rapids requires liability insurance in the amounts of $250,000/$500,000/$100,000, yet the current contractor maintains insurance in the amounts of $1,000,000 per occurrence/$1,000,000 per occupant. Los Angeles, as a result of additional training and drug testing, was able to negotiate lower insurance costs for ASI drivers; they saved $900,000 per year, even with $1,000,000 combined single coverage.

LESSONS LEARNED

Findings from the case studies revealed benefits realized and barriers encountered, as summarized below.

Benefits

Benefits that the case study sites have realized from contracting with PHV operators include

- Cost savings;
- Efficient means of meeting peak-period demand;
- Flexibility to incorporate changes into a beginning program;
- Provision of transportation services to the general public, as well as subsidized transportation to residents who are elderly or have disabilities by continued operation of a privately operated taxicab company; and
- Additional annual versus seasonal business for PHV operators.

Several of the case study sites reported cost savings from the use of PHV operators, primarily associated with the use of nondedicated service, in which the contractor absorbs the costs for deadhead travel time. Several of the case study sites were able to quantify the cost savings of using private operators. In Montgomery County, the paratransit management staff estimate that use of all-taxicab service saved approximately $900,000 per year. Houston METRO and King County Transit reported achieving savings of between 51 percent and 79 percent for every trip shifted from their regular van-based ADA paratransit service.

Montgomery County staff reported that contracting has been found to be an effective means of meeting peak periods of demand, especially if the contracted service is provided at the meter rate (as is the case with all three County-operated programs). In addition, PHVs are viewed as an effective supplement to, or back-up service for transit services as a result of a breakdown or accident occurring with fixed-route service.

The use of a PHV operator in DuPage County enabled the County to try a new service for a relatively low start-up cost. The PHV operator was also flexible about incorporating changes and training programs into the driver requirements. The County would have been unable to start a service as quickly and with as little initial capital cost without using a PHV operator.

At the Wisconsin sites, the primary benefit cited from operation of the shared-ride taxicab program is that the program has enabled continued provision of taxicab service to all residents of the cities operating a shared-ride taxicab program. Taxicab service is available at a higher, non-subsidized rate for city residents who are not eligible for participation in a shared-ride taxicab program. If funding assistance were not available

from participation in the shared-ride taxi program, most of the taxicab companies likely would not be in operation, as there is not sufficient general public demand to sustain operations.

A benefit cited by a Montgomery County taxicab company representative is that the County programs generate yearly, as opposed to seasonal business, which helps to smooth out demand for services and allow maintaining a consistent level of vehicles in operation. That representative also thought that the Call 'N Ride Program worked the best of the three programs because of the lack of administrative burden and expense to the taxicab companies.

Barriers

Barriers that the case study sites have experienced from contracting with PHV operators include

- Difficulty in meeting service demand,
- Difficulty in finding sufficient qualified drivers,
- Driver reluctance to operate accessible vehicles, and
- Lack of sufficient accessible vehicles.

In Wisconsin Rapids, Wisconsin, although the shared-ride taxi program has enabled provision of a relatively large amount of transportation service to clients of some human service agencies, this has also resulted in a reduced amount of transportation service available to the general public.

Finding sufficient qualified drivers was a problem cited by many of the PHV operators. In Wisconsin Rapids, the public agency ascribed this to a general negative stereotype of the taxicab driver job.

Montgomery County staff reported that it is sometimes difficult to meet demand for transportation during late night, weekend, and holiday periods, as many drivers (who are independent contractors) choose not to work at those times.

There were two problems reported with regard to accessible vehicles—driver reluctance to operate those vehicles (versus sedans), and lack of a sufficient number of accessible vehicles. Los Angeles experienced difficulty in getting drivers to take the certification-training program offered by the public agency and to operate the lift-equipped vehicles. The biggest hurdle cited to providing more ADA paratransit service with taxicabs in King County was the lack of availability of accessible vehicles. In Seattle, as in Houston, the transit agency has already maximized its use of nonaccessible taxicabs.

Los Angeles contractors have provided incentives to drivers to encourage them to provide less economically attractive trips, such as short trips, particularly in locations distant from major business generators. Incentives have included providing a driver with a $10 minimum payment for providing these short trips (that have a fare of substantially less than $10), pairing an economically unattractive trip with a longer, more financially rewarding one, or providing the trip with a dedicated driver.

Correlation Between the PHV Study and Case Study Findings

In Phase 1 of the national PHV survey, PHV operators were asked to identify barriers to collaboration with transit providers. The primary barriers, listed in order of decreasing frequency, identified by the 677 total respondents are identified in the left column of Table 30.

TABLE 30 Barriers to contracting

Barriers Cited by Survey Respondents	Findings from Case Study Sites
Cooperation—negative opinions of PHV operators held by public transportation providers and operators, public providers blocking access to service opportunities, public or agency meeting times not being disclosed/held during work hours, lack of access to planning efforts.	**Not an issue**—at case study sites. In Montgomery County, and in Wisconsin, where PHVs are the sole public transportation provider.
Regulation—public agencies having different and sometimes conflicting regulations, difficulties in licensing procedures, unfair and inappropriate fare regulation, lack of centralized regulation agencies.	**Mixed findings**: **Confirmed**—in Portland, Sassy's Cab Co. was not authorized to provide any service within the City outside of the Cedar Mill area, and was forbidden to expand the shuttle service into City Limits. **Not an issue**—in DuPage County, Los Angeles, and Seattle the pre-arranged trips provided by PHV operators under contract agreements differ from typical "hail" trips, and are not covered by local taxicab regulations.
Funding—government subsidies provide advantages to public systems by creating perceived costs below private services, funding resulting in better benefits for public transportation employees, funding directed to irrelevant research of public transportation services.	**Not an issue**—Montgomery County found that PHV operators could provide ADA paratransit service for 1/3 the cost of bus operations. Houston and Seattle also reported cost savings from use of PHVs. In most cases, labor unions affect the cost of providing traditional transit services to the extent that they are non-competitive.
Bidding and contracting—preferences to public providers, unrealistic service expectations, contract disclosures, regulations causing changes in terms before contract expiration.	**Not an issue**—in Ann Arbor, the taxicab operator obtains sufficient business through the Transit Authority because of the long-term nature of the relationship and personnel continuity (contractor has dealt with same transit staff over the five-year contract period). Service quality expectations are an issue in all contracted services, however, with appropriate controls, the quality of service provided by a PHV is often quite good, as evidenced in Seattle and Los Angeles. Related issue—loss of contract through re-bidding resulted in local PHV operator going out of business because of low level of demand for taxicab service in one Wisconsin city.
Insurance—high liability limits for taxi services, premium differences between taxi and limousines, lack of collaboration between regulatory agencies and insurance companies.	**Mixed findings:** **Confirmed**—Los Angeles started with very high insurance costs, yet through enhanced training, drug testing and certification requirements, insurance costs were negotiated down by about $1 million per year. **Not an issue**—at some sites (Fort Atkinson, WI) the PHV operator has procured higher liability limits than required.
	Additional insurance requirements are typical in contract arrangements with transit agencies, however, the costs of these policies were not prohibitive to larger PHV operators in Houston or Los Angeles. In Seattle, there is not an official contract, and as a result, no additional insurance requirement. DuPage County did not require the level of coverage typical of transit agencies.
Competition—dominance of large transit providers, competition with rental car and hotel services.	**Not an issue**—Montgomery County found PHVs to work better in selected markets than regular bus service.
Bureaucracy—amount of paperwork, "red tape."	**Confirmed**—excessive paperwork required to document trips was cited in DuPage County, Houston, and Los Angeles. At those sites, drivers must complete trip information for each trip provided in order to receive reimbursement. Los Angeles has largely automated this function through the use of computer scheduling and dispatching software, plus use of Mobile Data Terminals (MDTs) in vehicles.
Operators—insufficient qualified drivers.	**Confirmed**—PHV industry use of independent contractor drivers results in insufficient drivers available during some peak demand periods—nights, weekends, and holidays (Ann Arbor, DuPage County, Los Angeles, and Montgomery County).
Unions—local regulations supporting unionized drivers.	**Confirmed**—Portland contractor service area is limited to areas not served by fixed-route service operated by union drivers. **Not an issue**—Montgomery County reassigned bus drivers displaced by PHV contracted service.
Passenger—customers who use service and do not pay the fare, complaints of high fares, no-shows, cancellations, lengthy wait times at pick-up points.	**Confirmed**—no-shows, late pickups cited as problems in DuPage and Montgomery Counties. Service quality was cited as a problem in Los Angeles. **Not an issue**—Montgomery County stopped paying drivers for no-shows for Medicaid program; also instituted a $2 per trip

(*continued*)

TABLE 30 (*Continued*)

	"Good Service Fee" to substitute for Medicaid patrons lack of tips. Portland's Cedar Mill Shuttle experienced no complaints and has received numerous commendations for service quality.
Other—ADA access, political constraints, pay rates, safety, performance bonds, crime, maintenance and depreciation costs, Medicaid compensation.	Accessible vehicles were cited as an issue at many sites, including Los Angeles, where accessible vehicles are widely available. In Houston and Seattle, the transit authorities are seeking revised regulations to incorporate accessible vehicles in taxicab service.

CONCLUSIONS AND TRANSFERABILITY

Conclusions

With transportation program funding often limited, sponsoring municipalities and transit agencies are faced with the need to achieve cost efficiencies while meeting service standards established by regulations and expectations in their community. The critical objective is to minimize the cost per trip while maintaining service quality. As a strategy to achieve this objective, public transit agencies are increasingly contracting with PHV operators, primarily taxicab companies, to provide public transportation services.

The types of service provided and delivery mechanisms vary. Taxicabs are the primary PHV type used in contracted services. The majority of contracts with taxicab operators, and to a limited extent with other PHV operators, are for the provision of demand-responsive service, specifically for ADA-complementary paratransit service.

The primary reported benefit of contracting with PHV operators is to reduce costs. Contracting can be a very cost-effective alternative for providing certain trip types. Through contracting, a transit agency may reduce expenses by eliminating expansion of a more costly fixed-route service route (i.e., the Cedar Mill Taxi Shuttle in Portland, Oregon) or shortening fixed-route segments in a low-density ridership area. In most programs, these "savings" are put towards additional service, thereby enhancing the mobility of all customers.

Some disadvantages of contracting with PHV operators include a greater potential for fraud if oversight is insufficient, higher insurance requirements for taxicab operators than required for noncontract services, drug and alcohol training expense, and the need to increase driver training beyond that typically required of PHV drivers.

The public contracting agency benefits from relatively strict municipal or county regulations over PHVs. In DuPage County, Houston, and Los Angeles County, local municipalities drive taxicab regulations and there is no countywide regulation. In those locations, the transit agency or other program sponsor needs to make up for lax regulations through stricter contract requirements to exercise uniform control over areas having lax regulations.

Transferability

One purpose of this study was to identify how the case study practices can be applied in other locations. Ann Arbor provides an excellent example of the range of demand-responsive services that can be provided by a private contractor in a medium-size, densely populated city. Localities that have a large elderly population would be especially interested in the Good-As-Gold service, which was praised by elderly residents who participated in a focus group.

The DuPage County Subsidized Taxi Program would work well in communities where there is a need for a user-side subsidy program with the flexibility for sponsors to control their financial exposure by purchasing the fare media in advance. A more

mature user-side subsidy program could be more streamlined, with uniform subsidy rates and rules, similar to King County's Paratransit OPTIONS Program.

The METROLift MSP program is a good example of a fairly direct approach to providing a user-side subsidy program with control on the potential financial exposure while maximizing availability of service. "Worthless vouchers" help to avoid fraudulent claims for trip reimbursements. The MSP program requires a rigorous contracting effort, particularly to protect the transit system's interests in an environment with weak regulations.

The Access program is a good example of a large system contracting almost completely with PHVs, and the outcomes that result from this approach. The Los Angeles approach serves as a reminder that the best service delivery structure for the cost is probably a combination of traditional paratransit service and PHV-provided service. Another lesson Los Angeles presents to other transit systems is that there are measurable gains to be derived by working on the training, drug testing, and insurance issues with the PHV providers in the area.

The Montgomery County experience with contracting for ADA paratransit transportation services demonstrates that cost savings can be realized from contracting with PHV operators.

The Cedar Mill Taxi Shuttle is an example of using taxicabs for feeder service to fixed-route transit as a viable alternative to expanding the fixed-route transit system into areas where it is not generating sufficient ridership to justify the investment. Nearly every urban area that has experienced growth could pursue such a program, provided there are PHV operators available that are willing to work creatively to develop the program.

King County's program for the Paratransit OPTIONS Program is a good example of a user-side subsidy program in an environment where taxicab regulations are progressive and performance-based. This results in better quality service for the contracting agency, with less need for control over the performance of the taxicab operator (and less cost to the transit agency). Other cities with solid, performance-based taxicab ordinances and effective enforcement agreements may be able to use this model for developing contract arrangements.

In addition, the King County Home Free Guarantee program is also a good example for other cities looking to develop a guaranteed ride home feature as part of a ridesharing program. The funding participation on the part of the employers is of particular interest for transit providers faced with the need for other sources of funding programs.

The Wisconsin shared-ride taxicab program offers a model of decentralized provision of human service and general public transportation that could be applied with relative ease to other rural areas. The state oversees allocations of federal and state funds to local municipalities, who contract with local PHV operators to provide service. State policies and procedures are relatively simple and straightforward, and allow latitude for local variation in details of service provision, service standards, and regulation. State audits of the local programs have helped to ensure compliance with funding requirements. Program administration requires approximately three to four full-time-equivalent staff positions. Use of a progressive management fee to reward efficient operators is an idea worth consideration by others.

Other important considerations when evaluating whether a particular model of service is likely to work elsewhere are

- Is the PHV service adding to fixed-route service or replacing fixed-route service?
- What is the level (and type) of fixed-route service that the PHV service feeds?
- Is there support in the community for this type of service?

- What is the service area, and can it be effectively served with a small number of vehicles?
- What is the availability of taxicab operators in the area for this type of service?
- How do the existing taxicab regulations impact the service?
- How cooperative are the transit agency and taxicab operators in addressing transit requirements, such as insurance requirements and drug testing?

The responses to these questions may indicate whether or not using PHVs would work in other locations.

SUGGESTED RESEARCH

This study adds important information to two interrelated and overlapping bodies of literature. One is the study of paratransit modes, herein expanded to include a broader range of services called private-for-hire vehicles. The study reports on a significant new national study of the PHV industry and updates prior studies of the taxicab industry.

It also contributes to a second body of literature—the transit contracting literature. By reporting on eight case studies of transit/PHV contracting, the study adds information to an already robust field of research. This study does not estimate service costs and, hence, does not estimate cost savings. It does, however, resemble many previous studies in this literature in that it is another cross-sectional analysis that does not consider long-term changes associated with contracting.

Given these two bodies of literature and the knowledge added to them by this study, there are several needs for additional research that can be identified:

- Update PHV Study—in about 3 more years another national survey should be conducted to continue this longitudinal analysis.
- Conduct Longitudinal Case Studies of Contracting Experiences—the eight cases studied here should be revisited in the future to understand the temporal changes.
- Develop Minimum Contracting Provisions—a study of specific contract provisions, such as insurance limits would provide would-be contracting parties with best practices information on how to write a contract that meets the agency's goals without adding unnecessary requirements to the PHV operator.
- Develop "Best Practices" Manual—the industry would benefit from a clear set of analyses and recommendations concerning how best to conduct these procedural elements of contracting.
- Synthesis of PHV Regulations—cities and other governmental entities would benefit from a careful synthesis of best practices in PHV regulation.

CHAPTER **1**

INTRODUCTION

It is no secret that conventional public transportation in the United States faces two severe challenges. On the one hand, conventional transit—fixed-route buses and rail systems—must compete for market share in urban areas where dispersed land uses, complex trip-making behavior, and flexible work schedules put fixed-route, fixed-schedule transit modes at a disadvantage compared with the automobile. On the other hand, fixed-route, fixed-schedule transit faces the ever-present need to garner public subsidies in trying to maintain current service levels. Therefore, it is not surprising that in 1995 the National Personal Transportation Survey found that conventional transit captured only 3.13 percent of all commuting trips, a decline from 5.12 percent in 1990 (FHWA, undated). More recent transit ridership data indicate that transit usage between 1995 and 1999 increased by more than 15 percent, of which 4.5 percent occurred between 1998 and 1999 alone (APTA, 2000).

Yet, there exists side by side with conventional transit a range of travel modes that are privately owned and operated, usually demand-responsive, generally unsubsidized, and relatively unencumbered by the burdens faced by fixed-route, fixed-schedule transit modes. These modes have various names that sometimes differ from city to city. The Transit Cooperative Research Program (TCRP) Project B-16 panel labeled these modes: "private for-hire vehicles" (PHVs). These PHV modes include taxicabs, liveries, limousines, shuttles, and other similar services. The definition and scope of PHV services are discussed in Chapter 2 of this report.

The challenge is to understand how transit can more effectively utilize PHV services to achieve a higher market share in a cost-effective manner. Indeed, this challenge is articulated by the project panel as the research goal for TCRP Project B-16:

> *To compile accurate and relevant information on the private-for-hire (PHV) industry and how it can best be incorporated into public transportation services and to engage the PHV and transit industries in the consideration of service collaboration.*

This goal requires the completion of two research objectives. First, it is essential to understand the nature and capabilities of the PHV industry before then applying that knowledge in promoting collaboration between PHV operators and public transportation providers. Second, an understanding of the experience to date of transit operators who have entered into collaborative service arrangements with PHV operators needs to be reviewed. Here, a range of questions must be addressed, such as what are the benefits of such collaborative service arrangements, and what factors act to encourage collaboration or to make collaboration more difficult.

For some elements of the PHV industry, and certainly for many transit operators, the idea of collaborative service arrangements is scarcely new. Indeed, there is an extensive literature analyzing the cost savings for transit operators who have elected to contract with taxicab operators in particular, and many transit systems have extensive experience contracting with taxicab operations for ADA paratransit services. Some cities even have utilized taxicab operators for late-night substitution for fixed-route bus service, for feeder service for fixed-route transit, and for guaranteed ride home service. McCullough (1997) reviewed in detail the literature describing this body of transit contracting experience.

Yet, some other PHV services are less well known among transit operators, and hence, transit operators have less experience in collaborating with them for services. In addition, the recent changes in the taxicab industry, such as the continued trend toward independent contractor drivers and the consolidation of firms, raise questions of how best to contract with these and other PHV operators. Thus, the need exists for the first of the above research objectives—to learn more about the full range of PHV services. This first research objective is addressed in Phase 1 of TCRP Project B-16 and is reported separately in the interim report "The Role of the Private-for-Hire Vehicle Industry in Public Transit" (Gilbert, 1999).

To encourage transit/PHV collaboration, however, it is not sufficient just to learn about and report how PHV services are organized and operated. It is also necessary to learn from experiences of transit operators who have taken steps to contract with PHV operators. Moreover, it is important that this experience be recent, thereby leading to the second research objective—to learn of recent contracting experiences. Of importance are questions regarding what types of contractual provision work best and what types of barriers inhibit contracting.

To achieve this second research objective, eight case studies were conducted in Phase 2 of TCRP Project B-16. These case study sites were selected by the project panel in consultation with the research team and represent a wide range of geographic and service characteristics.

This report summarizes these case studies. Chapter 2 provides definitions and background on the PHV/transit contractual relationship and describes the case study selection process and approach to conducting the case studies. Chapter 3 presents details on the service area, operational data, background on the nature of the contractual relationship, and a description of contracted services. Subsequent chapters present analyses of the eight case studies, conclusions, and suggested research needs.

CHAPTER **2**

BACKGROUND INFORMATION

2.1 PRIVATE-FOR-HIRE VEHICLE (PHV) SCOPE AND DEFINITIONS

Conceptually, the PHV industry is easy to define: it is the range of private urban and rural passenger transportation services that might augment or even substitute for conventional transit services. However, it is not so easy to provide an operational definition of the scope and contents of the PHV industry. Indeed, the TCRP B-16 steering committee struggled with this task and invented the term "private-for-hire vehicle" (PHV) to describe this assortment of private services. The committee assigned to the PHV moniker "primarily taxicabs, but shuttles, limousines, and jitneys are also included." However, this definition is but a starting point in operationally delineating PHV services and their salient characteristics.

To go beyond this point encounters several definitional problems. One is that PHV operators frequently operate more than just one type of PHV service. They also frequently operate PHV services along with services outside the realm of PHV. For example, many taxi operators also operate premium sedan services, van services under contract to third-party providers, and even airport shuttle services. Some also operate charter buses, which fall outside the PHV range of services. Thus, any enumeration of PHV operators encounters the risk of miscounting such important statistics as the number of operators and the number of vehicles operated. Statistics describing the PHV industry must be compiled and interpreted with care.

A second problem is that there is no agreed-upon terminology for and definitions of component PHV services. "Premium sedans," "executive sedans," and "black cars" are but three of the terms used in different cities to mean a service falling between taxi service and limousine service. The term "livery" is particularly ambiguous in that it is used in different ways in different jurisdictions. Webster (1997) uses "livery" to mean a "light-highway-vehicle-for-hire-with-driver." In New York City, "livery" is used to mean a car service, which in other cities would be called a taxicab. The term "taxicab" is used differently in New York City than elsewhere; in New York it means a vehicle that is not dispatched and responds only to street hails. Added to these ambiguities are such terms as "for-hire vehicles," "shuttles," and "jitneys," all of which lack consistent definitions from place to place.

Even the one common characteristic of all PHV services—belonging to the private sector—is not without ambiguity. Many private operators contract with public agencies to provide service, thus raising the questions: What is private and what is public? Is a service private if a private operator operates it even if it is provided under the auspices and funding of a public agency?

Because of these problems two challenges emerge. One is to define exactly what services are included—and excluded—in the range of services making up the PHV industry. Second is to obtain relevant, reliable, and consistent data on these PHV services and operations. This second challenge was addressed by conducting the national PHV survey in Phase 1 of this study. The results of that survey are discussed in Part 1 of this report.

To meet these challenges operational definitions of PHV services must be defined. For purposes of this study, PHV services

- Provide surface transportation for passengers;
- Are owned and operated by private, for-profit firms; and
- Generate revenues through fares, scrip, other fare media, or contract services.

These criteria include the specific services listed by the Project B-16 steering committee:

- Taxicabs,
- Shuttles,
- Limousines, and
- Jitneys.

as well as, several services not included in the committee's list:

- Liveries/car services,
- Executive sedans/black cars,
- Ambulettes, and
- Children's transportation.

The definitions of these service names, as well as other related terms, are included in Appendix C.

Perhaps equally important to the services included within the PHV definition are the services *excluded:*

- ADA or other specialized or general paratransit services operated directly by public transit agencies,

- Charter bus and sight-seeing bus services,
- Transportation operated directly by social service agencies,
- Hotel and other courtesy vehicles, and
- Transportation management firms.

The first exclusion is ADA services operated not by a private contractor but by a transit agency. These services are excluded because they are not in any sense private. The second exclusion is made because charter and sight-seeing operators usually operate motor coaches. Social service agencies, which operate their own transportation, are excluded because they do not involve private, for-profit operators. Courtesy vehicles are excluded because they are available only to the patrons of selected activities, such as hotels, auto repair shops, and other businesses. Transportation management firms, though these function as the private contracted operator in a number of transit systems, are excluded because they typically replace the public agency role in operating service and are not traditional PHV operators.

2.2 TRANSIT/PHV CONTRACTING

Service collaboration between transit operators and PHV operators is certainly not a new phenomenon. There has been a push for several decades for transit operators to contract for transit services. The National Transit Database for 1997 shows that 21.2 percent of the transit vehicles operated in the United States are operated by private operators. The same data show that 7.6 percent of the total transit industry expenditures are for "purchased transportation," of which a large portion is likely spent on privately operated services. Moreover, there has been extensive research conducted on the transit contracting practices in the United States, especially on the magnitude of the resulting cost savings. McCullough (1997) provides an extensive review of this research.

The national PHV survey conducted in Phase 1 of this research project provides valuable information to help understand the scope and nature of contracting between transit operators and PHV operators (Gilbert, 1999). First, the survey results confirm what the previous taxicab studies have shown: The PHV industry is increasingly diverse. It is diverse in its vehicle fleet, in its range of services, and in PHV operators using multiple names. The average number of services offered by a PHV operator is 2.3, and 30 percent of the PHV operators use more than one operating name. This diversification suggests that PHV operators are sensitive to addressing the needs of various market niches and purchase the diverse vehicle fleet necessary to do so.

Diversification also poses difficulties to researchers and policy-makers. It is increasingly difficult to categorize operators, and counting them encounters the real risk of overcounting. The number of PHV operators is estimated between 11,000 and 13,000.

The survey results also confirm that PHV operations are primarily small businesses. As with prior national taxicab studies, this survey shows that well over half of the operators have fewer than 25 vehicles. The results also show that most PHV operators do have local competition from other PHV operators.

The PHV industry uses a wide variety of types of organizational structures, and the results show that taxicab operators have in the past 12 years doubled their use of cooperatives and associations. Most PHV operators are locally regulated and face regulation of their fares and entry controls.

The PHV industry almost uniformly dispatches vehicles. The results show that 31.5 percent of the PHV industry uses computers in dispatching, either as computer-aided or fully automatic dispatching. Among taxicab operators, 12.9 percent use fully computerized dispatching.

The PHV industry depends heavily on the use of independent contractor drivers. Overall, 73.7 percent of PHV drivers are independent contractors. Among taxicab drivers, more than nine out of ten are independent contractors, and the percentage is increasing.

The survey also reveals important information about contracting practices within the PHV industry. Most PHV operators engage in some service contracting, and comparisons with the two most recent national taxicab studies show that the amount of taxicab contracting has increased. Overall, the PHV industry receives 36.7 percent of its revenues from contracts. Although public sector sources are approximately the same in importance as contracting revenue sources as are private-sector sources, transit contracting is only modestly important as a revenue source. Just 26.5 percent of PHV operators contract with transit providers. The two most prevalent types of transit contracting services are ADA and voucher programs (user-side subsidy programs). PHV operators tend to employ the same types of fare systems for contract services as they do for their regular services.

2.3 SELECTION OF CASE STUDY SITES

The overall purpose of conducting in-depth case study reviews is to help organizations responsible for providing public transit and paratransit services to understand better the potential and implications of using PHVs as a key component of a public transportation network.

The case study sites were selected to meet several criteria:

- A mixture of urban and rural situations and various geographical areas;
- A representative mix of services, such as complementary paratransit, fixed-route replacement, rural public, and fixed-route feeders; and
- Various organizational types, including statewide programs and rural, urban, and county-operated systems.

The selection occurred in two stages. First, a list of candidate sites was developed. This list was created using the knowledge of the project team members and the results of Phase 1 telephone surveys. This list of candidate sites was then presented to the B-16 project panel at the panel meeting in June 1999. After a thorough discussion, the panel reduced the number of sites to eight to include

- Ann Arbor, Michigan;
- DuPage County, Illinois;
- Houston, Texas;
- Los Angeles, California;
- Montgomery County, Maryland;
- Portland, Oregon;
- Seattle, Washington; and
- The State of Wisconsin.

2.4 CASE STUDY METHODOLOGY

The first step in conducting the interviews was to determine the most appropriate persons to interview at the case study sites. The study team sought to involve various stakeholders/stakeholder groups to obtain a range of perspectives: transit managers, private operators, local and state government officials, passengers, and nonprofit agencies. The initial contact was made to the local transit manager to request his/her participation in the study. Then the transit manager referred the study team to other key persons or groups to involve in the interviews.

Interviews were arranged at all the case study sites. The participants were sent a copy of the interview instrument for review before the site visit (Appendix B). This advance review of the interview instrument gave interviewees time to anticipate and reflect on the questions they would be asked during the interviews.

The number of persons interviewed at a given site varied depending on the number of private-sector contractors involved and the stakeholders recommended by the transit agency. Some of the interviews, specifically those with passengers, were conducted in a group. Interviews required from 1 to 2 hours to complete.

The research team produced Chapters 3 and 4 of this report to summarize public transit services characteristics and the public/private contractor relationship and then provide some comparative discussion of the study sites on such areas as benefits, obstacles encountered, and lessons learned. This comparative analysis also incorporates some of the findings from the perspective of the PHV operators through the Phase 1 industry survey.

CHAPTER **3**

STUDY FINDINGS

3.1 INTRODUCTION

The Phase 1 research revealed that public transit agencies nationally are utilizing PHVs typically as a primary or secondary public transportation carrier for demand-responsive paratransit service. The following are descriptions of typical demand-responsive service types:

- Americans with Disabilities Act (ADA) complementary paratransit;
- Human service agency demand-responsive service;
- Guaranteed-Ride-Home programs;
- General public demand-responsive transportation (new, replacement, and feeder services); and
- Other specialized paratransit (i.e., seniors, persons with disabilities including non-ADA eligible, low-income, employees, university students).

The research also shows that contracts with PHVs for fixed-route service delivery are primarily for connector or shuttle service to rail or public transit fixed-routes, and late evening replacement services for fixed-route bus service.

The case study transit agencies use PHVs as

- Community circulators (Portland);
- Feeders/replacements for fixed-route (Ann Arbor);
- Primary providers of ADA paratransit service (Los Angeles, Ann Arbor, Houston, and Montgomery County);
- Secondary providers of ADA paratransit service (Seattle, Houston, Portland);
- Human service demand-responsive transportation (Montgomery County);
- Rural transportation (Wisconsin);
- Alternatives for providing specialized transportation for seniors (Seattle, DuPage County, Ann Arbor, Los Angeles); and
- Providing guaranteed rides home for participants in vanpool and carpool programs (Seattle).

The sites selected for in-depth review are considered exemplary, and they provide insights into factors that contribute to successful partnering with respect to each service type.

3.2 CASE STUDY SITES–BACKGROUND INFORMATION

This section provides some general characteristics of the public/private partnership at each of the case study sites. Tables 31 and 32, which display summary data, are followed by a narrative summary of service area demographics, the transportation needs addressed through contracting, the nature of the public/private contractual relationship, contracted service type/description, and operational data.

Table 31 provides background information on the type(s) of contracted services, service area size and population, and the number of annual one-way trips provided at each of the case study sites.

Table 32 contains summary information on the unique features, the problem or need to be addressed through use of contracted transportation services, and the solution developed and implemented at each of the case study sites.

3.2.1 Ann Arbor, Michigan

Public Transportation Agency: Ann Arbor Transit Authority (AATA)

Private Contractor: Paratransit, Inc., Yellow Cab

Ann Arbor, Michigan, 27.8 square miles in area, is considered a medium-size city. The city had a total 1999 population of 109,581. It is home to a large university with a significant student population, approximately 33 percent of the City total population. In addition, there are a large number of senior residents, estimated to comprise 7 percent of the City population in 1990.

The Ann Arbor Transit Authority (AATA) is the lead public transportation agency providing fixed-route, ADA paratransit, and transit services to senior citizens and those with disabilities. The AATA directly operates the conventional fixed-route service and some of the paratransit service. The service area covers the entire city. Trips must originate in Ann Arbor, but end destinations can be beyond the city borders (an additional fee is charged outside the city limits).

The AATA has a fairly lengthy history of contracting with local taxicab companies for services for senior, general public, and ADA-complementary service. The AATA began

TABLE 31 Case study background information

Case Study Site	Contracted Service Type	Contracted Service(s) Name	Service Area Size (Sq. Miles)	Service Area Population *	Average Annual One-Way Trips **
Ann Arbor, Michigan	• ADA Paratransit (Secondary) • Fixed-Route Replacement Service • Guaranteed Ride Home	• Night Ride • A-Ride • Good as Gold	84	110.000	• 39,000 (Night Ride) • 110,000 (A-Ride) • 147,000 (Good as Gold)
DuPage County, Illinois	• Community based non-ADA paratransit	• DuPage Subsidized Taxi Program	336	782,000	38,400
Houston, Texas	• ADA Paratransit (Secondary)	• METROLift Scheduled Sedan Service • METROLift Subsidy Program (MSP)	550	1,900,000	• 839,000 (Sedan) • 237,000 (MSP)
Los Angeles, California	• ADA Paratransit (Primary)	• Access Services, Inc.	1,523	8,900,000	1.6-1.7 million
Montgomery County, Maryland	• ADA Paratransit (Primary)	• ADA Paratransit Service • Call 'N Ride • Medicaid Program	505	757, 027 (county)	• 172,000 (ADA) • 76,000 (Call 'N Ride) • 22,500 (Medicaid)
Portland, Oregon	• Community Circulator/Feeder	• Cedar Mill Community Shuttle	3	7,000	26,000 ***
Seattle, Washington	• ADA Paratransit (Secondary)	• Metro ACCESS • Paratransit OPTIONS	840	1.5 million	• 838,000 (ACCESS) • 143,000 (OPTIONS)
Wisconsin	• Rural Transportation Services	• Not applicable—each locality uses the name of the provider taxicab company	• Wisconsin Rapids: 35 • Marshfield: 35 • Fort Atkinson: 5	• Wisconsin Rapids: 18,700 • Marshfield: 19,300 • Fort Atkinson: 10,227	• Wisconsin Rapids: 66,373 • Marshfield: 86,026 • Fort Atkinson: 56,680

* DuPage County, Houston, Los Angeles and Montgomery County—1990 data; Portland—1997 data; Seattle—1998 data; Ann Arbor, and Wisconsin—1999 data
** Figures are for 1999 with the exception of Wisconsin cities (1998)
*** Data is an estimate because this was a new service

contracting for one type of service, Night Ride, in 1983. This service was initiated to provide a modest level of public transit service for the general public during the evening hours when conventional service was not in operation.

The Authority decided to seek contractor services instead of operating the service in-house because of the lack of resources, and believed contracting would be the most-cost effective service delivery alternative. When an RFP was first issued in 1983, a local taxicab company won the bid. The AATA soon realized some benefits and cost savings in contracting for certain types of services. Today the AATA contracts with one provider, selected through competitive bid procurement. The current and long-standing private provider is Paratransit, Inc., Yellow Cab.

The contracted services are

- ADA-complementary service for persons with disabilities (A-Ride);
- Guaranteed Ride Home general public service during times when conventional fixed-route service is not operating (Night Ride); and
- Senior service (Good as Gold).

A brief description of each service follows.

TABLE 32 Case study characteristics

	Setting or Service Area	Unique Features	Problem/Need	Solution
Ann Arbor	Mid-size densely populated urban area	Lengthy commitment to contracting since 1983; supply-side; contract subsidy.	More cost effective means of handling ADA passengers; need to expand service during period fixed-route not in operation.	Contract with taxicab firm to provide 3 services.
DuPage County	Chicago area suburban county	Countywide taxicab program to provide paratransit service in addition to that provided by Pace Suburban Bus Division of the Chicago RTA; program participants may ride together and share coupons to pay for their trip.	PACE transportation programs do not cover a large portion of the county; local subsidy programs are scant, and not accessible; a transportation program that would be available 24/7 throughout the county.	Sponsor-driven—municipalities and agencies purchase coupons given to or sold to program participants.
Houston	Large urban, suburban area (550 sq. miles)	User-side subsidy (vouchers); vouchers distributed through taxicab company, not customers; unique tracking system matches voucher used with customer at reservation time; driver is unaware of tracking number.	ADA paratransit; how to effectively provide short demand trips more cost-effectively while maximizing the scheduled portion of ADA service.	Developed "worthless vouchers" held by participating taxicab companies; 16,000 vouchers distributed among participating cab companies monthly; vouchers issued to taxicab companies and then to drivers.
Los Angeles	Large urban/ suburban area	Decentralized reservation system, and same-day service allowed PHVs to maximize strengths.	Large, diverse service area that needed full service from the start. Needed to rely on existing service providers to provide this level of service.	Created same-day service standard to avoid pitfalls of other ADA paratransit services. Provided significant guidance to operators to increase service quality and uniformity among operators.
Montgomery County	Suburb of major metropolitan area (Washington DC)	Three programs that together comprise coordinated countywide human service transportation program.	ADA paratransit for WMATA; transportation for low- income or elderly patrons, and/or those who have disabilities; Medicaid transportation.	User-side subsidy program (Call 'n Ride); open solicitation contract to all private operations
Portland	Large urban, suburban, rural area (592 sq. miles)	Uses taxicab operator to provide feeder service to rail station for a community located outside the existing fixed-route bus service area; engaged community to help market to neighbors, reduced cost per trip, and made service effective.	Sunset Station parking facility full, Cedar Mill community difficult to serve with fixed-route bus, and didn't want the service to become part of the union contract, with resulting labor expense.	Fare is the same as for transit; passes accepted, transfers issued. Dedicated service approach enables community to build relationship with "their" drivers, and service quality is maintained; drivers invested in the community and success of the service
Seattle	Large urban, suburban, rural area (2,134 sq. miles)	User-side subsidy; no formal contract with operators; scrip is used for 50% subsidy, reimbursement to the taxicab operators is timely.	Transportation for low-income, elderly residents who are not eligible for ADA, but still need transportation services; contain potential cost exposure.	Operating agreement for participating taxicab companies to accept script from customers and reimbursement from King County
Wisconsin	Small towns (2,700–24,000 pop) + 3 counties	Statewide program with operations in 39 towns and counties; typically comprises the only public transportation service provided in those areas.	Provide public transportation for residents who are elderly and/or who have disabilities; provide general public transportation; maintain taxicab service through private operator.	Provide federal and state money to pay operating deficit incurred by private operator

A-Ride. A-Ride is the ADA-complementary paratransit service for persons with disabilities. To be eligible, a new passenger must complete an application that requires a licensed professional to certify that the individual is not capable of using the fixed-route service. If eligibility criteria are met, AATA issues an identification card. AATA requires trip-by-trip eligibility determination. The Authority itself operates four lift-equipped vans providing the more costly trips, and the rest of the ADA service is contracted out to the same private provider that operates the Night Ride service, Yellow Cab. A-Ride days/hours of service coincide with those of fixed-route bus service: Monday through Friday from 6:00 a.m. to

10:45 p.m.; Saturday from 8:00 a.m. to 6:30 p.m.; and Sunday: 8:00 a.m. to 6:30 p.m. The cost is $1.50 per trip. This service operates within the City limits and through neighboring local jurisdictions that contribute to service costs (the City of Ypsilanti, and Pittsfield, Ypsilanti and Superior townships). Service is also provided to a few other locations just beyond the ¾ mile distance from an AATA local fixed-route. Advanced reservations are required for ADA trips that go outside the Ann Arbor City limits.

Night Ride. Night Ride was initially contracted out to provide more service, not to save money. The program provides subsidized, shared-ride, curb-to-curb service for the general public. It was created to provide a modest level of public transit service at night and on weekends when the AATA's conventional fixed-route transit service does not operate (after 10:45 p.m. weekdays and after 6:30 p.m. weekends). It was designed to provide a less expensive alternative to exclusive ride taxicab service. Although it is less expensive than a for-hire taxicab service, because of the sharing of rides and public subsidy, the Night Ride service also has longer wait and ride times. The fare for the Night Ride program is $2.00 per one-way trip. Elderly persons presenting a valid Good as Gold ID card, and persons with disabilities presenting a valid A-Ride ID card pay $1.50 per trip. This service operates only within the Ann Arbor City limits.

Good as Gold. The Good as Gold Program is a transportation service for Ann Arbor senior residents (65 years of age and older) providing subsidized, shared-ride taxicab, curb-to-curb service and in some cases, door-to-door service. Days and hours of operation are Monday through Friday: 6:00 a.m. to 11:00 p.m. and Saturday and Sunday: 6:00 a.m. to 6:30 p.m. Identification cards are issued to passengers, who display them to the taxicab driver to obtain the reduced fare of $1.50 per trip. A trip is defined as a vehicle trip made from one origin to a destination by one to three individuals who have made a joint reservation. The contractor collects an additional $0.50 for each passenger who is 12 years of age or older, or a personal care attendant traveling with a passenger. This service operates only within the Ann Arbor City limits.

In 1998, the AATA's contracted services ridership constituted 6.21 percent of AATA's total ridership. In the same year, the contracted services provided over 270,000 trips for a total of approximately 105,000 service hours. The three programs (plus an additional small program, East Van) contribute approximately 37 percent of AATA's total service hours. Table 33 compares additional operating statistics of both the AATA fixed-route service and the A-Ride service to the contracted services.

3.2.2 DuPage County, Illinois

Public Transportation Agency: DuPage County Department of Human Services

Private Contractor: AutoRide

DuPage County, just west of Cook County, Illinois, is the center of the Chicago Metropolitan Area. DuPage County is part of the urbanized area and is largely suburban in character. It occupies 336 square miles and has a population of 782,000. DuPage County is generally affluent with only 8 percent of County households having incomes lower than $15,000 in 1990. There are several communities with higher than average proportions of seniors. For example, seniors comprise 28 percent of the population of Oak Brook Terrace and 19 percent of Elmhurst. The majority of the County population resides in the eastern half of the County; the western half is more rural in character.

DuPage County enjoys significant public transportation services in some areas of the County and limited or no services in other areas of the County. The Regional Transit Authority (RTA) of Northern Illinois operates Metra commuter rail service on two lines serving DuPage County, with stations adjacent to the downtowns of several communities.

The Pace Suburban Bus Division of the RTA provides bus and paratransit services in DuPage County. There are 59 Pace bus routes serving most urbanized areas of the County, with ADA-complementary paratransit service accompanying these routes in the ¾ mile standard distance from each route. Many of these routes provide peak-hour express service to Metra rail stations, and are not available for service during the day. Paratransit service is provided during the days and hours of standard fixed-route service, which is offered largely during weekdays and early evening hours. Pace also provides local Dial-a-Ride service jointly with several townships and municipalities in DuPage County. Four of these services are available

TABLE 33 1999 Ann Arbor, Michigan contracted services data

	A-Ride (shared-ride taxicab service)	Night Ride	Good as Gold	East Van
Passengers per Service Hour	2.5	4.1	2.5	1.1
Average Weekday Ridership	403	107	302	36
Average Operating Expense per Passenger	$7.48	$6.64	$6.50	$23.17
Subsidy per Passenger	$6.23	$4.77	$5.10	$21.83

to the general public, and three are available only to passengers who are elderly or have disabilities. All of these Dial-a-Ride services are available only on weekdays.

At the time this research was conducted, the DuPage Subsidized Taxi Program was in the 2nd year of a 3-year pilot program. The service area covers the entire county, with service available 24 hours each day. The program supplements existing transit services by making available taxicab service throughout the County to provide transportation to residents who are not served by the public transit system. Its primary target customers are seniors and persons with disabilities. Participating municipalities and agencies provide subsidies to their customers. Each municipality and member agency determines its level of subsidy, its amount of participation, and its eligibility requirements. However, to drivers, all trips are documented in exactly the same manner. Customers are provided a photo identification card coded with a customer identification number and the sponsor's code. Each sponsor is responsible for distributing ride coupons, valued at $5.00, but sold at a discount, to their respective customers. Customers may use multiple ride coupons to pay for a trip, depending on a sponsor's requirements. Each sponsor tracks the coupons at the time of sale and the program administrator tracks them at the time of use. The PHV operator is reimbursed weekly for all coupons submitted and verified.

The largest purchaser of service is the County Transportation to Work Program, which provides employment transportation for persons with disabilities. The program has always sought to incorporate accessible service, and has succeeded in providing this service at the same fare and rate of subsidy as other trips. This has enabled persons with disabilities to receive service with response times comparable to those from sedan service.

This program represents an approach to providing subsidized transportation service using taxicabs that is easy for smaller operators to use. It also provides flexibility for the sponsoring agencies, with strong broker oversight. The DuPage County Department of Human Services operates as a broker for the Subsidized Taxi Program on a 3-year pilot basis. The County agreed to perform this function to lend credibility to the pilot, and to ensure a base of customers for the contractor as an incentive to start the project. Over the 3 years that the project has operated, demand has increased and stabilized into a significant market. Based on the types of trips provided, particularly for some municipalities and agencies, it is unlikely that this service would have been able to be operated as cost effectively by a transit agency rather than by a PHV operator.

The private operator of this subsidized taxi program is AutoRide, a family-owned, independent taxicab operator located in Villa Park (in the northeast corner of the county). AutoRide operates a fleet of approximately 50 vehicles that are company-owned and leased to drivers. The AutoRide drivers are independent contractors. For the drivers, trips provided as part of this program are performed like regular cash trips, except payment is in the form of vouchers.

Coupons are collected and verified by AutoRide staff, and a bill is submitted to the County on a weekly basis for services provided. Drivers are paid a percentage of the meter amount, also on a weekly basis.

Other PHV operators in the county (but not currently part of this program) include American Cab and Courtesy Cab. Each municipality controls its own taxicab industry, so there are various small municipal providers that do not have the ability to operate countywide. However, pre-arranged service is not addressed in local taxicab regulations, and, therefore, may be provided across municipal boundaries. Other private operators in the area include Laidlaw, which contracts for demand-responsive service with the Village of Addison, and ATC/ Vancom, which operates Pace's paratransit service and five Township demand-responsive programs under contract to Pace. Other private providers are human service agencies that operate their own services and several independent medical transportation providers.

A November 1999 customer service survey revealed that the primary reason customers enrolled for the service was to have backup transportation in case their usual means of transportation was not available. Customers' usual means of transportation was reported to be a spouse or friend. The operational data for DuPage County are summarized in Table 34.

3.2.3 Houston, Texas

Public Transportation Agency: Metropolitan Transit Authority of Harris County (METRO)

Private Contractors: United Cab, Coach USA (Yellow Cab and Fiesta), Liberty, and Square Deal

Harris County is in southeast Texas and includes the City of Houston. The County occupies 1,788 square miles and

TABLE 34 1999 DuPage County, Illinois contracted service data

	DuPage Subsidized Taxi Program
Passengers per Service Hour	N/A—non-dedicated service
Average Weekday Ridership	145
Average Operating Expense per Passenger*	$5.44 - $14.27
Subsidy per Passenger**	$2.57 - $7.21

* Operating expense varies by city. Values shown are averages for participating cities.
** Average subsidy is generally 50 percent of the meter rate (in Wheaton it is 80 percent).

had a 1990 population of approximately 2.8 million people. Of that population, 286,000 or approximately 10 percent, were over age 60. Twenty-three percent of the population, representing 232,000 households, was classified as low income.

The County public transportation provider is the Metropolitan Transit Authority of Harris County (METRO), which operates services within a 1,279 square mile area of the County with a 1990 population of approximately 1.9 million people. METRO operates a large bus system, consisting of local, cross-town, limited, commuter, and express bus routes throughout the urbanized areas of Harris County that participate in the METRO sales tax. There are 66 local, cross-town, and limited routes, of which 95 percent are designated as accessible to persons with disabilities. The entire system is planned to be fully accessible to persons with disabilities by 2002. Express bus service and ADA-complementary paratransit service are also provided.

METROLift was created to provide public transportation services to persons with disabilities within the METRO service area who could not use regular bus service. This service, operated by a private contractor (ATE), is intended to complement existing paratransit service, as required by the Americans with Disabilities Act of 1990 (ADA). In addition to the contracted METROLift services, there are a number of human service agencies that operate their own transportation services or contract for service with private providers. These include the Medical Transportation Program of the Texas Department of Health, Mental Health Mental Retardation Authority (MHMRA), Harris County Social Service Transportation, and the American Red Cross. The METROLift service area is the same as METRO's local fixed-route service area (550 square miles), providing service within ¾ mile from local METRO bus routes in the more densely developed areas of the County.

Eligibility requirements are based upon current federal ADA regulations. The service types operated under METROLift are

- Scheduled Van Service—wheelchair accessible service;
- Scheduled Sedan Service—dedicated taxicab service paid on an hourly basis, not wheelchair accessible; and
- METROLift Subsidy Program (MSP)—same-day service, offering a higher level of service to customers who do not need a van; a specific percent of ADA trips are allocated to MSP program.

All three of these services are operated under contracts with various private operators. This study focuses on the MSP program and the Scheduled Sedan Service, which are operated by local taxicab companies.

In these two programs, taxicabs were used to add transportation capacity at a cost lower than that of the existing paratransit service. The MSP program provides a subsidy for taxicab service on a first-come, first-served basis. This program provides same-day service and is considered a premium service offering greater flexibility than traditional van-based paratransit service. At the time of the site visit, the MSP service was not wheelchair accessible.

In addition to the MSP program, METROLift also contracts with two taxicab operators, Yellow Cab and Fiesta Cab, to provide dedicated sedan service as part of the ADA program. This service, operated by the taxicab company, is scheduled and dispatched by METROLift staff. The taxicab company is reimbursed by the service hour for providing this service.

There are five taxicab operators that contract to provide MSP service—Yellow Cab, Fiesta Cab, United Cab, Liberty, and Square Deal taxicab companies. Yellow Cab and Fiesta Cab are dispatched from the same facility and are both owned by the same parent corporation, Greater Houston Transportation Company/Coach USA. Combined, Yellow Cab and Fiesta Cab hold approximately one-half of all the medallions within the City of Houston and have the greatest share of contract work. United Cab is the second largest taxicab company, with approximately 200 taxicabs in cash service. United also operates vehicles that provide dedicated Medicaid contract service. Contract work, including private businesses, social service agencies, and transit, account for approximately 35–45 percent of the workload of the largest operators. Smaller taxicab operators focus more on cash work, such as trips from airports and hotels. There are also a significant number of independent operators, some providing service in niche markets and some focusing on major trip generators.

The operational data for the Houston case study site are summarized in Table 35.

TABLE 35 FY 1998 Houston, Texas contracted services data

	METROLift Scheduled Sedan Services	METROLift Subsidy Program (MSP)
Passengers per Service Hour	1.97	6.83
Average Weekday Ridership	2,800	800
Average Operating Expense per Passenger	$14.21	~$5.84*
Average Subsidy per Passenger	$13.46	$4.84

* Customer pays $1 plus any fare over $9—average trip length was 3.5 miles.

3.2.4 Los Angeles, California

Public Transportation Agency/Broker: Los Angeles County Metropolitan Transit Authority/Access Services, Inc.

Private Contractors: San Gabriel Transit, United Independent Taxi Drivers, CJVP, Antelope Valley Transit Authority, Laidlaw, and City of Santa Clarita.

Los Angeles County, in Southern California, includes the City of Los Angeles and more than 40 other municipalities, including Burbank, East Los Angeles, Long Beach, Pasadena, and others. In 1990, the County population was 9,300,000, with 20 percent of County residents having a household income of less than $15,000. Thirteen percent of the population of Los Angeles County was age 60 or older. This segment of the population is anticipated to increase at a faster rate than that of the general population. Communities with a larger than average proportion of elderly residents also tend to have a larger than average proportion of residents on a fixed income, and a larger than average proportion of residents at risk for having a disability that impacts their ability to drive. The City of Los Angeles, along with many other County municipalities, operates subsidized taxi services for those who are elderly or have disabilities separately from the Access Services, Inc., program.

The Los Angeles Metropolitan Transit Authority (MTA) operates a large bus system, plus three rail lines. The rail lines are as follows. The Blue Line operates between Long Beach and Downtown Los Angeles; the Green Line operates between Redondo Beach, LAX, and Norwalk; and the Red Line operates between Union Station, Downtown Los Angeles and Wilshire Center. Service to North Hollywood began operation in 2000. There are numerous public transit operators providing fixed-route bus service in areas throughout the County and beyond.

Access Services, Inc. (ASI) was designed to provide ADA-complementary paratransit on behalf of the 50 public operators in the County, resulting in a large and diverse service area. The service area covers 1,523 square miles.

Eligibility requirements are based upon current federal regulations corresponding to the Americans with Disabilities Act of 1990 (ADA). The service area was divided into eight geographic areas. As of July 1, 1999, the service area was also divided according to provision of advance reservation and real-time scheduled service. Because this latter change was initiated just prior to the case study visit, it is not evaluated here. The service areas are generally divided along municipal and geographic boundaries such as the Santa Monica Mountains and the San Gabriel Mountains. Most trips occur within a single service area; however, because of the expanses of unserved areas between service areas, there are occasional requests for extremely long trips.

At the time of the case study visit, the following taxicab operators had contracts with ASI: San Gabriel Transit, United Independent Taxi Drivers, CJVP (Community Joint Venture Partnership, which includes LA Taxi, Fiesta, United Checker, South Bay Yellow, and other taxicab companies), Antelope Valley Transit Authority, Laidlaw, and City of Santa Clarita. Three of these providers, CJVP, United Independent Taxi Drivers, and San Gabriel Transit, are taxicab operators in Los Angeles County. In addition to the ASI paratransit services, there are a number of human service agencies that operate their own transportation services or contract for service with private providers. ASI plays a role in coordinating these services as the Consolidated Transportation Services Agency (CTSA) for the region.

During the development of the ASI service network, the reliance on taxicab operators as primary service providers has resulted in both positive and unforeseen impacts. It is unlikely that a traditional paratransit provider using pre-scheduled service could have accommodated the increase in ridership over the program's first 5 years. It is also unlikely that costs could have been maintained during this period, particularly for long trips between different areas of the County. With more than 3,000 daily trips provided by independent taxicab operators, the service has been quite flexible and well received by customers.

Because of the area's economic growth during the late 1990s it has been difficult maintaining sufficient availability of trained drivers. ASI has used incentives to encourage drivers to provide trips that are less economically attractive, such as short trips or trips located in remote areas of the County. These incentives have included providing a bonus payment to drivers for such trips, pairing an economically unattractive trip with a longer, more attractive trip, or providing a trip using a dedicated driver.

As service has been readily available on a same-day request basis, and the service was well-promoted, ridership was anticipated to grow at a high rate during the initial 2- to 3-year period, then to level off. In practice, ridership has grown each year, doubling over the initial 5-year period. However, in Fiscal Year 2000, ridership remained at the previous year's level.

ASI service was designed to maximize the use of PHVs to accommodate a large number of diverse trips and to reduce the costs associated with providing dedicated service (such as deadhead costs). Costs have grown at a rate greater than ridership, indicating the need for incorporating new approaches into the service model to maximize efficiencies where possible. One new approach is to divide routine scheduled trips into "steady access," i.e., subscription trips, which allows these trips to be routed and scheduled in advance on dedicated vehicles. As this change was implemented only recently, the extent of cost savings is not yet known.

Based on service indicators, the trip-making rate is lower than would be expected for a same-day request service. This indicates that there is more demand yet to emerge, that customers are unsure of receiving service on the day it is

TABLE 36 Los Angeles, California, contracted services, June 1999 revenue miles and hours and passenger trips

Area/Provider	Passengers	Revenue Miles	Revenue Miles/ Passenger	Revenue Hours	Passenger/ Revenue Hour
Area A/SGT	7,984	83,545	10.46	2,632	3.03
Area B/SGT	37,586	315,895	8.40	11,624	3.23
Area C/DAVE	9,314	82,070	8.81	4,438	2.10
Area D/CJVP	14,771	121,523	8.23	5,033	2.94
Area E/CJVP	41,104	350,018	8.52	14,322	2.87
Area F/ UITD	23,989	214,779	8.95	7,043	3.41
Area G/ A V	673	7,459	11.08	294	2.29
Area H/ S C	214	1,173	5.48	73	2.93

requested, or that other providers in the County are meeting customers' transportation needs. ASI continues to budget to accommodate rapid growth in demand, and the steady access approach should help address the concerns of customers who want to make advance trip reservations.

Because the ADA paratransit system was designed with the benefits of using PHVs from its inception, the cost benefit observed by some other transit agencies shifting to contracts with PHV operators has not occurred in Los Angeles.

Table 36 summarizes operating statistics for each of the eight geographic areas/contractors providing service in Los Angeles.

Table 37 presents a summary of operational data for the Los Angeles case study site.

3.2.5 Montgomery County, Maryland

Public Transportation Agency: Montgomery County

Private Contractors: Barwood, Inc., Regency Cab Company, Action Taxi

Montgomery County is located in Maryland adjacent to Washington, D.C. The 1990 County population was 757,027 (U.S. Census) and the county is 550 square miles in area. The 1990 median household income of $54,089 was well above the national average of $30,056.

Private-for-hire vehicles are used to provide public transportation services for three programs in Montgomery County. Those programs include

- ADA Paratransit service—to provide transportation to persons with disabilities;
- Call 'N Ride Program—a county program to provide transportation to low-income residents who are elderly and/or have disabilities; and
- Medicaid transportation program—used only for travel to and from medical appointments and is a program of last resort or a safety net for those least able to access medical care.

These three programs provide the bulk of human service public transportation in Montgomery County, functioning as a countywide coordinated system. Human service agencies in the County generally do not operate their own transportation services.

ADA Paratransit. Montgomery County and neighboring Prince George's County started providing ADA paratransit transportation services for Washington Metropolitan Area Transportation Authority (WMATA) in May 1994. Trips are booked through a central reservations office operated by WMATA serving the metropolitan area. Trips are distributed to the two counties based on the geographic areas of the trip origins and destinations and the numbers of vehicles available in each of the counties. WMATA notifies the county of each trip request. If a trip lies entirely within Montgomery County, the County schedules the trip. If a trip involves travel between Montgomery and Prince George's Counties or between one of the Counties and Washington, D.C., WMATA schedules that trip. ADA paratransit trips are mostly exclusive ride trips because of the timing and location of individual trip requests.

TABLE 37 1999 Los Angeles, California contracted services data

Access Services, Inc.	
Passengers per Service Hour*	2.98
Average Weekday Ridership	5,100
Average Operating Expense per Passenger**	$18.92
Average Subsidy per Passenger	$18.92

* Varies from 2.10 to 3.41, by area
** Varies from $16.75 to $39.81, by area

Service was originally operated during daytime hours on Monday through Friday, but expanded to 7-day service with evening hours of operation by January 1997. The State of Maryland pays for ADA trips. Initial operations in Montgomery County included use of buses and taxis. However, a review after the first year of operation revealed that the price of a bus trip was three times that of a taxi trip. Approximately 35 percent of trips had been on buses, with the remainder provided in taxis. Using taxis avoided the need to pay for deadhead time and driver salaries. In April 1996, a decision was made to provide all trips using taxis. All bus drivers who had been involved in providing ADA paratransit service were placed in other positions operating fixed-route services. Two administrative positions were also shifted to fixed-route operations. Current hours of service for the program are 5:30 a.m. to midnight each day.

Call 'N Ride Program. The Call 'N Ride Program is a county program to provide transportation to low-income residents who are elderly and/or have disabilities. Eligible participants may purchase coupons for taxi service at a discounted rate with the County subsidizing the difference in price between that paid and the face value of the coupons. There is a sliding scale for the discount price. Most clients pay the most heavily discounted rate of $5.25 for $50 worth of coupons. For Fiscal Year 1999, 17,439 of 18,872 coupon books were sold at this rate.

Eligible participants, such as a family of one with $20,000 or less of annual income, could initially purchase one book of coupons per month. In August 1999, clients were allowed to purchase a second $50 book of coupons per month. The popularity of this program is demonstrated by the observation that one-half of clients opted to purchase a second coupon book when this option became available. The primary client is female between ages 80 and 90. The most frequent trip purpose has been travel to medical appointments.

No advance reservation is required for this service. A client calls one of three authorized taxicab companies to make a trip request. Trips are scheduled into the normal dispatch schedule of that taxicab company. The full fare is charged for each trip. Upon reaching the destination, the driver collects the coupon from the traveler and turns it in to the taxicab company, which then redeems the coupon with the county. This program receives some state funding but is administered by the county. Presently, this service is available 24 hours daily.

Medicaid. The Medicaid transportation program is used only to travel to and from medical appointments, and is a program of last resort or safety net for those least able to access medical care. Clients must be certified for each trip. The County Medicaid office conducts intake activities for these trips. Clients are screened over the telephone to determine if other travel options exist. For example, a client may be asked how they travel to other places, and if they ever travel by public transit. Every trip is screened via telephone. After receiving and approving a trip request, County paratransit office staff prepare a trip manifest and fax it to one of the three taxicab companies contracted to provide this transportation service.

Initially, this program operated on a reimbursement basis using the full meter rate. Payment then shifted to a flat rate of $1 per mile; however, taxicab drivers were unhappy with this rate and claimed they were subsidizing the program out of their own earnings. The County agreed to increase the rate but stopped paying drivers for client no-shows, as there had been evidence of excessive no-show claims by some drivers who attempted to raise additional fare revenue. In Fiscal Year 2000, the County returned to using the full meter rate to avoid burdens to clients and drivers. Drivers will report full meter charges to their taxicab company, which will then bill the County. State funds are provided to the County through a grant.

Although taxicabs are used for all curb-to-curb trips, other contractors such as ambulette operators are used for transporting nonambulatory clients. The State of Maryland pays the entire expense for this program. Service is operated on a 24-hour advance reservation basis, and transportation is provided Monday through Saturday during business hours.

Table 38 provides selected operational statistics for these contacted services.

3.2.6 Portland, Oregon

Public Transportation Agency: Tri-County Metropolitan Transportation District of Oregon (Tri-Met)

Private Contractor: Sassy's Cab Company

The Tri-County Metropolitan Transportation District of Oregon (Tri-Met), the Portland-area regional public transportation system, services portions of Clackamas, Multnomah, and Washington counties, covering 592 square miles with a total population of approximately 1.2 million.

TABLE 38 FY 1999 Montgomery, Maryland, contracted services data

	ADA	Call N' Ride	Medicaid
Passengers per Service Hour	26	9	8
Average Weekday Ridership	470	208	60
Average Operating Expense per Passenger	$19.24	$10.09	$34.15
Average Subsidy per Passenger	$17.24	$6.62	$34.15

Note: Passengers per service hour calculated from data.

Tri-Met operates an extensive light rail system (MAX) and a large fixed-route bus system. Over 700 buses operate on 74 local, 7 cross-town, and 16 express bus routes.

Cedar Mill is located in Washington County on the northwest side of Portland, north of Beaverton. The Cedar Mill area, approximately 3 square miles in area, had an estimated 1997 population of 7,000, of which 11 percent were senior citizens. The median household income for the Cedar Mill area of $39,288 was greater than average for that of any of the three counties in the Portland urban area. In 1990, approximately 10 percent of the Cedar Mill households had incomes of less than $15,000 per year.

The Cedar Mill Taxi Shuttle operates between the Cedar Mill area and the Sunset Transit Center. The Sunset Transit Center is a central transfer point for bus and rail transit, and also sees significant park-and-ride activity. Westside MAX light rail service and several bus routes converge at the transit center, providing rail service to downtown Portland and to Beaverton and bus service to other areas. A multilevel parking structure is located at the Center, however, at the opening of the transit center, the demand for parking quickly exceeded the capacity of this facility.

The Cedar Mill Taxi Shuttle was envisioned as a way of alleviating the parking problem while serving a community that was outside the Tri-Met fixed-route bus service area. The goal was also to implement a flexible feeder service at a cost comparable to fixed-route service with minimal start-up cost. Because the Cedar Mill street network is not well suited for fixed-route service because of its hilly terrain and narrow streets, Tri-Met considered taxicab service and conducted a competitive bid process for a contractor to provide feeder service.

Sassy's Cab Company was awarded the pilot contract to provide the Cedar Mill Taxi Shuttle service. It was agreed that the service would be maintained beyond the pilot program period if it proved cost-effective. Sassy's Cab Company is a small, family-owned taxicab company with approximately 25 vehicles in service. They operate four accessible vans and are planning to replace existing vehicles, which are up to 9 years old, with minivans fleetwide. The taxicab drivers are largely independent contractors; however, there are several employee drivers in addition to the two drivers operating the Cedar Mill Taxi Shuttle. Contract business makes up approximately 40 percent of the company's work. The company operates a package delivery service, and has contracts to provide transportation services to businesses, HMOs, the public school system, and public transit agencies. Because of the provision of school transportation, all company employees and drivers participate in a drug-testing program consistent with Department of Transportation regulations. The company's cash business is focused on the south side of Portland and in neighboring Clackamas County.

Cedar Mill Taxi Shuttle taxicab drivers receive pickup requests and trip cancellations via cellular telephones. Because the service area is small and well defined, the two drivers manage their own trip manifests. Drivers also negotiate pickup requests among themselves, depending on a driver's availability and proximity to the pickup location. Sassy's Cab Co. recently purchased computer scheduling and dispatching software for use with its cash and other non-dedicated contract service business. This software could be used for scheduling and dispatching if the Cedar Mill Taxi Shuttle grows to serve other areas.

For guaranteed service, trip reservations must be made 6 hours in advance for peak-period trips. Trip requests made with less advance notice during these peak periods are scheduled on a space-available basis. Pickup is guaranteed to take place within 1 hour of placing a trip request during midday, off-peak hours.

Table 39 provides a summary of operational statistics for the Portland case study site.

3.2.7 Seattle, Washington

Public Transportation Agency: King County Department of Transportation, Metro Transit Division

Private Contractors (Home Free Guarantee Program): Farwest Taxi, Checker Deluxe Cab, Puget Sound Yellow Taxi, Checker Cab Company, STITA

TABLE 39 FY 1999 Portland, Oregon, contracted services data

Cedar Mill Taxi Shuttle	
Passengers per Service Hour	5
Average Weekday Ridership	100
Average Operating Expense per Passenger	$4.00*
Average Subsidy per Passenger	Approximately $2.90**

* This expense was reduced to $3.64 following purchase of minivans in August 1999.

** Subsidy amount is approximate as most passengers transfer to/from MAX or fixed-route bus service, which involves a Tri-Met All-Zone Fare of $1.40 versus a Single Zone Fare of $1.10 for just the Cedar Mill Taxi Shuttle.

Private Contractors (Paratransit OPTIONS Program): Cascade Cabulance, Checker Deluxe Cab, Farwest Taxi, Graytop of Seattle, Hawley's Northend Taxi, Karma Kab, Orange Cab, Pierce-King Cabulance, Rainbow Taxi, Redtop Cab, STITA, TLC Cabulance, and Puget Sound Yellow Taxi.

King County is on the east side of Puget Sound in western Washington and includes the City of Seattle. The County's 2,134 square miles vary in landscape from urban to rural, with mountainous terrain. The Central Puget Sound area population is approximately 3.1 million, and the King County population is 1.6 million, based on 1998 estimates. Although senior citizens constituted 15 percent of the regional population in 1990, they constituted 19 percent of the population of the City of Seattle. The City of Seattle also has a large percentage of households with low incomes, with 24 percent of all households having incomes of $15,000 or less in 1990.

The Metro Transit Division of King County Government (Metro) operates a large bus system of approximately 1,300 vehicles including electric trolleys, dual-powered buses and streetcars, all of which are accessible to people with disabilities. The Metro bus system serves more than 75 million trips annually within a service area covering 2,128 square miles (nearly all of King County).

In addition to fixed-route transit service, Metro also operates one of the largest vanpool programs in the country, with over 500 vans serving 5,000 people daily. This vanpool program includes a guaranteed ride home program (the Home Free Guarantee program), which provides subsidized taxi trips to vanpool program participants who are authorized through their employer and need an emergency trip home. The vanpool program also includes a program that provides home-to-work transportation for welfare recipients. The Home Free Guarantee program is also provided to the welfare-to-work program participants.

The Metro paratransit service area covers 840 square miles of the total 2,128-square-mile Metro service area, representing the Metro service area where local bus service is provided. Metro operates two paratransit programs: ACCESS Transportation service (ACCESS) and the Paratransit OPTIONS Program. ACCESS services are operated by a contracted management services company, which provides lift-equipped van transportation that is brokered through a human service agency. Metro ACCESS was designed to provide complementary paratransit service for people who cannot use the fixed-route transit bus because of a disability (ADA-complementary paratransit). Some ACCESS contractors subcontract with taxicab operators for provision of backup service.

Metro's Paratransit OPTIONS Program is a user-side subsidy taxicab program that provides transportation to low-income senior citizens as well as ADA paratransit customers. This subsidized taxi program is unusual, in that Metro does not contract with the taxicab operators but has an agreement with taxicab operators for the taxicab companies to accept scrip from eligible passengers. Non-ADA Paratransit OPTIONS Program customers must be 65 years of age or older or certified by a doctor as having a disability and must have an income that does not exceed that of twice the poverty level.

King County Metro provided fixed-route accessibility prior to the implementation of the ADA. When the ADA regulations became effective, Metro was then required to develop an ADA-complementary paratransit program. In Seattle, there was a history of providing subsidized taxicab service to low-income seniors and people with disabilities, some of whom might not have qualified for the ADA-complementary paratransit service under the ADA criteria. For this population, the Paratransit OPTIONS Program provides an opportunity to blend the user-side subsidy taxicab program with the new ADA van program (ACCESS) to get the best productivity and flexibility from the service. The Paratransit OPTIONS Program is designed to provide access to van and taxi service without impacting the service provided to ADA-eligible customers.

The Paratransit OPTIONS Program allows both ADA-eligible customers and OPTIONS-eligible customers (Reduced Fare Permit holders) to preschedule a trip on ACCESS vans or to purchase up to six books of taxi scrip per month. Each scrip coupon is worth $10 of metered taxi fare. Reservations for van service may be made 1 to 7 days in advance of travel. Hours for making reservations are 8:00 a.m. to 5:00 p.m. weekdays. There are four travel zones for van service, and travel must occur within the zone in which a resident lives. Van service is operated between 5:00 a.m. and 10:00 p.m. Monday through Friday.

Customers using taxi scrip make their own reservations. Taxi scrip may be used for travel throughout King County 24 hours per day, 7 days per week. The taxi driver must enter all trips for which scrip is used on a scrip tally sheet, which is submitted to the County for reimbursement at face value. Tally sheets may be submitted no more frequently than once per month, with no reimbursement provided for improperly recorded trips.

Thirteen taxicab operators participate in the Paratransit OPTIONS Program. These are Cascade Cabulance, Checker Deluxe Cab, Farwest Taxi, Graytop of Seattle, Hawley's Northend Taxi, Karma Kab, Orange Cab, Pierce-King Cabulance, Rainbow Taxi, Redtop Cab, Seattle-Tacoma International Taxicab Association (STITA), TLC Cabulance, and Puget Sound Yellow Taxi. For the Home Free Guarantee program, Metro contracts with five taxicab operators: Farwest Taxi, Checker Deluxe Cab, Puget Sound Yellow Taxi, Checker Cab Company, and STITA.

As King County Metro is part of the County government, a County Council ordinance is necessary to enact a change in the paratransit program. This control extends over service policies and the fare structure. The County is considering requiring accessible taxicabs to be part of the fleet. At the time of the study, this regulation had not yet been implemented. In addition, regulations requiring taxicab drivers to

undergo drug and alcohol testing had not been addressed in the regulations. Because a customer has the ability to choose a taxicab company, drug and alcohol testing are not required by the U.S. DOT regulations.

Refer to Table 40 for a summary of operational data for the Seattle case study site.

3.2.8 Wisconsin

Public Transportation Agency: State of Wisconsin, 43 Local Governments

Private Contractors: River City Cab Company (Wisconsin Rapids), Radio Cab of Marshfield Inc. (Marshfield), Brown Cab Services (Fort Atkinson)

Wisconsin communities operating shared-ride taxi programs ranged in 1990 population from 2,680 (Neillsville) to 23,916 (West Bend), with an average population of 9,042 (U.S. Census, 1990). Shared-ride taxicab programs are also operated in three counties. The populations of these three counties (excluding municipalities served with their own shared-ride taxi programs) are 39,556 (Grant County), 59,798 (Ozaukee County), and 71,412 (Washington County). The total population of municipalities and counties operating a shared-ride taxi program is 514,369 or approximately 11 percent of the 4,891,769 population of the state in 1990.

The percentage of Wisconsin residents over age 65 was slightly greater than that of the national average (13.3 percent versus 12.6 percent). The Wisconsin median household income of $29,442 was nearly the national median household income of $30,056. The percentage of persons in poverty was significantly lower in Wisconsin than for the nation as a whole (10.7 percent versus 13.1 percent). This percentage holds true for all ages. On average, Wisconsin is more rural than the United States, with 34.3 percent of residents living in rural areas versus 24.8 percent nationally.

The State of Wisconsin shared-ride taxi program began with one site, Ripon, in 1979. The program was funded entirely through state funds in 1979 and 1980. There was a taxi operator in Ripon, but increased vehicle operation and insurance costs made continued operation of that business difficult. The taxi operator explained his needs to the city and noted that 75 to 80 percent of his passengers were elderly and without other sources of transportation. To maintain transportation service for these passengers, the city requested, and was granted, operating assistance from the Wisconsin Department of Transportation.

The shared-ride taxi program grew to include 43 sites in 1999. No model was used to develop the original program in Ripon. However, Ripon and other early programs have been used as models for subsequent programs started throughout Wisconsin. The program is administered through the Division of Transportation Investment and Planning, Bureau of Transit and Local Roads. Approximately four to five Wisconsin DOT staff (the Section 5311 manager plus several other staff) are involved in various aspects of administering and managing the program at the state level.

The State of Wisconsin uses shared-ride taxi services to provide public transportation in small cities throughout the state (a Wisconsin city may be as small as 2,500 in population). The state subsidizes the difference between operating revenues and operating costs (minus revenues from exclusive ride taxi service and package delivery). The local municipality, the contractor, or a combination of both owns vehicles. Drivers are typically employees of the contractor, who is responsible for ensuring compliance with drug and alcohol testing requirements.

Three of the 43 Wisconsin localities implementing this taxicab service—Wisconsin Rapids, Marshfield, and Fort Atkinson—are included in this study. Background information on those three sites follows.

Wisconsin Rapids. The City of Wisconsin Rapids had a 1990 population of approximately 18,700. The city is located in central Wisconsin on the Wisconsin River, and encompasses an area of approximately 35 square miles. The median 1989 household income in Wisconsin Rapids of $25,759 was significantly less than the statewide median household income of $29,442.

The shared-ride taxi program was started in Wisconsin Rapids in 1981 at the request of a taxicab operator, Blue Line Cab, to City officials. The program was in operation through 1982, but was discontinued during 1983 to 1984. During that period the taxicab company operated without a subsidy for approximately 1 year, then went out of business.

In 1985, the City operated its own vehicle, the "Shuttle Bug" to provide transportation for residents who were elderly and/or had disabilities. Donations were accepted, with passengers asked to donate 50 cents per trip. At that time, the City spent $30,000 to $35,000 annually for operation of the Monday through Friday service.

TABLE 40 1998 Seattle/King County, Washington, contracted services data

	ACCESS	OPTIONS
Passengers per Service Hour	1.43	N/A—non-dedicated service
Average Weekday Ridership	2,900	500
Average Operating Expense per Passenger	$23.23	$11.80
Subsidy per Passenger	$22.75	$5.90 (50%)

TABLE 41 1998 Wisconsin contracted services data

	Wisconsin Rapids	Marshfield	Fort Atkinson
Passengers per Service Hour (revenue)	2.2	3.4	3.7
Average Weekday Ridership	184	235	157
Average Operating Expense per Passenger	$7.88	$4.30	$4.40
Average Subsidy per Passenger*	$5.04	$2.67	$2.95

* Calculated from 1998 statistics—expense not covered under operating ratio multiplied by expense per passenger.

In 1987, the owner of Bob's Cab Company, approached the City and asked to participate in the state's shared-ride taxi program. Bob's Cab Company operated the program until 1998, when the contract was awarded to River City Cab, the current operator. All City-owned vehicles were transferred from Bob's Cab Company to River City Cab following the change in contract operator. Many drivers also changed their affiliation to the new company. Bob's Cab Company is now out of business. The former owner stated that there is not sufficient business in Wisconsin Rapids to support two taxicab companies.

Marshfield. The City of Marshfield, population of approximately 19,300 (1990), is located in central Wisconsin and encompasses approximately 35 square miles. The median 1989 household income in Marshfield of $26,728 was less than the statewide median household income of $29,442.

The Marshfield shared-ride taxi program was the third shared-ride taxi program to operate in Wisconsin, starting operations in 1983. A similar transportation service for residents who are elderly and/or have disabilities, the Little Red Wagon, was started in 1981. Municipal, county, and state sources funded this service. Transportation service was provided to residents over age 60. The service operated from 8:00 a.m. to 4:00 p.m. weekdays, and was available on an advance reservation basis.

In an effort to provide additional public transportation options, the town's mayor requested the state DOT to conduct a study to establish a fixed-route transit system in the city. That study was conducted but plans to start a fixed-route transit system were rejected by the city council. The mayor then asked the local taxicab company to provide service through the shared-ride program. Both the Little Red Wagon and the shared-ride taxi service operated for 2 to 3 years. Only the shared-ride taxi service has been operated since then.

Fort Atkinson. The shared-ride taxi program has been in operation in Fort Atkinson since 1987. Transportation service is presently provided through a contract with Brown Cab Service, which also provides service in Jefferson, Lake Mills, Watertown, and Waterloo in Jefferson County, and in five other cities throughout the state (Whitewater, Medford, Monroe, Sun Prairie, and Waupaca).

The City of Fort Atkinson had a 1990 population of approximately 10,227. The city is in southeastern Wisconsin on the Rock River and encompasses approximately 5 square miles. The median 1989 household income in Fort Atkinson of $28,892 was less than the statewide median household income of $29,442. The percentage of persons in poverty was lower than the average for Wisconsin (8.0 percent versus 10.7 percent).

Refer to Table 41 for a summary of operational data of the Wisconsin case study sites.

CHAPTER **4**

CASE STUDY ANALYSES

4.1 INTRODUCTION

This chapter examines highlights from the case studies by functional area, defined to include

- Funding,
- Selection process,
- Contract terms,
- General administration,
- Public/private roles and responsibilities,
- Regulatory requirements, and
- Operations.

Each of these functional areas is discussed in Section 4.2. Section 4.3 includes a review of lessons learned from the case studies, including a discussion of the benefits and barriers to an effective contractual relationship. Section 4.4 discusses the correlation between the case study findings and the Phase 1 taxicab industry responses on the perceived benefits and barriers of contracting with public transit agencies.

4.2 COMPARATIVE ANALYSIS BY FUNCTIONAL AREA

4.2.1 Funding

Transportation programs using PHVs can be structured to limit the financial cost to the customer, the sponsoring agency, or both. A program design should reflect the financial goals of the funding entity.

Operational costs of the DuPage County Subsidized Taxi Program were funded through sponsor funds (typically at either a 50 or 80 percent rate) and customer contributions. The County has funded administrative costs, which totaled $62,000 for the first year of operation.

In Houston, the MSP program subsidy (up to $8 per trip) is funded from local sales tax revenues. The Seattle Metro Paratransit OPTIONS program is funded 50 percent from local funding, 50 percent from customer fares, and the subsidy per customer is capped at $60 per month.

In Los Angeles, the subsidy for the ASI service is funded primarily by tax revenues from the Los Angeles County Metropolitan Transit Authority.

In Wisconsin, in FY 1998, state and federal funds covered 67.4 percent of the cost to operate each shared-ride taxicab program. If a local program can raise the remaining 32.6 percent of the cost through farebox revenues, no additional local funding assistance is required. Those programs that do not cover 32.6 percent of operating costs through farebox revenues must use additional local funding to reach that amount.

FTA Section 5310 funds have been used to offset capital costs of transportation programs at several sites, including Los Angeles and some Wisconsin shared-ride taxi programs. However, as the rules for use of Section 5310 funds now allow purchase of service as well as vehicles, the availability of this funding source to pay for vehicle purchase costs is reduced. As a result, transportation programs will need to develop additional capital funding sources. Those sources could include funds from PHV operators or other local sources. Such local funds would be used to match additional funds available from other federal agencies. FTA Section 5311 funds were utilized as a primary funding source by all the case study sites.

Comparing the subsidy structure of several case study sites reveals an apparent correlation between subsidy limits and the most frequent type of trip made by customers. In Houston and King counties, where the subsidy level is capped (by the trip in Houston and by the month in King County), the average trip length is generally short. Interviews with staff at those sites indicated that customers are aware of the potential for unlimited out-of-pocket costs using local programs. The opposite situation appears to be the case in Los Angeles, where the customer contribution is capped at a maximum of $4.00 per trip, and the subsidy is unlimited. The average length of ASI trips has increased over time, which suggests that customers are maximizing their financial contribution by making longer trips than if the subsidy were capped.

4.2.2 Selection Process

All of the case study contracting agencies, with the exception of Seattle's Paratransit OPTIONS program, secure contractors through an open bid solicitation process and require a written contract between the public agency and the PHV operator(s). For example, in the Wisconsin programs, each of the 40 municipalities and three counties operating a shared-ride taxi program is responsible for conducting a competitive bid process and developing the terms of their contracts. The Wisconsin DOT provides RFQ and RFP templates to

the municipalities operating shared-ride taxi programs for their use, and provides language and standard contract clauses as per federal contracting requirements for use in contracts between municipalities and contractors.

Most sites establish eligibility criteria in the solicitation that can serve to limit bid responses. For example, in Montgomery County, only those PHV companies operating within the County and meeting other requirements are eligible to participate in the programs.

Many of the public agencies interviewed have established long-term contractual relationships with specific PHV companies. For example, the AATA has primarily contracted with only one PHV operator since it first began contracting for service. Yellow Cab was awarded the Night Ride contract in 1984, has continued to win this bid, and is also the provider of the other two major services.

Many agencies seek to contract with established PHV operators who have a record of providing reliable service. Los Angeles ASI seeks to contract with PHV operators who are strong financially and have sufficient management staff to ensure that reporting and training requirements will be met. The size and financial strength of a potential PHV operator is also a consideration in Houston, because of the increased insurance and training requirements the transit agency places on PHV contractors.

Tri-Met focused on different criteria when selecting Sassy's Cab Co. to provide service for the Cedar Mill Taxi Shuttle. Selection focused on the ability to provide excellent customer service while maintaining flexibility to respond to changes in the program as it developed. Assigning dedicated drivers to the Cedar Mill Taxi Shuttle has contributed to the perception of a high level of service quality for customers using the service.

4.2.3 Contract Terms

The terms of contracts vary and minimally include

- Contract period,
- Contract amount,
- Length of contract,
- Renewal options,
- Payment and billing processes,
- Insurance requirements,
- Maintenance of equipment,
- Service description,
- Trip reservations,
- Dispatching, and
- Service delivery expectations.

Some contracts have more stringent requirements such as: drug testing, training, performance measures, and penalties for not meeting performance standards.

A contract period typically varies from 1 to 5 years and many have renewal options. The Ann Arbor Transit Authority has established a 5-year contract with Yellow Cab. Price is discussed annually and adjustments made if warranted. DuPage County has a 3-year contract with an option to renew based on the success of the 3-year pilot project.

The Houston METROLift MSP contracts are awarded for a 3-year period, with an option to extend the contract for an additional 2 years. The MSP contracts include operation and reporting requirements, reimbursement rates, and driver licensing, appearance, and conduct requirements. Because customers may choose their PHV operator, drug and alcohol testing is not required by FTA requirements, and there are no local drug and alcohol testing requirements.

The Los Angeles ASI contract is for a 3-year period. The contract contains a high level of detail regarding administrative responsibilities, training, supervision, vehicle maintenance, trip reporting, call handling and customer service, complaint resolution, drug and alcohol testing, and performance standards. This is because of ASI having exclusive contractors to provide service in each zone, the size of the program, and ADA requirements.

PHV operators are secured for the three programs in Montgomery County through an open bid process, and all contracts must be rebid every 5 years. In the Wisconsin programs, contract terms are for an initial 1-year period with annual options to renew for up to 4 additional years. Contracts must be put out to bid at least once every 5 years.

Contracts with Wisconsin public transportation providers typically specify hours/days of service, service area boundary, number/types of vehicles to be operated, fares, reservations procedures, driver selection/training policies, vehicle maintenance responsibilities, insurance requirements, records to be maintained, reporting requirements, terms of payment, complaint policy, and standard contract clauses. Requirements include the following:

- At least two-thirds of service must be within the boundaries of the urban area.
- Transportation service must be open to the general public—service provided exclusively for a particular subgroup (e.g., those who are elderly or have disabilities or school age children) is not eligible.
- Fares must be collected in accordance with established tariff schedules.

One of the Wisconsin sites, Marshfield, exceeds the state contract standards and includes these terms:

- A maximum 15-minute average wait for passenger pickup; and
- Drivers are to assist in loading and unloading of passengers who are elderly or have disabilities, and in carrying their parcels or personal effects between the vehicle and the entrance to the business or home.

In addition, the Marshfield taxicab contractor must provide phone reservation service, including access to a TDD (Telecommunication Device for the Deaf) system. Request for service may be made upon demand or up to 24 hours in advance of

travel time. The City provides 10 mobile radios for communications between vehicles and the dispatch center. The contractor is also responsible for maintaining daily driver's and dispatcher's logs and submitting monthly, quarterly, and annual reports detailing the number of passenger trips, passenger revenues, package delivery revenues, total miles operated, driver pay hours, and detailed operating expenses. In addition, the contractor must maintain records documenting the drug and alcohol testing program, resolve all complaints within 5 days, and notify the City of all complaints and their resolution.

Some of the case study public transit agencies (Ann Arbor, Houston, Portland, and the Seattle Metro ACCESS programs) contract for dedicated service. Dedicated service means that the PHV operator operates trips only for the funding agency during a specified time period. Drivers/vehicles providing dedicated service trips do not mix those trips in among other general taxicab customer trips. Historically, most transit agencies in the United States have used dedicated services to provide their ADA-complementary paratransit service. Many transit agencies have found operating only dedicated service to be inefficient and have started to use PHVs to provide supplemental service to their dedicated service, as observed in Houston, Portland, and Seattle.

Los Angeles' ASI program was developed as a nondedicated service, but a dedicated component was recently added to that program. Both traditional paratransit operators and PHV operators operate this dedicated component.

4.2.4 General Administration

PHV contract services are administrated within various departments of county and municipal governments. Five of the eight sites are administered by the local public transit agency (Ann Arbor, Houston, Montgomery County, Portland, and Seattle). The Los Angeles ASI program was established as an independent, not-for-profit organization to allow it to contract with the MTA as a broker, and to enable ASI to apply for grant funds available only to not-for-profit organizations. ASI manages the day-to-day operations, handles all contracts and documentation, and reports monthly to the Los Angeles MTA. The Los Angeles MTA has representation on the ASI Board and is the primary funding agency. An advantage of the nonprofit status is that ASI is eligible for FTA Section 5310 funding for capital equipment (vehicles) similar to government agencies.

In DuPage County, the DuPage County Department of Human Services serves as the program administrator and transportation broker. In the Wisconsin programs, the state has some oversight but places the day-to-day administrative responsibilities with the local site, which varies among the 43 sites as to which municipal department oversees the contract.

More detailed administrative costs were obtained from some of the case studies (refer to Table 42). In Ann Arbor, the total 1998 estimated administrative costs (mostly personnel) to oversee contracted services were $119,000. With the total contract award at approximately $1.9 million that year, administrative costs were at 6.3 percent of this total award.

In Montgomery County, eight County staff members administer three transportation programs. Staff positions include a manager, a program specialist (supervisor), one coordinator who schedules ADA paratransit trips, and five principal administrative aides. One administrative aide assigns Medicaid trips to taxi companies. The Fiscal Year 2000 County budget includes $313,053 for personnel expenses.

Administrative costs vary by site in Wisconsin. The municipalities do receive some financial assistance (management fees) from the state to cover all general administrative and

TABLE 42 Annual administrative costs

Case Study Site	Contracted Services (those where data available)	Estimated Total Annual One-Way Trips	Total Annual Contract Award	Total Annual Administrative Costs	% of Administrative Cost to Overall Contract Award
Ann Arbor, Michigan	Night Ride Good As Gold A-Ride East Van Program	270,000	$1.9 million	$119,000	6.3%
Houston, Texas	METROLIFT MSP only METROLIFT Scheduled Service	238,500 839,417	$1,148,754 $10,998,352	$23,850 $2,055,200	2.1% 19% (includes scheduling and dispatch)
Montgomery County, Maryland	ADA Paratransit	172,000	$3,320,730	$313,053	9.4%
Portland, Oregon	Cedar Mill Community Shuttle	26,000 (round-trip, one way not available)	$109,000	Equivalent to 0.25 FTE for planning; 0.10 for marketing	N/A
Seattle, Washington	Access	837,738	$24,000,000	$1,363,674	5.7%

* Ann Arbor and Seattle figures are 1998 estimates. Houston, Montgomery County, and Portland provided 1999 figures.

TABLE 43 Wisconsin program costs

Revenue to Cost Ratio	< 25%	25-29.9%	30-34.9%	35-39.9%	40-44.9%	45-49.9%	>50%
Management Fee (percent of net operating expense)	7.0	7.5	8.0	8.5	9.0	9.5	10.0

managerial activities. The management fee policy for state and federal operating assistance stipulates the following:

- The management fee constitutes a baseline 7 percent of the negotiated net operating cost for all shared-ride taxi systems contracted to private operators. Net operating cost includes all allowable costs excluding the management fee, city administration costs, depreciation, and return on investment.
- The management fee is available upon request of a municipality/county.
- The management fee may be increased above the 7 percent baseline in ½-percent increments to a maximum additional 3 percent for transportation service contractors that achieve cost efficiencies.

In addition, to receive these funds the agencies must be in full compliance with all state and federal program requirements and guidelines; submit accurate and timely local, state, and federally required reports; and have accurate and timely accounting and record-keeping procedures. Table 43 provides an overview of Wisconsin program costs.

Fiscal Year 1998 management fee information for the three case study sites is shown in Table 44. This sliding scale is intended to reward better-performing systems and to encourage programs to maximize productivity by increasing their operating ratios.

4.2.5 Public Agency and PHV Responsibilities

Establishing clear roles and responsibilities is critical to achieving an effective contractual relationship. As described previously, at most of the case study sites, the designated municipality or county department serves as contract manager and general administrator.

Even in the case of the Wisconsin statewide program, the state passes requirements and funding to the municipality, which is then responsible for managing the PHV contract.

Some of the contract administrators have expanded roles. For example, in DuPage County the DuPage County Department of Human Services, as a public entity, maintains total control, serving as the contract administrator and also the broker for the contracted service in its area.

Houston's scheduled sedan service is provided by METROLift, which schedules reservations and dispatches and is based on contract service hours. Under the MSP program, customers call the PHV operator directly, and the PHV operator schedules and dispatches trips.

Requirements vary as to the party responsible for providing and maintaining equipment. For example, in the 43 Wisconsin programs some contractors own the vehicles, others are owned by a municipality (i.e., Wisconsin Rapids), and at some programs, the municipality owns some vehicles and the contractor owns others. In Montgomery County, the contractors provide all the vehicles. If a contractor is required to provide the vehicles, it may be under company/individual ownership or be owned by one of the drivers affiliated with the taxicab company. For example, in Montgomery County, the company owns 360 of the 420 taxicabs operated by Barwood, Inc., and drivers own the remaining taxicabs.

In Houston, all PHV-operated vehicles are provided and maintained by the PHV operator. Both Yellow Cab and United Cab Co. taxis are all company-owned. Typically, PHV operators providing nondedicated service provide their own vehicles, as in Seattle, where there is a combination of company- and driver-owned vehicles operating in the Paratransit OPTIONS program.

In Los Angeles, ASI provides accessible vehicles to the PHV operators to enable provision of accessible service. The PHV operators have indicated difficulty in hiring and keeping drivers to operate dedicated service.

4.2.6 Regulatory Requirements

Most of the contracted PHV operators at the eight case study sites are regulated to some extent through municipalities or through a county. For example, Ann Arbor regulates taxicab and other private for-hire vehicle operators through a City ordinance, and the Authority "piggybacks" on this. The ordinance sets minimum standards, and there is no cap

TABLE 44 Wisconsin management fee percentages

City	Revenue-to-Cost Ratio	Management Fee Percentage
Fort Atkinson	33.0%	8.0%
Marshfield	38.0%	8.5%
Wisconsin Rapids	36.1%	8.5%

on entry. The ordinance requires an annual vehicle safety inspection.

Local municipalities and townships drive taxicab regulations in DuPage, Harris (Houston), and Los Angeles Counties. There are no countywide regulations in those counties.

In DuPage County, there has been no effort to date to streamline regulations across the county, primarily because municipalities have resisted losing control over the supply of taxicabs in their communities. Also, the fees generated by licensing taxicabs are a source of revenue for the various municipalities.

The City of Houston uses a process of determining Public Convenience and Necessity (PC&N) to increase or decrease the number of taxicab permits authorized. Houston had 2,086 taxicab permits (medallions), a number that has remained stable for a number of years. The annual licensing fee is $400. The existing regulations do not require use of accessible vehicles. There is no requirement for 24-hour-per-day, 7-day-per-week service or voice dispatch capability. With these less stringent standards agencies contracting with taxicab companies have more of the burden of incorporating their own standards.

The City of Los Angeles uses a franchise form of control, with incentives for operators to add accessible vehicles. Other standards set by Los Angeles County municipalities vary from controlled entry and high level of service (Beverly Hills) to open entry and many independent operators (Santa Monica).

The City of Portland regulates entry to the taxicab business, and there are 317 authorized taxicabs in operation. Regulations require that a taxicab company have a minimum of 15 vehicles. Four taxicab companies now operate in the City—Radio Cab (136 taxis), Broadway Cab (136 taxis), Portland Cab (26 taxis), and New Rose City Cab (19 taxis). Several taxi companies are based in surrounding cities/towns in which there is significant demand. Taxicab regulations in the area are municipally based. Sassy's Cab Co. is not licensed to operate within the City of Portland, but in an adjoining municipality. No separate licensing agreement is required for the company to operate the Cedar Mill Taxi Shuttle, as that service is contracted exclusively with Tri-Met and does not involve picking up passengers outside of the service area.

The City of Seattle and King County have joint taxicab regulation through interlocal agreements including reciprocal enforcement and licensing agreements. Approximately 90 percent of the licensed taxicabs in the County are also licensed in the City of Seattle. Seattle recently implemented a performance system based on response times. There are currently 502 licenses issued of a total number capped at 561.

All taxicab companies in Wisconsin Rapids are required to apply for a city taxicab license. The license period runs from July 1 through June 30, and there is a $75 annual license fee. Taxicab drivers must also procure a license at a cost of $5 per year. The chief of police may inspect taxicabs and drivers, and taxicabs are subject to a semi-annual inspection.

The Department of Public Works and Transportation (Division of Transit Services, Taxicab Office) conducts taxicab licensing in Montgomery County. The County ordinance contains a maximum age/mileage (6 years/200,000 miles with a waiver for a 7th year for low-mileage vehicles) for vehicles, and permit holders must carry stipulated levels of insurance, pass two mechanical inspections per year, be clean, and in good cosmetic condition. Taxicab drivers must also hold a County license. To be licensed, drivers must pass a test, complete both Maryland and Federal Bureau of Investigation criminal background checks, and have good driving records. Rates of fare are posted on the side window of all taxicabs, and all trips must be paid according to the meter.

Taxicab regulations in the Portland metropolitan area are municipally based. The contracted agency for the commuter shuttle service, Sassy's Cab Company, is not licensed to operate general cash service in Portland but can operate outside of the Portland city limits. This PHV operator and Tri-Met have an exclusive contract for the operator to provide the commuter shuttle service only outside Portland city limits. Because Sassy's Cab Co. sometimes picks up customers without a reservation, this resulted in increased scrutiny of the company's operations from other taxicab operators. Recently, Sassy's Cab Co. received authorization to provide taxicab service within the City of Portland.

4.2.7 Operations

Findings from the case study sites involved the following operations areas: fare media and payment, training, drug and alcohol testing, and insurance. This section describes each of these areas.

Fare Media and Payment

Table 45 summarizes the fare payment method and rates at the various case study sites.

Fare media for the Houston METROLift Subsidy Program is a combination of a cash fare of $1 and a voucher, which is completed by the driver. The voucher may be used for up to $8 of metered fare. Any metered charge above a $9 fare ($1 cash plus $8 voucher) plus any tips are the responsibility of the customer.

The vouchers are distributed to drivers and represent no cash value until the registration number generated by the reservation is matched with the assigned voucher serial number for processing. Because the potential for a higher cost is associated with this program, most customers use it for short trips. Approximately 16,000 vouchers are distributed monthly, and all are usually used.

In Los Angeles, the fare media for the ASI program is either cash or ride coupons. Fares are based on zones and cost between $1.50 and $4.00 per one-way trip. The fare structure is more similar to typical fare systems with service zones based on trip distance.

In Portland, the fare media for the Cedar Mill Taxi Shuttle is the same as that used by Tri-Met. Customers can use tickets, transfers, monthly passes, and other special passes; and in addition seniors, those with disabilities, or student discounts

TABLE 45 Fare payment

Case Study Site	One-Way Trip Rate	Discounts	Other Charges
DuPage County, Illinois Subsidized Taxi program	Meter rate of $1.80 drop, $1.50 per mile (contract rate)	Coupons are purchased at a discount from the sponsor.	Customers are responsible for charges over the value of the coupon(s)
Houston, Texas METROLift MSP program	$1.00	METROLift receives a 4% discount on billing.	Anything over $9.00 on the meter
Los Angeles, California: Access Services program	$1.50-$4.00 (zone)	Monthly pass $4.00 for those with disabilities	None
Montgomery County, Maryland Call N' Ride program	Meter drop charge of $1.70; $1.50 per mile	Low-income, senior citizens and those who have disabilities	$18/hour wait time fee
Portland, Oregon Cedar Mill Shuttle	$1.10 (within service area) $1.40 (transferring out of service area)	Seniors, those who have disabilities, and students	None
Wisconsin (Fort Atkinson)	$3.25 within City	$1.75 for those who are elderly and have disabilities	$1.25 per mile outside city
Wisconsin (Marshfield)	$2.60 within City	$1.30 for those who are elderly and have disabilities	$.60 for additional passengers
Wisconsin (Wisconsin Rapids)	$3.25 within City	$.50 coupons for low-income patrons and those who have disabilities	$1.25 per mile outside city

also apply with proper identification. The adult cash fare is $1.10, a standard fare based on the Tri-Met zone structure. If a customer is travelling beyond the Cedar Mill Taxi Shuttle service area, an all-zone fare of $1.40 is required, and transfers are provided.

In the Montgomery County Call 'N Ride Program, low-income persons with disabilities and seniors purchase a $50 monthly coupon book at discounts according to income. Each coupon has a value of $1 and may be used in multiples or in combination with cash to pay for taxicab trips.

Training

At several of the case studies the public agency provides limited training support. In 1995, the City of Seattle began offering driver training in cooperation with the local community college. The training period was expanded in 1996 and now consists of 16 hours of instruction. The Wisconsin Department of Transportation has provided two recent training sessions for shared-ride taxi program operators in order to familiarize them with federal and state requirements. Shared-ride taxi program operators are also encouraged to attend training provided at the Wisconsin Rural and Paratransit Providers annual conference. In addition, the state Rural Technical Assistance Program (RTAP) covers 90 percent of the cost of defensive driving courses. In Wisconsin Rapids, training is provided in various areas. This training involves a minimum of 25 hours in a vehicle with an experienced taxicab driver or a minimum of 40 hours in an accessible van. Drivers receive first aid and CPR training. In addition, there are quarterly safety meetings, which are conducted in-house and may include outside speakers. Approximately every 2 years, drivers undergo passenger assistance and sensitivity training, typically through the University of Wisconsin-Milwaukee, Center for Transportation Education. Training costs are paid by the state.

No driver training is required by the Montgomery County, Maryland, ordinance, but driver training is conducted by each of the three taxicab companies that contract to provide the transportation services. In Los Angeles, each operator must provide training to meet standards by ASI, such as defensive driving, passenger assistance, sensitivity, and use of MDTs.

Drug and Alcohol Testing

It can be argued that drug testing is not needed because most of the contract PHV drivers at case study sites are not employees. Drivers, for the most part, are independent contractors. But, most of the public agencies in the study do make this requirement, which is an additional expense and activity for the PHV operator.

Federal regulations require contractors operating public transit service where no consumer choice of transportation provider is available to test drivers and others in safety-sensitive positions for substance abuse. This requirement has been demonstrated to improve the driving record of the PHV drivers in Los Angeles, reducing insurance costs.

The Ann Arbor Transit Authority requires pre-employment, random, and post-accident drug testing of drivers. Wisconsin

shared-ride taxi program participants must conduct federally mandated drug and alcohol testing of drivers and others in safety-sensitive positions. Operators are responsible for conducting the testing, however, municipalities, as recipients of federal funding, are also responsible for ensuring compliance with federal requirements. Montgomery County, Maryland, does not currently require drug and alcohol testing of PHV drivers, as it is the understanding of County staff that if clients are given a choice of at least three public transportation providers, federal law does not require driver drug testing.

Houston/Harris County and Seattle/King County do not require drug testing. Los Angeles does require drug testing of Access drivers because customers do not choose who provides service to them. Portland Tri-Met does not require drug testing, but, as company policy, the contractor drug tests drivers because contract work is a major part of their business. Tri-Met (Portland) requires the same standards of Sassy's Cab Co. for drug testing and insurance that would be required of any other contractor performing service on their behalf. Tri-Met was also willing to work with Sassy's Cab Co. by making available their third-party drug-testing program.

Insurance

Several of the case study public agencies require minimum insurance amounts. For example, Montgomery County requires contracting PHV operators to maintain liability insurance in minimum amounts of $100,000; $300,000; and $300,000.

Some require a high level of insurance. For example, Wisconsin Rapids requires liability insurance in the amounts of $250,000; $500,000; and $100,000; however, the current contractor maintains a high insurance level in the amounts of $1,000,000 per occurrence/$1,000,000 per occupant. Because the contractor operates in the excess insurance market, payment of the full premium is required at the outset of the premium period, requiring the taxicab company to finance that expense. Cities such as Tri-Met (Portland, Oregon) require insurance coverage in the amount of $1 million. In Los Angeles, with additional training and drug testing, they were able to negotiate lower insurance costs for ASI drivers and saved $900,000 a year even with $1,000,000 combined single coverage.

4.3 LESSONS LEARNED

Lessons learned encompass findings pertaining to benefits from contracting with PHV operators and to recommended changes to policies and procedures gained from the contracting experience.

4.3.1 Benefits

Benefits that the case study sites have realized from contracting with PHV operators include

- Cost savings;
- Efficient means of meeting peak-period demand;
- Flexibility to incorporate changes into a beginning program;
- Provision of transportation services to the general public as well as subsidized transportation to residents who are elderly or have disabilities by continued operation of a privately operated taxicab company; and
- Additional annual versus seasonal business for PHV operators.

Cost Savings

Several of the case study sites reported cost savings from the use of PHV operators, primarily associated with the use of nondedicated service, in which the contractor absorbs the costs for deadhead travel time. This was the case in Los Angeles, where the primary benefit cited by the public transit agency was reduced deadhead costs incurred in traveling to the passenger and after the passenger is dropped off.

Several of the case study sites were able to quantify the cost savings of using private operators. In Montgomery County, the paratransit management staff estimate that use of all-taxicab service saved approximately $900,000 per year. Houston METRO and King County Transit reported achieving savings of between 51 percent and 79 percent for every trip shifted from their regular van-based ADA paratransit service.

The Ann Arbor Transit Authority reported that contracting is an effective, cost-efficient alternative to provide certain trip types. The taxicab infrastructure was already there and did not require a capital investment on the part of the AATA. The community as a whole benefits because with the contracted service the private taxicab company is motivated to provide quality service. The company is interested in the long-term contractual relationship not just immediate profit. From the perspective of the contractor, Yellow Cab, the contractual relationships has provided a more secure, steady stream of business and has allowed the owner to expand his operations. The customer, travelling within the City limits, reports that the services are very satisfactory and greatly enhance their mobility options.

Houston METROLift has developed a good working relationship with the PHV operators, which has allowed expansion of the taxicab portion of the METROLift program. This expansion has enabled provision of additional trips with significant savings from using a dedicated service, resulting in a service with one of the lowest average costs per trip in the country. METROLift anticipates further expansion of the PHV-operated portion of the program with the addition of more accessible vehicles to the Yellow Cab fleet.

Similarly, King County Metro ACCESS Transportation service program managers anticipate cost savings from the addition of accessible vehicles to local PHV fleets. These additional vehicles will enable PHV operators to meet more of the local demand for accessible services.

Los Angeles ASI staff cited the ability to provide same-day service to customers as having reduced the costs from no-shows and refused trips. PHV-operated service has also reduced deadhead costs, which are incorporated in dedicated service operation, but are not paid in typical PHV-operated services.

In Portland, Tri-Met was able to develop a community circulator/shuttle service without the burden of expensive fixed-route service. The result has been high quality service at costs competitive with fixed-route service costs, yet incorporating significantly greater flexibility. Spokespersons from the community and Tri-Met staff agreed that using taxicabs rather than buses or minivans has helped this program to succeed.

Meeting Peak-Period Demand

Montgomery County staff reported that contracting has been found to be an effective means of meeting peak periods of demand, especially if the contracted service is provided at the meter rate (as is the case with all three County-operated programs). In addition, PHVs are viewed as an effective supplement to, or backup service for, transit services when there are breakdowns or accidents occurring with fixed-route service.

Flexibility During Start-Up

The use of a PHV operator in DuPage County enabled the County to try a new service for a relatively low start-up cost. The PHV operator was also flexible about incorporating changes and training programs into driver requirements. The County would have been unable to start a service as quickly and with as little initial capital cost without using a PHV operator.

General Public Transportation

At the Wisconsin sites, the primary benefit cited from operation of the shared-ride taxicab program is that the program has enabled continued provision of taxicab service to all residents of the cities operating a shared-ride taxicab program. Taxicab service is available at a higher, non-subsidized rate for city residents who are not eligible for participation in a shared-ride taxicab program. If funding assistance were not available from participation in the shared-ride taxi program, most of the taxicab companies likely would not be in operation, because there is not sufficient general public demand to sustain operations.

Source of Annual Versus Seasonal Business

A benefit cited by a Montgomery County taxicab company representative is that the County programs generate yearly, as opposed to seasonal business, which helps to smooth out demand for services and allow maintaining a consistent level of vehicles in operation. That representative also felt that the Call 'N Ride Program worked the best of the three programs because of the lack of administrative burden and expense to the taxicab companies.

4.3.2 Barriers

Barriers that the case study sites have realized from contracting with PHV operators include

- Difficulty in meeting service demand,
- Difficulty in finding sufficient qualified drivers,
- Driver reluctance to operate accessible vehicles, and
- Lack of sufficient accessible vehicles.

Difficulty in Meeting Service Demand

In Wisconsin Rapids, Wisconsin, although the shared-ride taxi program has enabled provision of a relatively large amount of transportation service to clients of some human service agencies, this program has also resulted in a reduced amount of transportation service available to the general public by that taxicab company. The taxicab company receives 30 to 40 time calls per day and has found it difficult to provide areawide general public trips with the current resources.

Qualified Drivers

Finding sufficient qualified drivers was a problem cited by most of the PHV operators. In Wisconsin Rapids, the public agency ascribed this to a general negative stereotype of the taxicab driver job. Another barrier cited related to coordination. There is an overlap between transportation providers for some types of human service agency trips. The Wisconsin Rapids taxicab operator cited a need for greater city involvement, particularly in policy decisions. For example, the operator wanted some clearer definitions (i.e., a distinction between public and specialized transportation), especially for accessible services.

Montgomery County staff reported that it can be difficult to meet demand for transportation during late night, weekend, and holiday periods, because many drivers (who are independent contractors) choose not to work at those times. This lack of control over drivers' schedules is a result of the general industry practice of using independent contractor drivers who determine their own work schedules. In addition, it is sometimes difficult to meet peak-period demand, because of an insufficient number of qualified drivers being available for hire in many places.

Los Angeles contractors have provided incentives to drivers, to encourage them to provide less economically attractive trips, such as short trips, particularly in locations distant from major business generators. Incentives have included

providing a driver with a $10 minimum payment for providing these short trips (that have a fare of substantially less than $10), pairing an economically unattractive trip with a longer, more financially rewarding trip, or providing the trip with a dedicated driver.

Accessible Vehicles

There were two problems reported with regard to accessible vehicles—driver reluctance to operate those vehicles (versus sedans) and lack of a sufficient number of accessible vehicles. Los Angeles experienced difficulty in getting drivers to enroll in the certification-training program offered by the public agency and to operate the lift-equipped vehicles. The biggest hurdle cited to providing more ADA paratransit service with taxicabs in King County was the lack of availability of accessible vehicles. In Seattle, as in Houston, the transit agency has already maximized its use of non-accessible taxicabs. The next step will be the addition of accessible taxicabs to fleets, to allow additional trips to be operated by the PHVs.

Other Concerns

Other concerns cited by Montgomery County staff included a lack of control over driver training, which is provided by the taxicab companies, and reluctance to conduct drug and alcohol testing of drivers. County staff stated that so long as passengers have a choice of transportation providers, drug and alcohol testing is not required of drivers.

A Montgomery County taxicab representative stated that having a third party (the County) book trips has resulted in some confusion over addresses. The taxicab company typically requests more complete address information than that requested by County staff, and encounters less confusion in this aspect of its regular business. That representative also stated that greater efficiency would be realized if a larger percentage of Metro Access and Medicaid trips could be operated as shared-ride trips.

4.3.3 Correlation Between the PHV Study and Case Study Findings

In the Phase 1 national PHV survey, PHV operators were asked to identify barriers to collaboration with transit providers. The primary barriers, listed in order of decreasing frequency, identified by the 677 total respondents are identified in the left column of Table 46.

According to the respondents, public transportation providers are reluctant to allow the entrance of PHV operators into services that transit operators have traditionally provided. The current frustration of many of the PHV providers is that public transit fares and services are currently supported by subsidies that, if removed, would bring the sector to an even playing field. Another major problem is the complexity of governing regulations in relation to conflicting localities, bureaucratic and political constraints, insurance requirements, and special programs. Along with image issues, this problem has allowed public transit services to win bids and contracts and, therefore, gain larger customer bases. The interlocal agreements for taxicab regulation in effect in Seattle/King County could serve as a model for streamlining municipal ordinances within an urban region. Although these problems present barriers to greater utilization of PHVs by the public transportation industry, by defining these problems it becomes easier to visualize and plan the measures necessary to bring about better communication and cooperation.

TABLE 46 Barriers to contracting

Barriers Cited by Survey Respondents	Findings from Case Study Sites
Cooperation—negative opinions of PHV operators held by public transportation providers and operators, public providers blocking access to service opportunities, public or agency meeting times not being disclosed/held during work hours, lack of access to planning efforts.	**Not an issue**—at case study sites. In Montgomery County, and in Wisconsin, where PHVs are the sole public transportation provider.
Regulation—public agencies having different and sometimes conflicting regulations, difficulties in licensing procedures, unfair and inappropriate fare regulation, lack of centralized regulation agencies.	**Mixed findings:** **Confirmed**—in Portland, Sassy's Cab Co. was not authorized to provide any service within the City outside of the Cedar Mill area, and was forbidden to expand the shuttle service into City Limits **Not an issue**—in DuPage County, Los Angeles, and Seattle the pre-arranged trips provided by PHV operators under contract agreements differ from typical "hail" trips, and are not covered by local taxicab regulations.

(*continued*)

TABLE 46 ***(Continued)***

Barriers Cited by Survey Respondents	Findings from Case Study Sites
Funding—government subsidies provide advantages to public systems by creating perceived costs below private services, funding resulting in better benefits for public transportation employees, funding directed to irrelevant research of public transportation services.	**Not an issue**—Montgomery County found that PHV operators could provide ADA paratransit service for 1/3 the cost of bus operations. Houston and Seattle also reported cost savings from use of PHVs. In most cases, labor unions affect the cost of providing traditional transit services to the extent that they are non-competitive.
Bidding and contracting—preferences to public providers, unrealistic service expectations, contract disclosures, regulations causing changes in terms before contract expiration.	**Not an issue**—in Ann Arbor, the taxicab operator obtains sufficient business through the Transit Authority because of the long-term nature of the relationship and personnel continuity (contractor has dealt with same transit staff over the five-year contract period). Service quality expectations are an issue in all contracted services, however, with appropriate controls, the quality of service provided by a PHV is often quite good, as evidenced in Seattle and Los Angeles. **Related issue**—loss of contract through re-bidding resulted in local PHV operator going out of business because of low level of demand for taxicab service in one Wisconsin city.
Insurance—high liability limits for taxi services, premium differences between taxi and limousines, lack of collaboration between regulatory agencies and insurance companies.	**Mixed findings:** **Confirmed**—Los Angeles started with very high insurance costs, yet through enhanced training, drug testing and certification requirements, insurance costs were negotiated down by about $1 million per year. **Not an issue**—at some sites (Fort Atkinson, WI) the PHV operator has procured higher liability limits than required. Additional insurance requirements are typical in contract arrangements with transit agencies, however, the costs of these policies were not prohibitive to larger PHV operators in Houston or Los Angeles. In Seattle, there is not an official contract, and as a result, no additional insurance requirement. DuPage County did not require the level of coverage typical of transit agencies.
Competition—dominance of large transit providers, competition with rental car and hotel services.	**Not an issue**—Montgomery County found PHVs to work better in selected markets than regular bus service.
Bureaucracy—amount of paperwork, "red tape."	**Confirmed**—excessive paperwork required to document trips was cited in DuPage County, Houston, and Los Angeles. At those sites, drivers must complete trip information for each trip provided in order to receive reimbursement. Los Angeles has largely automated this function through the use of computer scheduling and dispatching software, plus use of Mobile Data Terminals (MDTs) in vehicles.
Operators—insufficient qualified drivers available.	**Confirmed**—PHV industry use of independent contractor drivers results in insufficient drivers available during some peak demand periods—nights, weekends, and holidays (Ann Arbor, DuPage County, Los Angeles, and Montgomery County).
Unions—local regulations supporting unionized drivers.	**Confirmed**—Portland contractor service area is limited to areas not served by fixed-route service operated by union drivers. **Not an issue**—Montgomery County reassigned bus drivers displaced by PHV contracted service.
Passenger—customers who use service and do not pay the fare, complaints of high fares, no-shows, cancellations, lengthy wait times at pick-up points.	**Confirmed**—no-shows, late pickups cited as problems in DuPage and Montgomery Counties. Service quality was cited as a problem in Los Angeles.
	Not an issue—Montgomery County stopped paying drivers for no-shows for Medicaid program; also instituted a $2 per trip "Good Service Fee" to substitute for Medicaid patrons lack of tips. Portland's Cedar Mill Shuttle experienced no complaints and has received numerous commendations for service quality.
Other—ADA access, political constraints, pay rates, safety, performance bonds, crime, maintenance and depreciation costs, Medicaid compensation.	Accessible vehicles were cited as an issue at many sites, including Los Angeles, where accessible vehicles are widely available. In Houston and Seattle, the transit authorities are seeking revised regulations to incorporate accessible vehicles in taxicab service.

CHAPTER 5

CONCLUSIONS AND TRANSFERABILITY

5.1 CONCLUSIONS

With transportation program funding often limited, sponsoring municipalities and transit agencies are faced with a need to achieve cost efficiencies while meeting service standards established by local regulations and community expectations. The critical objective is to minimize the cost per trip while maintaining service quality. As a strategy to achieve this objective, public transit agencies are increasingly contracting with PHV operators, primarily taxicab companies, to provide public transportation services.

The types of service provided and delivery mechanisms vary. Taxicabs are the primary PHV type used in contracted services. The majority of contracts with taxicab operators, and to a limited extent with other PHV operators, are for the provision of demand-responsive service, specifically for ADA-complementary paratransit service. With the passage of the Americans with Disabilities Act in 1990, public transit agencies, particularly in urban areas where ADA service is most concentrated, were faced with a new transportation challenge. Some took advantage of an existing resource, taxicab companies, to provide all or portions of this service as the most cost effective service delivery mechanism.

Some taxicab companies have responded to this new demand by expanding from single-purpose and shared-ride sedan service to lift-equipped van service that more fully serves all components of the demand-responsive market.

Most of the PHV operators use independent contractors instead of employees as drivers. This practice allows a PHV operator significant flexibility in adding drivers quickly, while limiting costs associated with employee drivers. This can help to control contract costs for sponsors.

Various factors affect the effectiveness of the contractual relationships between the transit agency and the PHV operator:

- The demographic characteristics of the service area;
- The composition of the transit and paratransit network;
- Paratransit eligibility criteria and the eligibility determination process;
- The degree to which various functions of the paratransit system are performed by the transit agency and by the contractor;
- The extent to which the various functions of the paratransit system are centralized or decentralized;
- The regulations governing the PHV industry;
- The number of PHV carriers in operation; and
- The existence and political influence of a transit union.

The primary reported benefit of contracting with PHV operators is to reduce costs. Contracting can be a very cost-effective alternative for providing certain trip types. Through contracting, a transit agency may reduce expenses by eliminating expansion of a more costly fixed-route service route (i.e., the Cedar Mill Taxi Shuttle in Portland, Oregon) or shortening fixed-route segments in a low-density ridership area. Several of the contracting agencies interviewed said they were able to quantify the cost savings of contracting service segments. Houston METRO and King County Metro (Seattle) have achieved savings of between 51 percent and 79 percent for every trip shifted from their regular van-based ADA paratransit services to taxicabs. Montgomery County paratransit management estimates that the change to all-taxicab services from a mixture of bus and taxicab service saved approximately $900,000 per year. Ann Arbor has identified costs savings but did not provide figures. In most programs, these “savings” are put toward additional service, thereby enhancing the mobility of all customers.

Some disadvantages of contracting with PHV operators include a greater potential for fraud if oversight is insufficient, higher insurance requirements for taxicab operators than required for noncontract services, drug and alcohol training expenses, and the need to increase driver training beyond that typically required of PHV drivers.

In areas where there are stricter municipal or county regulations over PHVs, the public contracting agency benefits. In DuPage County, Houston, and Los Angeles County, local municipalities drive taxicab regulations and there is no countywide regulation. In those locations, the transit agency or other program sponsor needs to make up for this through stricter contract requirements to exercise uniform control over areas with lax regulations.

5.2 TRANSFERABILITY

The case studies have offered insights into transit agency and PHV partnering. One purpose of this study was to identify how the case study practices can be applied in other locations.

This section describes conditions for success and transferable aspects of each of the case study site programs.

5.2.1 Ann Arbor, Michigan

Ann Arbor provides an excellent example of the range of demand-responsive services that can be provided by a private contractor in a medium-size, densely populated city. Localities that have a large elderly population would be especially interested in the Good as Gold service, which was praised by elderly residents who participated in a focus group. Ann Arbor also provides an example of the benefits to be realized from a long-term partnership between a transit agency and a PHV operator.

5.2.2 DuPage County, Illinois

The DuPage County Subsidized Taxi Program would work well in other communities where there is a transportation need not being met by the existing transit service network. User-side subsidy programs are not uncommon; however, the flexibility for sponsors to control their financial exposure by purchasing the fare media in advance is very helpful for starting a program. A more mature user-side subsidy program could be more streamlined, with uniform subsidy rates and rules, similar to King County's Paratransit OPTIONS Program. An additional benefit of having the service available in an area with inconsistent taxicab regulations is having one taxicab operator in the area who is familiar with people with disabilities and has accessible vehicles without the regulations requiring them. As customers have become aware of the accessible vehicle, its usage both in the program, and in addition to the program has been increasing rapidly. In the case of DuPage County, it is unlikely that the taxicab regulations will be streamlined or upgraded throughout the County in the near future.

5.2.3 Houston, Texas

The METROLift MSP program is a good example of a fairly direct approach to providing a user-side subsidy program with control on the potential financial exposure while maximizing availability of service. The MSP program requires a rigorous contracting effort, particularly to protect the transit system's interests in an environment with weak regulations. For instance, to ensure availability of efficient dispatching capability, METROLift works with larger operators and encourages upgrading dispatch technology. METROLift exerts a strong level of control, particularly in the Scheduled Sedan service contract, yet provides support through dispatching and implementation of digital dispatch and automatic vehicle location technology to assist drivers in providing quality service.

5.2.4 Los Angeles, California

The Access program is a good example of a large system contracting almost completely with PHVs, and the outcomes that result from this approach. Although all public transit agencies now have ADA paratransit programs in place, and most use traditional paratransit providers to do most of the work, the Los Angeles approach serves as a reminder that the best service delivery structure for the cost is probably a combination of traditional paratransit service and PHV-provided service. In fact, ASI's new approach to providing routine subscription trips through a more traditional provider, leaving the PHVs to provide the service they are best suited for reflects this philosophy.

Another lesson from Los Angeles is that there are measurable gains to be derived by working on the training, drug testing, and insurance issues with the PHV providers in the area. The regulatory environment does not necessarily play a role in cities where pre-arranged service for hire is not regulated. However, if vehicles must be used exclusively for provision of paratransit service, even when operated by PHVs, the cost will be more similar to that for dedicated service.

5.2.5 Montgomery County, Maryland

The Montgomery County experience with contracting for ADA paratransit transportation services demonstrates that cost savings can be realized from contracting with PHV operators. The Call 'N Ride Program is a user-side subsidy program with demonstrated success, as reported by both County staff and a PHV operator. These programs, plus the County Medicaid program, operate according to the meter fare, which has resulted in greater driver acceptance of these trips and facilitated blending contracted trips into the taxicab companies' general schedule. Montgomery County is fortunate to have PHV operators who have installed advanced technologies such as computerized dispatch and scheduling, which has reduced the scheduling burden on County staff. However, in Montgomery County, as in many other locations, there have not been sufficient drivers available during periods of peak demand, as well as during nights, weekends, and holidays.

5.2.6 Portland, Oregon

Using taxicabs for feeder service to fixed-route transit is a viable alternative to expanding the fixed-route transit system into areas where it is not generating sufficient ridership to justify the investment. Nearly every urban area that has experienced growth could pursue such a program provided there are PHV operators available that are willing to work creatively to develop the program. The Cedar Mill Taxi Shuttle works because the operators are dedicated to providing good service, they are invested in its success, and there is strong

community support. Other important considerations in whether this service will work elsewhere are

- Is the PHV service adding to fixed-route service or replacing fixed-route service?
- What is the level (and type) of fixed-route service that the PHV service feeds?
- Is there support in the community for this type of service?
- What is the service area, and can it be effectively served with a small number of vehicles?
- What is the availability of taxicab operators in the area for this type of service?
- How do the existing taxicab regulations impact the service?
- How cooperative are the transit agency and taxicab operators in addressing transit requirements, such as insurance requirements and drug testing?

The responses to these questions may indicate whether or not using PHVs to provide feeder service to fixed-route transit would work in other areas.

5.2.7 Seattle/King County

King County's program for the Paratransit OPTIONS Program is a good example of a user-side subsidy program in an environment where taxicab regulations are progressive and performance-based. This results in better quality service for the contracting agency, with less need for control over the performance of the taxicab operator (and less cost to the transit agency). Other cities with solid, performance-based taxicab ordinances and effective enforcement agreements may be able to use this model for developing contract arrangements.

In addition, the Home Free Guarantee program is designed to minimize excessive use of the benefit of having a free ride home in case of emergencies, while continuing to make the program available to a wide variety of vanpool participants. This program is also a good example for other cities looking to develop a guaranteed ride home feature as part of a ride-sharing program. The funding participation on the part of the employers is of particular interest.

5.2.8 Wisconsin

The Wisconsin shared-ride taxicab program offers a model of decentralized provision of human service and general public transportation that could be applied with relative ease to other rural areas. The state oversees allocations of federal and state funds to local municipalities, who contract with local PHV operators to provide service. State policies and procedures are relatively simple and straightforward, and allow latitude for local variation in details of service provision, service standards, and regulation. State audits of the local programs have helped to ensure compliance with funding requirements. Program administration requires approximately three to four full-time-equivalent staff positions. Use of a progressive management fee to reward efficient operators is an idea worth consideration by others.

Local flexibility has allowed PHV operators to use employee or independent contractor drivers, and has resulted in a combination of vehicle ownership between municipalities and PHV operators. Use of state-allocated funds to cover a portion of the annual operating cost (67.4 percent in FY 1998) has allowed those municipalities, in which the remainder of the operating cost is paid through farebox revenues, to operate a shared-ride taxicab program without the need for local funds. In those municipalities in which the farebox does not cover the remainder of the operating costs, local funding is required to pay the difference.

One potential disadvantage from the relatively high level of local flexibility is that the quality of service and of vehicles may vary from site to site; however, residents reported a high level of satisfaction with their local programs.

CHAPTER **6**

SUGGESTED RESEARCH

This study adds important information to two interrelated and overlapping bodies of literature. One is the study of paratransit modes, herein expanded to include a broader range of services called private-for-hire vehicles. The study reports on a significant new national study of the PHV industry and updates prior studies of the taxicab industry.

It also contributes to a second body of literature, the transit-contracting literature. By reporting on eight case studies of transit/PHV contracting, the study adds information to an already robust field of research. Much of this second body of research focuses on the cost savings—or lack of savings—resulting from contracting out transit services. This study does not estimate service costs and, hence, does not estimate cost savings. It does, however, resemble many previous studies in this literature in that it is another cross-sectional analysis that does not consider long-term changes associated with contracting. The combined set of questions arising from cross-sectional studies and a focus on alleged cost savings has prompted Congress to commission a study of this literature to assess whether there are cost savings. TRB is conducting this study.

Given these two bodies of literature and the knowledge added to them by this study, several needs for additional research can be identified.

1. Update PHV Study

The national PHV survey conducted as part of this study is the fifth such national survey. Although the scope of these surveys has expanded over the decades from just taxicabs, the surveys represent a longitudinal analysis of how the paratransit industry is changing over time. The data collected herein are for 1999, nearly 2 years ago. In about 3 more years another national survey should be done to continue this longitudinal analysis.

2. Conduct Longitudinal Case Studies of Contracting Experiences

These eight case studies documented herein and the vast majority of the transit-contracting literature focus on examining one or more sites at a point in time rather than over a period of time. Yet, many of the hypothesized effects of contracting likely occur over a longer period of time. Therefore, it is essential to base conclusions on what these temporal changes might be. For example, costs savings may be evident in the initial years of a contract yet disappear in later years. Also, it is not clear what effects industry consolidation has on contracting over several years. The research team recommends that the eight cases studied here be revisited in the future to understand the temporal changes better.

3. Develop Minimum Contracting Provisions

It is clear from this analysis that city after city struggles with the mechanics of contracting with PHV operators. Although a transit operator and a PHV company may quickly agree on the concept of contracting, difficulty may arise when contracting language is drafted. Items such as liability insurance limits, reporting, and promptness of payment can become major disagreements and may lead to inflated contracting costs. So the question arises: What should be in a transit service contract? A study of specific contract provisions, such as insurance limits, would provide would-be contracting parties with best practices information on how to write a contract that meets the agency's goals without adding unnecessary requirements to the PHV operator.

4. Develop "Best Practices" Manual

As with the previous item, there is much variation in the practices used by transit operators in contracting with PHV operators. For example, some agencies require frequent rebidding of contracts; others do not. Some prepare extensive RFPs; others do not. As in the previous section, the industry would benefit from a clear set of analyses and recommendations concerning how best to conduct these procedural elements of contracting.

5. Synthesis of PHV Regulations

The results of the national PHV survey clearly show that the PHV industry is diverse. In fact, many PHV operators operate more than one service. For example, taxicab companies often also operate black cars and/or vans. Cities often struggle with how to regulate traditional taxicab services, much less taxicab operators who operate more than taxicabs. Cities—and other governmental entities—would benefit from a careful synthesis of best practices in PHV regulation.

APPENDIX A

CASE STUDY SITE CONTACTS

Ann Arbor, Michigan
Christopher White
Manager of Service Development
Ann Arbor Transit Authority

William Berger, Owner
Ann Arbor Paratransit, Inc., Yellow Cab

DuPage County, Illinois
DuPage County, DuPage Inter-Agency Paratransit Coordinating Council (IAPCC)
Pilot II Subsidized Taxi Program
Mary Keating
Director of Research and Operations
DuPage County Department of Human Services

Houston, Texas
Harris County Metropolitan Transit Authority
METROLift
James Laughlin

Los Angeles, California
Access Services, Inc., broker to the Los Angeles Metropolitan Transit Authority
Richard DeRock
Executive Director

Montgomery County, Maryland
Kathleen Delaney, Program Manager for Paratransit
Montgomery County Department of Public Works and Transportation

Lee Barnes, President
Barwood, Inc.

Mike Healy, Manager
Regency Cab Co.

Portland, Oregon
Tri-Met Planning
Patty Fink
Francis Wambalaba

Seattle, Washington
King County Metro Transit Division
Department of Transportation
Accessible Services
Park Woodworth
Nancy Poultney

State of Wisconsin
State Program:
Wisconsin Department of Transportation
Bureau of Transit and Local Roads
Donald M. Chatfield, Section 5311 Manager

Wisconsin Rapids:
Vernon Borth, City Clerk
City of Wisconsin Rapids

Marilee Evenson
River City Cab Co.

Marshfield:
Mike Brehm, City Administrator
City of Marshfield

Tim Haley
Radio Cab of Marshfield, Inc.

Fort Atkinson:
John Wilmet, City Manager
City of Fort Atkinson

Pat McGinty
Brown Cab Service

APPENDIX B

CASE STUDY SITE INTERVIEW GUIDE

ITRE MULTISYSTEMS

Transit Cooperative Research Program

TCRP Project B-16

DATA Collection Needs for Case Studies
In order to complete the data collection phase of the case studies for this project, the following are the data items we would like to collect. This information will allow the project team to compare and contrast the types of contracting arrangements between transit agencies and private for-hire (PHV) transportation providers, such as taxicabs and chair-car and shuttle services.

The goal in gathering this data is to determine which kinds of contracts with private for-hire operators work best, and what has been learned during the contracting experience. Your assistance with this project is greatly appreciated.

If you have any questions please contact _____ at ___-___-____.

TRANSIT SYSTEM or OTHER PUBLIC AGENCY CONTACT:
A. Contact name: _____
B. Agency/company: _____
C. Title: _____
D. Phone: _____
E. Fax: _____
F. E-mail: _____
G. Address: _____

PHV OPERATOR CONTACT:
A. Contact name: _____
B. Agency/company: _____
C. Title: _____
D. Phone: _____
E. Fax: _____
F. E-mail: _____
G. Address: _____

Basic transit system information:
A. Service area (square miles):

B. Service area population (1998 estimate):

C. Service setting (please check all that apply):
Urban Small Urban Suburban Rural

D. Organizational structure (please check all that apply):
Municipal System County System Multi-County System
Transit Authority

E. Does your service cover:
Single Municipality Multi-County System
Single County or More than One Municipality within a County

F. Are you an FTA fund recipient? Yes No

G. Demographic information (as available):
_____ % Unemployment
_____ % Residents below poverty level
_____ % Residents over age 65

H. Who regulates the PHV (taxicab) industry in your area?
State City Other (describe) _____
_____

I. What is the regulatory method used to limit entry into the PHV industry?
Medallions Public Convenience & Necessity
Franchise Minimum Standards Open Entry

J. Drivers: _____ Number of full-time _____ Number of part-time

K. Are drivers ___ employees or ___ independent contractors?

L. Who owns vehicles?

M. Who maintains vehicles? Is maintenance provided in-house or through contract?

N. List staff positions:
_____
_____
_____

Data pertaining to the contracted type of service, and the Private For-Hire contractor:

A. Contracted Service type:
Fixed-Route ADA-complementary Paratransit Human Service
ADA and Human Service Transportation Guaranteed Ride Home
Other: _____

B. Passenger types on service that is contracted:
Head Start Elderly
Other Children Transportation Disabled
General Public
Other: _____

C. Please provide annual operating data for the type of service contracted, and the PHV portion of that service. For example, if you use taxis in paratransit, please provide data on the paratransit service as a whole, and the taxi service portion. Please state FY of data: _____

D. How many one-way passenger trips do you provide per weekday in the following service types?

	Total	Contracted
Fixed Route	_____	_____
ADA	_____	_____
Rural Human Service	_____	_____
Other	_____	_____

E. Administrative costs for service type?

F. What is the administrative cost associated with the PHV contract?

G. What are the operating costs for operating service type?

H. What are the operating costs for operating the PHV contract?

I. Who handles reservations and scheduling of trips?

J. Who handles reservations and scheduling for PHV trips?

K. Service area for type of service contracted?

L. Service area for PHV service?

M. Vehicle hours for type of service contracted?

N. Vehicle hours for PHV service?

O. Vehicle miles for type of service contracted?

P. Vehicle miles for PHV service?

Q. Accident or incident rate of service contracted?

R. Accident or incident rate of PHV service?

S. Average distance of type of service contracted trip?

T. Average distance of PHV trip?

U. Average cost of type of service contracted trip?

V. Average cost of PHV trip?

W. Fare and fare payment method for type of service contracted?

X. Fare and fare payment method for PHV service?

Y. What payment method is used between the transit agency and the PHV?

Some of the questions we will ask during the site visit:

What billing process and auditing measures are used?

Has drug testing of drivers and/or dispatchers been addressed, and if so, how?

What level of training is required for providing contract service?

Has insurance coverage been a factor, and if so, how has it been addressed?

What is the length of contract and what are the terms and conditions?

What are the benefits that you have seen in contracting with a private for-hire operator?

What have been some of the barriers in working with PHV operators?

What are some suggestions for improvements in the contractual relationship?

How do customer comments and complaints differ between PHV service and other service?

Does the PHV contractor participate in consumer advisory meetings or board meetings?

Thank you so much for your interest.
The results of the TCRP B-16 project: "The Role of Private-for-Hire Vehicle Industry in Public Transit" will be published upon completion and approval by the panel. Your contribution is a significant component in the ability to evaluate different contracting approaches to providing public transportation.

If you have any questions, please call _____ at the Institute for Transportation Research and Education (ITRE) at ___-___-____ or e-mail _____.
_____

APPENDIX C

DEFINITIONS

ADA Service—same as Paratransit Service except that it operates under authority of the transit operator.

Paratransit Service—a broad assortment of services that typically require advance requests and provide curb-to-curb service in vans or sedans. Some paratransit services are operated as general public dial-a-ride service and many others are operated to serve persons with disabilities, seniors, low-income persons, and clients of social service agencies.

Private-for-hire Vehicle—any vehicle operated by a private, for-profit company and included in any of the following definitions:

Ambulette—a vehicle used for nonemergency medical transportation.

Black Car or Premium Sedan or Executive Sedan—a premium sedan providing prearranged, on-demand service and usually paid for by corporate vouchers.

Car Service—identical to Livery.

Jitney—a vehicle operating on a fixed-route, nonscheduled basis.

Limousine—a luxury vehicle providing prearranged service to a party of one or more persons.

Livery—a taxi-like service operated on a prearranged basis.

Shuttle—a vehicle—usually a van—providing service to and from a fixed location, such as an airport, a shopping center, or a transit terminal.

Taxicab—a vehicle providing point-to-point, on-demand, passenger service.

APPENDIX D

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Abbreviations used without definitions in TRB publications:

AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ITE	Institute of Transportation Engineers
NCHRP	National Cooperative Highway Research Program
NCTRP	National Cooperative Transit Research and Development Program
NHTSA	National Highway Traffic Safety Administration
SAE	Society of Automotive Engineers
TCRP	Transit Cooperative Research Program
TRB	Transportation Research Board
U.S.DOT	United States Department of Transportation

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